AN INFORMATICS INTERVENTION TO ACHIEVE EQUITY IN THE CANCER CARE SYSTEM

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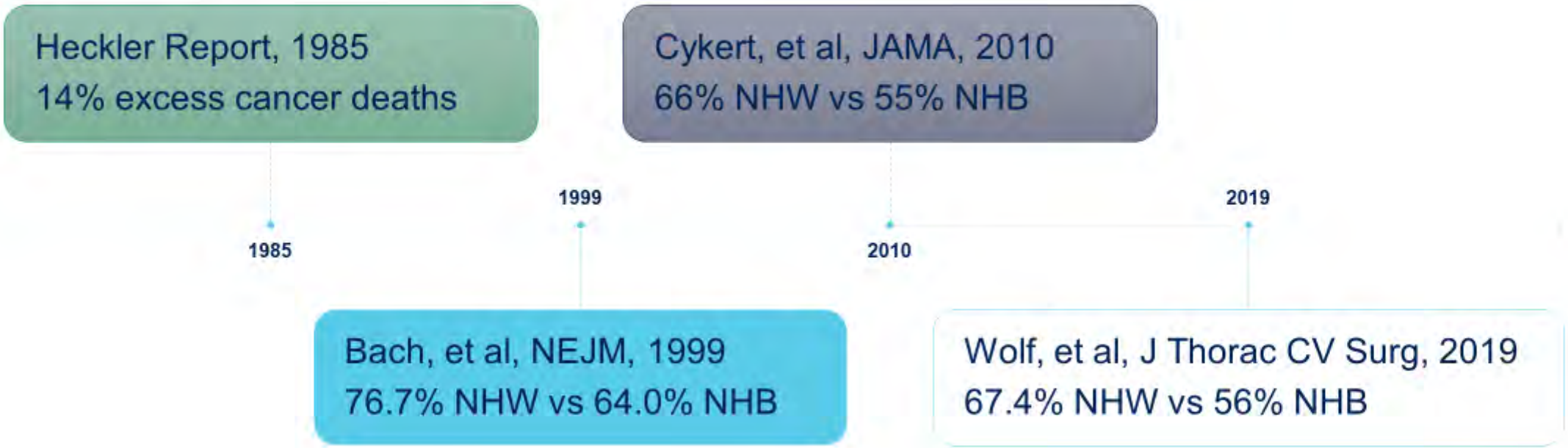
DISCLOSURE

- No financial conflicts to disclose

THE PROBLEM

Racial disparities in lung cancer surgery are well described and have been persistent for 20+ years



FACTORS ASSOCIATED WITH DECISIONS TO UNDERGO SURGERY AMONG PATIENTS WITH NEWLY DIAGNOSED EARLY STAGE LUNG CANCER.

CYKERT S, DILWORTH-ANDERSON P, WALKER P ET AL. JAMA 2010; 303:2368-2376.

- Surgery within 4 months of diagnosis

Tissue confirmed only (N = 339)

Caucasian	75%*
African-American	63%

*p = .03

FACTORS CONTRIBUTING TO TREATMENT DISPARITIES

- Uneven interpretation of comorbid illnesses (**implicit bias**) – non-African American physicians were not willing to perform risky procedures on patients with whom they felt less comfortable

- **Poor** perceptions of **communication** – AA patients were less apt to go to surgery if they rated shared communication more poorly

- AA patients who lacked a regular source of care were markedly less likely to go to surgery

SOLUTIONS

COMMUNITY INPUT

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.

THE COMMUNITY ANALYSIS

- The solution must be system-level and include:
  - transparency (in real time that can effect treatment)
  - accountability
  - enhanced communication

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.

UNC CENTER FOR HEALTH PROMOTION AND DISEASE PREVENTION

greensboro health disparities collaborative

UNC THE CECIL G. SHEPS CENTER FOR HEALTH SERVICES RESEARCH

FIVE PARTICIPATING 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

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

SYSTEM-LEVEL 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)

ANALYSIS

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

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)

  $p = 0.001$

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

RESULTS – BETWEEN GROUP COMPARISONS

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**

RESULTS – BETWEEN GROUP COMPARISONS

REFERENT GROUP – WHITE CONCURRENT

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

- Black Intervention Group OR 2.6 (1.6, 4.3) p < 0.001

A MORAL TO THE STORY

- To remedy systematic, institutional-level racism:
  1) **WORK WITH AFFECTED COMMUNITIES TO DETERMINE APPROPRIATE OUTCOME MEASURES**
  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….**

HOW MIGHT AI FIT IN?

- Entering patients into the real time registry

  - every abnormal CT would be overwhelming

  - only including patients who make it to the multi-disciplinary thoracic oncology conference isn't inclusive enough

- Identifying patients most likely to benefit from comprehensive, pro-active, racially-sensitive navigation

- Fine tuning the gray areas of co-morbid illness

Achieving True Health Equity – The Three Legged Stool

The Medical System

The Physiology of Racism