APSHO AP Academy
Healthcare Disparities in Lung Cancer

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Disclosures

- Kristen O’Hagan has no relevant financial relationships to disclose
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Learning Objectives

• Articulate the impact of lung cancer health disparity in various populations
• Identify the disparities in lung cancer in screening, diagnosis, and treatment
• Describe the advanced practitioner role in lung cancer screening and the impact on racial and ethnic survival disparities
Outline

• Overall incidence
• Outcomes by race
• Disparities
• Current and future direction
• Role of the AP
Lung Cancer Facts and Incidence

- Leading cancer killer in men and women in the United States – accounts for 1 in 5 cancer deaths
- Third most common cancer diagnosis in the United States in 2023, behind breast and prostate cancer
- Represents approximately 13% of all cancer diagnoses in the United States
- Overall incidence and mortality has been decreasing
- Survival rates are higher in women (differences in subtype, genetic mutations)

Outcomes by Race

- Incidence highest in black men
- Mortality highest among both Black men and American Indian and Alaska Native individuals
- Black individuals are diagnosed at younger age and with more advanced stage disease
- Asian American and Pacific Islander and Hispanic individuals' incidence is lower than other groups – historically due to lower smoking prevalence

Variables Linked to Disparities

- Risk factors
- Screening
- Genetic testing and mutation rates
- Treatment
- Clinical trials

Lung Cancer Risk Factors

• Smoking
• Environment
  • Radon
  • Asbestos
  • Other chemicals (uranium, arsenic, beryllium, etc)
  • Air pollution
• Socioeconomic status
• Personal/family history
Smoking

• More men smoke than women
• American Indian and Alaskan Natives have the highest smoking rates
• Asian Americans and non-Hispanic Americans have lowest smoking rates
• Socioeconomic and educational status are linked to smoking prevalence
  • In 2021, with regards to cigarette smoking, 3% of people with a graduate degree report smoking vs 31% of people with a GED

E-Cigarettes/Vaping

- Battery operated devices that heat a liquid containing nicotine, among other substances, producing an aerosol that the user inhales
- Do e-cigarettes cause cancer?
  - Limited data due to the newness of e-cigarettes, estimating a lag time in data similar to cigarette smoking (20 years)
  - In vitro data demonstrates cytotoxic activity of the chemicals inhaled: nicotine and the by products (hydrocarbons, heavy metals, aldehydes)

Smoking Cessation Disparities

- Black individuals are less likely to:
  - Receive smoking cessation from a provider than White individuals
  - Use prescription medications to assist quitting, compared to White individuals

Socioeconomic Status (SES)

- People with lower SES:
  - Are at greater risk of lung cancer
  - Are more likely to be diagnosed with advanced disease
  - Lack access to high-quality care
- SES disparity reflects differences in smoking preferences

Environment

• Radon exposure – second leading cause of lung cancer in the United States
• Asbestos
• Air pollution increased in urban and industrial areas
Lung Cancer Screening: Background

• The National Lung Screening Trial (NLST) in the United States and the NELSON trial in Europe both demonstrated benefits and reduction of lung cancer deaths with low-dose CT scan
• However, neither trial had significant racial or socioeconomic diversity among its participants

Lung Cancer Screening

- Early detection, by low-dose CT screening, can decrease lung cancer mortality by 14% to 20% among high-risk populations
- Smoking is most important risk factor for lung cancer
- Screening guidelines from US Preventative Services Task Force (USPSTF) were revised in 2021
  - Age range expanded from 50-80 years and reduced from 30 to 20 pack years to capture more at-risk people
- USPSTF updated Lung Cancer Screening guidelines recommend annual screenings for adults age 50–80 who are:
  - Current smokers with a 20 pack-year smoking history OR
  - Former heavy smokers who have quit within the past 15 years

Disparities in Screening

- The greatest disparity in lung cancer screening is **race**
- Black patients have a lower chance of receiving a screening with low-dose CT scan compared to White patients
- White patients had statistically higher rates of follow-up after positive screening tests compared with Black patients

Screening: Disparities From Start to End

• Eligibility
  • Black smokers are less likely to meet eligibility requirements for screening than White smokers
  • Increased income associated with increased screening

• Utilization
  • Of lung cancer screening eligible patients, there were race-based differences in utilization
  • Eligible Black individuals are less likely to participate than White individuals

• Post-Screening
  • Smoking cessation is not predicted by race/ethnicity
  • Black patients are less likely to receive guideline-concordant care (GCC) after diagnosis

Disparities in Lung Cancer Treatment

- Surgery
- Radiation
- Immunotherapy
- Chemotherapy
Disparities in Treatment: GCC

- Adherence to GCC is lower in older patients and in non-Hispanic Black patients, highest in Non-Hispanic Asians\[^1\]
- Black men had 20% lower surgery rates; White women and Black Women underwent surgery at rates comparable to White men\[^2\]
- Lower use of immunotherapy treatment in Black patients and those who have public insurance\[^3\]

GCC for Lung Cancer: Who’s Not Getting It?

