
The Role of Race in Cancer Treatment and Survivorship
greensboro
health disparities
collaborative
UNC
UNC GREENSBORO
Department of Public Health Education
UNC

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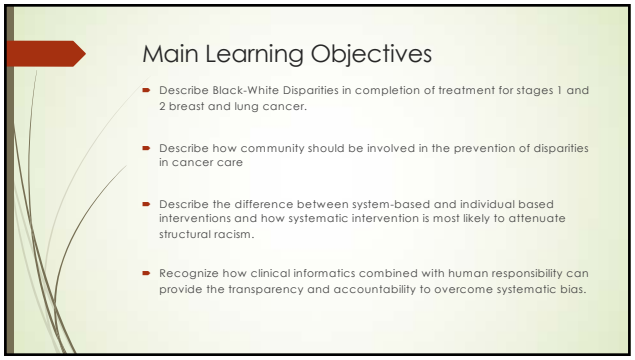
Main Learning Objectives
Describe Black-White Disparities in completion of treatment for stages 1 and 2 breast and lung cancer.
Describe how community should be involved in the prevention of disparities in cancer care
Describe the difference between system-based and individual based interventions and how systematic intervention is most likely to attenuate structural racism.
Recognize how clinical informatics combined with human responsibility can provide the transparency and accountability to overcome systematic bias.

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Describe Black-White Disparities in completion of treatment for stages 1 and 2 breast and lung cancer.
Objective 1

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U.S. Statistics per 100,000 Population

	Incidence	Mortality
Breast Cancer		
- AA women	121	33
- White women	121	22
Lung Cancer		
- AA men	78	66
- White men	68	56

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Silber et al. JAMA 2013;310:389

- Compare 7,375 Black women > 65 years old to 3 sets of matched White controls (N = 7,375)
- 5-yr survival: White patients 68.8%
  Black patients 55.9%
- Received Rx: White patients 91.8%
  Black patients 87.4%
- Anthracyclines or taxols: W 5.0%, B 3.7%
- Other RX with BCS: W 92.7% B 91.8%

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Hershman et al. (J Clin Oncol 2005;23:6639)

- 472 patients started adjuvant chemo:
  - White patients: 23% finished < 75% of cycles
  - Black patients: 31% finished < 75% of cycles
  - The 25% reduced completion for Black women was strongly associated with worse survival

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Bach et Al. Racial Differences In The Treatment Of Early Stage Lung Cancer. (N Engl J Med 1999;341:1198).

Race	Lung Cancer Surgery	5-year survival
Caucasian	77%*	34%*
African-American	64%	26%

*p < 0.001

44 excess deaths per **1000 lung cancer cases** due to decisions against surgery!

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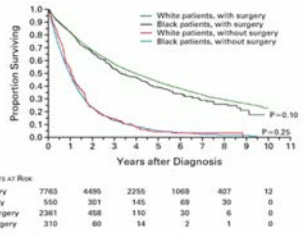
Survival of Medicare Beneficiaries 65 Years of Age or Older Who Were Given a Diagnosis of Stage I or II Non-Small-Cell Lung Cancer between 1985 and 1993, According to Treatment and Race



No. of Patients at Risk						
White, surgery	7763	4495	2255	1069	407	12
Black, surgery	550	301	145	69	30	0
White, no surgery	2361	458	110	30	6	0
Black, no surgery	310	60	14	2	1	0

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Prospective Cohort Study

Cykert, Dilworth-Anderson, McGuire et al.

Factors associated with decisions to undergo surgery among patients with newly diagnosed early stage lung cancer.

JAMA 2010; 303:2368-2376.

