

The Epidemiology of Lung Cancer: What We Know and How We Can Do Better

Cancer Prevention and Control

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RISK FACTORS

Risk Factors for Lung Cancer

- Smoking
- Secondhand smoke
- Radon
- Other environmental substances
- Personal or family history of lung cancer
- Prior radiation to chest wall



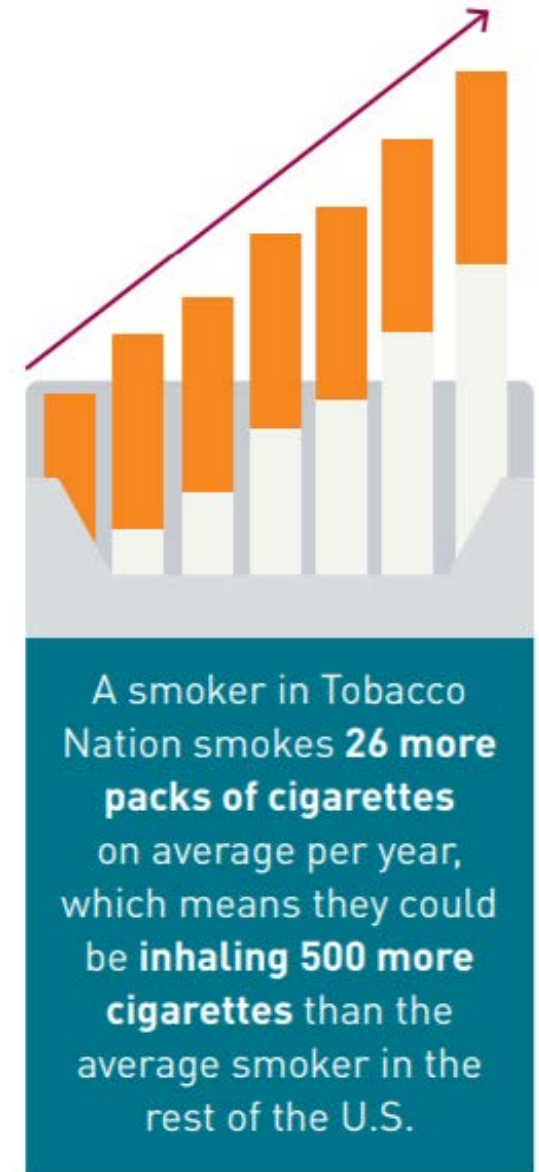
Tobacco Nation



CIGARETTE
PACKS ON
AVERAGE ARE

19%

CHEAPER
IN TOBACCO
NATION



Resource: Tobacco Nation The Deadly State of Smoking Disparity in the United States

One out of Five People with Lung Cancer Never Smoked

All you need is lungs.



Life changes in a breath.

Lung Cancer Statistics

Lung Cancer in the United States

Lung and bronchus cancer represents 13.2% of all new cancer cases in the U.S.