- Elderly patients
- Non-Hispanic Black patients less likely to receive GCC
- Hispanic patients less likely to receive GCC but are more likely than Black patients to have surgery

Genomic Testing/Mutations

- Molecular genetic variants in non–small cell lung cancer determine eligibility for targeted therapies
- Targeted therapies are associated with improved survival and considered first-line treatment
- Testing for molecular genetic variants is not being done equally for all patients

Targeted Therapy in Lung Cancer

• NCCN (Category 1) guideline that molecular testing be done for Lung cancer
• Clinical use of targeted kinase drugs has yet to improve survival in populations who are candidates for these drugs
• Immunotherapy is a standard component of first-line treatment
Disparities in Genetic Testing/Mutations

• Hospitals in higher income areas are more likely to order genetic testing[1]
• Genomic testing is more likely to occur in men and White patients than in women and non-White patients[1,2]
• Black individuals receive lower rates of genetic testing[1,2]

• Disparities in molecular testing translate into poorer outcomes due to underutilization of targeted therapies that improve survival[3]
• Disparities in molecular testing also equate to disparities in clinical trial participation; those with molecular testing were more likely to participate in a clinical trial[1]

Genetic Mutational Differences

- *EGFR* mutation is the most common mutation in Black patients but occurs less than it does among White or Asian patients
- Black patients appear to have less targetable genetic mutations when tested, which means disproportional decreased eligibility for present targeted therapies
- Call for studies to evaluate biological and genetic differences between all populations

Disparities in Surgery

- Poor, rural, and underinsured patients with lung cancer experience significant treatment-based disparities.
- Robotic lobectomy access disparities exist for patients with lung cancer based on neighborhood-level income, rural location, and insurance.
- Patients with lung cancer who are uninsured and who have Medicaid have lower odds of receiving curative operations.
- Black patients had higher rates of robotic lobectomies vs open and Hispanic patients had higher rates of robotic lobectomies vs open or video-assisted thoracoscopic surgery lobectomies, indicating there is no racial disparity in robotic lung cancer resection.

Disparities in Clinical Trials for Lung Cancer

- Global problem – not just in lung cancer
- Black patients make up 5% of cancer clinical trial enrollment when compared to 13% of the population[1]
- There is conflicting data as to whether Black patients have inferior treatment response or more severe toxicity after platinum-based chemo, due to underrepresentation in studies[2]
- We're just beginning to understand that the frequency of mutations differs among racial groups

Future

• Call to action for new and better strategies and plans that ensure equal representation of patients
• Engage all patients earlier in screening and smoking cessation; new guidelines for screening help to do this, as well as electronic medical record (EMR) that prompts screening
• Policy changes to ensure molecular testing should apply to all with appropriate diagnoses
• Ensure equal representation in research at all levels
• Research needs to be focused on the Black population to evaluate specific tumor characteristics, molecular genetic makeup, and response to therapy
Examples of Efforts to Decrease Disparities in Lung Cancer

• Multipronged approaches including real-time warning from EMR, nurse navigators, and feedback to team on completion rates for Black and White patients

• Rapid outpatient diagnostic programs
Example of Rapid Outpatient Diagnostic Program

- Academic health system in Ohio
- Captures patients from point of referral from primary care
- Expedites appointments based on a pulmonologist review of the referral within 24 hours
  - Review included referral for additional testing and expedited appointments
- RN coordinator empowered to connect with patients, guide, assure, and schedule
- Review of the data with interrupted time series analysis after 2 years, racial disparities in completed referrals were no longer evident, and timely evaluation by pulmonologist and full testing were accomplished for all patients

What Can APs do?

• Learn about disparities and acknowledge they exist
• Address our own biases – look inward first
• Advocate for lung cancer screening—in communities that need it—telehealth for shared decision making, and smoking cessation
• Work on building diversity into trials and building trust with our patients
Summary of Key Points

- Lung cancer is the leading cancer killer among both men and women
- Incidence is highest among Black men
- Disparities exist in screening, genetic/molecular testing, and in treatment
- Innovation, education, research, and collaboration are needed to overcome disparities
Thank you!

You may now proceed to the post-test questions
Pre-Post questions #1

What race, ethnicity, and sex have the highest lung cancer mortality?
A. Non-Hispanic White men
B. Non-Hispanic Asian men
C. **Non-Hispanic Black men**
D. Hispanic females
Pre/Post Test Question #2

Which of the following statements about molecular testing of lung cancer is **false**?

A. Asian American and Pacific Islander descent is associated with the highest molecular testing rates

B. **Black individuals undergo genetic testing at higher rates than White individuals**

C. Black individuals as a broad group are found to have the most actionable genetic mutations in non–small cell lung cancer

D. Individuals with private insurance and who live in an urban/metropolitan area are more likely to receive molecular testing
Pre/Post Test Question # 3

True or false? Advanced practitioners should only recommend lung cancer screening for eligible patients who inquire about low-dose CT scans.

True

False