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4 Month Surgery Rates

- Tissue confirmed only (N = 339)

White	75%*
African-American	63%

*p = .03

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Regression Analysis - African Americans

- Predictors of Black patients to undergo lung cancer surgery

	Odds Ratio for Surgery (95%, CI)
- 2 or more comorbid illnesses (risk issue)	0.04 (0.01 – 0.25)
- no regular source of care	0.20 (0.10 – 0.43)
- lower perceptions of shared com.	0.27 (0.15 – 0.51)
- belief that QOL worse in 12 mos. w/surg.	0.43 (0.24 – 0.78)

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NC Statistics (2011-2015)

Deaths per 100,000 population

Lung Cancer	Non Hispanic-White (%)	Non-Hispanic Black (%)
All	50.3	48.2
Men Only	57.9	62.3* 83.2†
Breast Cancer		
Women Only	19.6	28.9

* All minorities
† ACS

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Poll Question

A 55 year old man has been diagnoses with stage IB lung cancer after presenting with a cough and a right lower lobe mass. His labs reveal a serum creatinine of 2.0. His PFT's show and FEV-1/ FVC ratio of 60%. Seven months ago he had a stent placed in a 90% LAD lesion and at the time a 50% RCA lesion was noted. He has no current chest pain or shortness of breath. He stopped smoking at the time of the stent procedure.

In terms o flung cancer treatment, he should have:

1) "cyberknife radiation"
2) A right lower lobectomy via thoroscopy
3) No treatment because of high risk

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-Describe how community should be involved in the solution
-Describe the difference between system-based and individual based interventions and how systematic intervention is most likely to attenuate structural racism.

Objective 2 -3

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Greensboro Health Disparities Collaborative

Our mission is to establish structures and processes that respond to, empower, and facilitate communities in defining and resolving issues related to disparities in health.

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GHDC's Anti-Racism Framework

- Social Economic Status alone does not explain racial inequity.
- **Racism** = Race Prejudice + Social and Institutional Power
- **Institutional racism** is a process of oppression, unconscious or not, functioning as a system of structuring opportunity and assigning value based on race, that unfairly disadvantages some, unfairly advantages others, and undermines the potential of the whole society.
- If Racism was created, then it can be undone.

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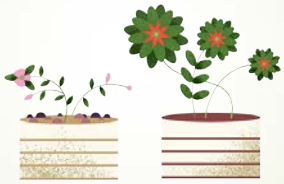
System-based vs. individual based interventions



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CBPR approach (video of Geni explaining CBPR)

- Recognizes the unique strengths each partner brings
- A collaborative and co-learning process
- Equitably involves all partners in the research process
  - Grant-writing
  - Participant recruitment
  - Data collection
  - Data analysis
  - Data interpretation & dissemination

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Development Process For Research

- Foundation in antiracist principles, and information gleaned from CCARES results forums
- Weekly phone calls with representatives from:
  - ✓ UNC-Chapel Hill (UNC-CH)
  - ✓ Cone Health Cancer Center (CHCC)
  - ✓ University of Pittsburgh Medical Center (UPMC)
  - ✓ The Partnership Project (TPP)/Greensboro Health Disparities Collaborative (GHDC)
- Addition of new partners: (1) new Co-PI; (2) 2nd research site
- Multiple writing committees working on specific sections
- Iterative drafts circulated among all members of the group

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Poll Question

Advantages of Community-Based Participatory Research include:

1. Rapid turnaround of projects
2. Top down solutions consistent with "gatekeeping"
3. Community input in proposal and budget planning
4. Academic planning of meeting agendas

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Recognize how clinical informatics combined with human responsibility can provide the transparency and accountability to overcome systematic bias.

Objective 4

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ACCURE: A System-Based Intervention To Address Disparities in Treatment of Early Stage Lung and Breast Cancer

Funded by National Cancer Institute - 5 R01 CA150980-04

Samuel Cykert, M.D., Eugenia Eng, Dr.P.H., Matthew A. Manning, M.D., Linda B. Robertson, Ph.D., Dwight E. Heron, M.D., Nora S. Jones, M.A., Jennifer C. Schaal, M.D., Alexandra Lightfoot, Ed.D., Haibo Zhou, Ph.D., Christina Yongue, M.P.H., Ziya Gizlice, Ph.D.

https://doi.org/10.1016/j.jnma.2019.03.001

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Background

- Black patients undergo surgery and other treatments for cancer less often than similar white patients
- Even when Black patients start chemotherapy, they finish therapy less often than white patients
- As a result, cancer death rates for Black patients are higher

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Study Design

- A 5-year study to examine the effect of a multifaceted intervention on disparities in treatment completion for Black patients with stages 1 and 2 lung and breast cancer compared to similar White patients.
- Our study was a pragmatic trial as assessed by the PRECIS-2 definition
  - community based
  - broad enrollment criteria,
  - treated by usual care providers in a typical cancer care setting
  - study tools and personnel that could easily fit routine clinic workflows.

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Interventions

(1) A real time warning system derived from electronic health records (EHRs)
- **missed appointments**
- **anticipated milestones in care not achieved**

(2) Feedback to clinical teams regarding completion of cancer treatment according to race

(3) Health equity education and training (HEET) covering concepts such as implicit bias and institutional racism

(4) The ACCURE navigator (AN) who was specially trained in particular barriers and beliefs that limit care for African-Americans and participated in anti-racism training

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Analysis

- Retrospective control group 2007-2012
- Concurrent control group (for secular trends) 2014-2015
- Within intervention group navigator comparison

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Analysis

- Primary Outcome = "**Treatment Complete**"

- Definitions

1) Lung Cancer
   a. Surgery or completed stereotactic radiation
   b. If chemo started then at least 3 completed cycles received

2) Breast Cancer
   a. Surgery must be done
   b. If breast conserving surgery, radiation must be started and
   c. If chemo started, chemo must be complete (at least 4 completed cycles)

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Statistical Analysis

- Treatment completion percentages were calculated for each study group by race.
- We controlled for comorbidity, median income, private insurance and marital status as possible confounders.
- Logistic regression analysis for treatment completion controlling for age, marital status, health insurance status, median household income according to zip code, and Charlson Comorbidity Score was performed to assess racial disparity in treatment completion between Black and White patients within and across study groups.

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Results: Unadjusted Rates For Treatment Complete (Percent)

Cohort	White	African-American
Baseline*	87.3	79.8
Intervention	89.5	88.4
2014-2015*	90.1	83.1

* For racial difference $p < 0.05$

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Results from Multivariate Logistic Regression Analyses of Treatment Completions.

	Multivariate Analysis Results				
Variable	Beta	Odds Ratio	Lower 95% C.I.	Upper 95% C.I	p-Value
Race and Study Group*					
Black-Intervention	-0.0976	**0.907**	**0.497**	**1.656**	**0.7508**
Black-Retrospective	-0.8150	**0.443**	**0.351**	**0.558**	**<.0001**
Black-Concurrent	-0.5358	**0.585**	**0.420**	**0.815**	**0.0015**
White-Intervention	-0.1009	0.904	0.555	1.472	0.6850
Black-Intervention†	0.3327	1.395	0.774	2.514	0.2683

*White concurrent cohort is the referent group.
†White retrospective cohort is the referent group.

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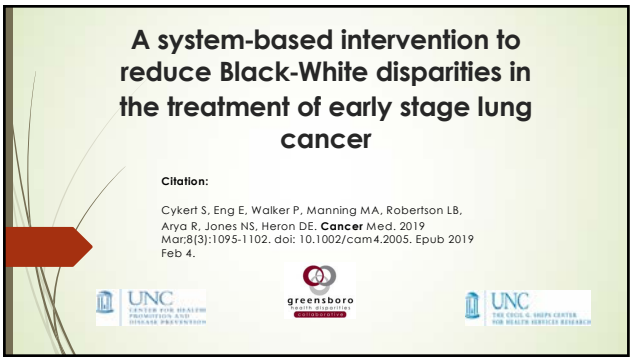
A system-based intervention to reduce Black-White disparities in the treatment of early stage lung cancer
Citation:
Cykert S, Eng E, Walker P, Manning MA, Robertson LB, Arya R, Jones NS, Heron DE. Cancer Med. 2019 Mar;8(3):1095-1102. doi: 10.1002/cam4.2005. Epub 2019 Feb 4.
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Sponsors
American Cancer Society
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National Cancer Institute
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Background – Treatment Recommendations

- Stages I and II non-small cell lung cancer fatal within 4 years if left untreated
- 2020 NCCN guidelines still designate lung resection surgery as the gold standard treatment
- Stereotactic radiation (e.g. "cyberknife") deemed acceptable for:
  - individuals with surgical contraindications
  - short life expectancy, or
  - **strong** personal preferences against surgical care

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Five Participating Cancer Centers

- Lineberger Cancer Center, The University of North Carolina
- Leo Jenkins Cancer Center, East Carolina University and the Vidant Health System
- Palmetto Health Cancer Center affiliated with the University of South Carolina SOM
- UPMC Hillman Cancer Center, the University of Pittsburgh School of Medicine
- Cone Health Cancer Center

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System-Based Interventions

(1) A real time warning system derived from electronic health records (Real Time Transparency)
- **missed appointments**
- **anticipated milestones in care not achieved**

(2) Feedback to clinical teams regarding completion of cancer treatment according to race (Accountability)

(3) The ACCURE navigator (AN) who was specially trained in particular barriers and beliefs that limit care for African-Americans and participated in anti-racism training (Enhanced Communication)

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Who Is Eligible for the Intervention Group?

- All lung cancer patients with Stage 1 and 2 disease, aged 18 – 85 years
- Exclusions: pregnant, non-English speaking, cognitive impairment

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Comparison Groups

- Retrospective control group 2007-2012
  (all 5 centers)
- Concurrent control group (for secular trends)
  2014-2015
  (2 centers)

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RESULTS

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Results

- Rate of Lung Cancer Surgery
  - Retrospective Group 61.7%
  - Intervention Group 75.6%
  - Concurrent Group 50.0%
  - $p < 0.001$
- Rate of Surgery or Radiation for Cure
  - Retrospective Group 76.4%
  - Intervention Group 95.6%
  - Concurrent Group 83.0%
  - $p < 0.001$

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Results

- All models examining treatment according to race control for age, gender, comorbid illness, income, clinical stage, and site
- In the within group analyses for the retrospective and concurrent groups higher age (especially age > 73 years), Charlson score, and clinical stage II, are associated with less surgery
- For the outcome of surgery or radiation for cure advanced age is the major association with having neither treatment

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Results – Within Group Comparisons: Retrospective Control Only

- Rate of Lung Cancer Surgery or Radiation for Cure (unadjusted)
  - Black Patients 69.0
  - White Patients 77.8
  - $p < 0.001$
- Odds Ratio (95% CI) of **Black Patients Undergoing Lung Cancer Surgery or Radiation for Cure** controlling for age, Charlson Score, gender, income, clinical stage and study site:
  - OR 0.66 (0.51 – 0.85)
  - $p = 0.001$

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Results – Within Group Comparisons: Intervention Only

- Rate of Lung Cancer Surgery or Radiation for Cure (unadjusted)
  - Black Patients 96.5
  - White Patients 95.1

  p = 0.56
- Odds Ratio (95% CI) of **Black Patients Undergoing Lung Cancer Surgery or Radiation for Cure** controlling for age, Charlson Score, gender, income, clinical stage and study site:
  - OR 2.05 (0.41 – 10.4)

  p = 0.39

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Results – Between Group Comparisons Using Combined Variables for Race*Study Group: Referent Group – White Retrospective

- Odds Ratio (95% CI) for **Patients Undergoing Lung Cancer Surgery or Radiation for Cure** controlling for age, Charlson Score, gender, income, clinical stage, and study site:
  - **Black Retrospective Group** **OR 0.66 (0.51, 0.85) p = 0.002**
  - Black Intervention Group OR 11.8 (2.9, 49.2) p = 0.001
  - White Intervention Group OR 5.78 (3.0, 11.2) p < 0.001

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Results – Between Group Comparisons Using Combined Variables for Race*Study Group: Referent Group – White Intervention

- Odds Ratio (95% CI) for **Patients Undergoing Lung Cancer Surgery or Radiation for Cure** controlling for age, Charlson Score, gender, income, clinical stage, and study site:
  - **Black Intervention Group** **OR 2.1 (0.43, 9.7) p = 0.36**

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Results – Between Group Comparisons Using Combined Variables for Race*Study Group: Referent Group – White Concurrent

- Odds Ratio (95% CI) for **Patients Undergoing Lung Cancer Surgery or Radiation for Cure** controlling for age, Charlson Score, gender, income, clinical stage, and study site:

  - Black Intervention Group OR 5.6 (1.9, 16) p = 0.002

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Conclusions

- Lung cancer treatment disparities in early stage disease have been demonstrated for 3 decades
- The combination of a real time warning system that tracks patient appointments and milestones in care coupled with race-specific feedback and a navigator who is aware of race-specific barriers seems to improve definitive (surgery or XRT) treatment for everyone, and
- This multimodal intervention appears to improve the use and reduce racial differences in lung cancer surgery
- This approach has now been tested in 5 geographically disparate cancer centers

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Poll Question

A 65 year old Black man presents to the ED with a productive cough and has a 3 cm left upper lobe mass that is irregular and non-calcified on CXR then verified on Chest CT scan. He has a 40 pack year smoking history. He is treated for bronchitis and is scheduled for a visit with a local pulmonologist. He doesn't come to the visit. (**Thankfully he's in a registry that informs you of this situation**). On a follow-up phone call, He says his cough is gone and he believes that prayer has cured him. On a second follow-up call, he states the same. Next steps should include:

1) The patient has his beliefs. Leave him alone.
2) Ask if you can meet with him with his family and / or a significant other to discuss the situation.
3) Contact his PCP of other healthcare worker that he trusts to further the discussion.

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Identify methods for managing these interventions and sustaining the community accountability

Objective 5

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Navigating Pre-Award for ACCURE

1. **Community:** Host a Planning Retreat
2. **Academic:** Explain Long-term the vision
3. **Medical:** Recognize opportunities

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Post-Award for ACCURE (Immediate Actions)

- Submitted an IRB Modification
- Formed a press release development committee with the GHDC members.
- All new staff attended a Racial Equity Training, IRB-Training on Ethics of Conducting Human Research
- Conducted baseline interviews with breast and lung cancer survivors.

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Post-Award for ACCURE (Project Management)

- Established our money management plan, which involved respect for the budget capacity of the community partner.
- Our Steering Committee met every week to go over work plans
- Our GHDC continued to meet monthly for community accountability
- Building capacity

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Survivorship Efforts

- CHAMPS and SHARE – Cleo Samuel PhD focusing on access to care and patient reported symptoms and outcomes
- Black patients and the execution of formal survivorship plans

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Conclusion

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A Moral to the Story

- To remedy systematic (institutional-level) bias:
  1) **Work with affected communities to determine appropriate outcome measures and measure according to race (or other disadvantaged group)**
  2) **MUST MEASURE OUTCOMES ACCORDING TO RACE (OR OTHER DISADVANTAGED POPULATION)**
  3) **APPLY INTERVENTIONS (in real time) THAT INCLUDE TRANSPARENCY AND ACCOUNTABILITY AND EXCELLENT COMMUNICATION**
  4) **MEASURE AGAIN, ITERATE, MEASURE AGAIN….**

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Next Steps

Apply	Spread	Expand	Advocate
Apply to an entire cancer center population	Spread to cancers that require more treatment modalities and steps	Expand to more chronic treatments (e.g. anti-estrogen therapy in breast cancer, chronic disease management other than cancer)	Advocate for institutional changes to eliminate impacts of racism in other ways (e.g., organize racial equity & cultural humility trainings)

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