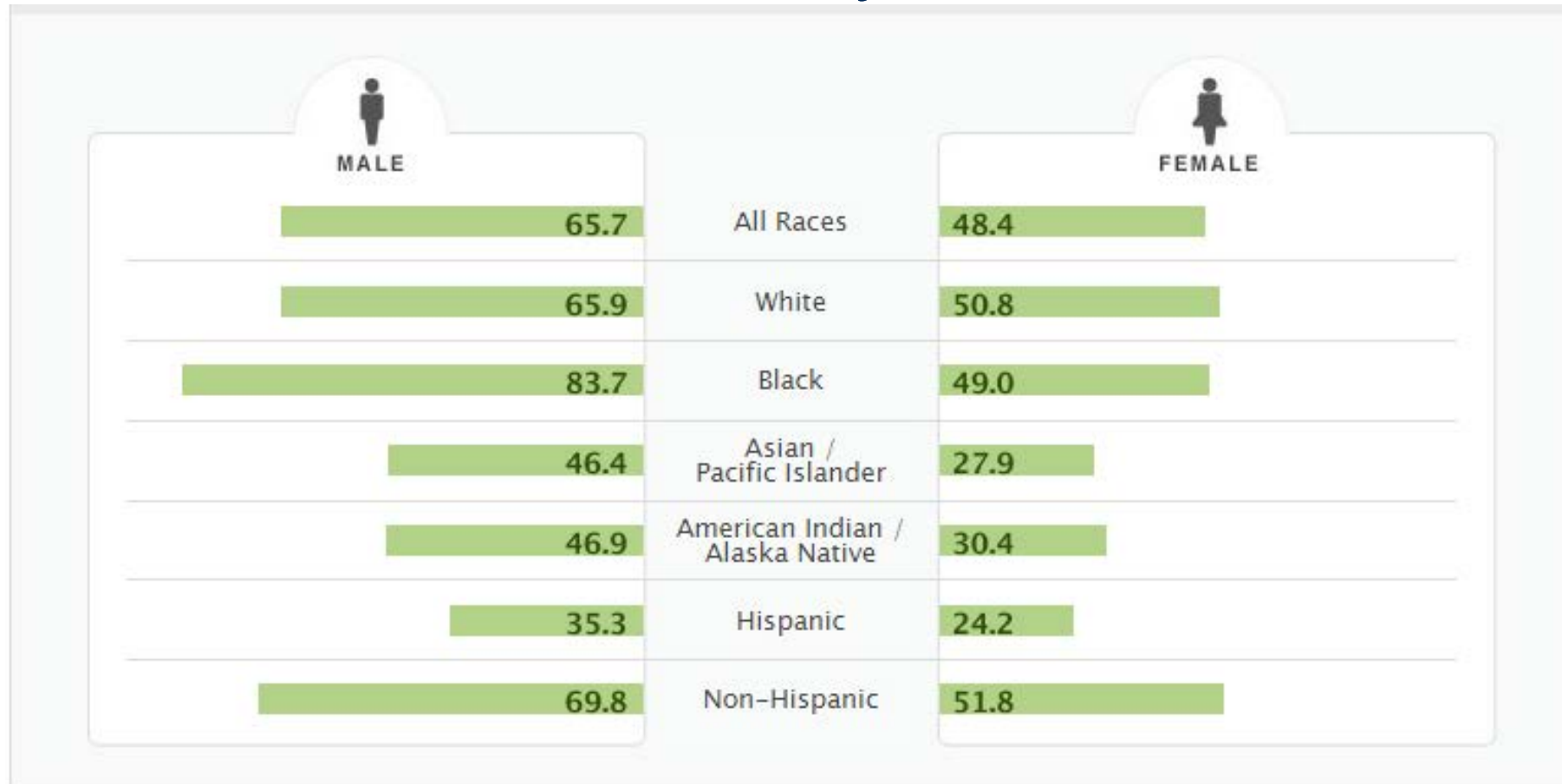


Estimated Number of Newly Diagnosed Lung Cancer Cases per Year:

222,500

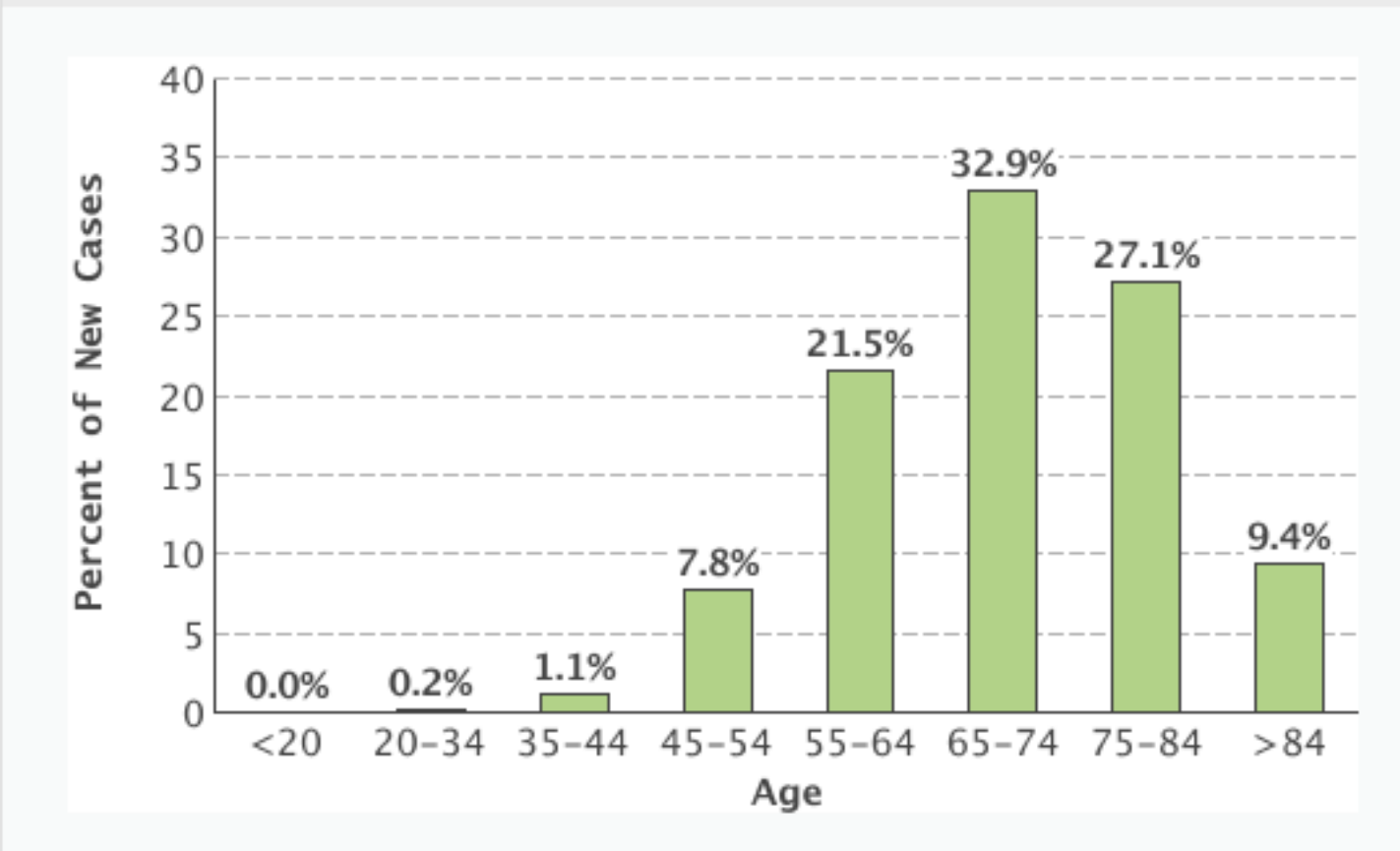
SEER 18 2010–2014, All Races, Both Sexes

Number of New Cases per 100,000 by Race/Ethnicity & Sex



SEER 18 2010-2014, Age-adjusted

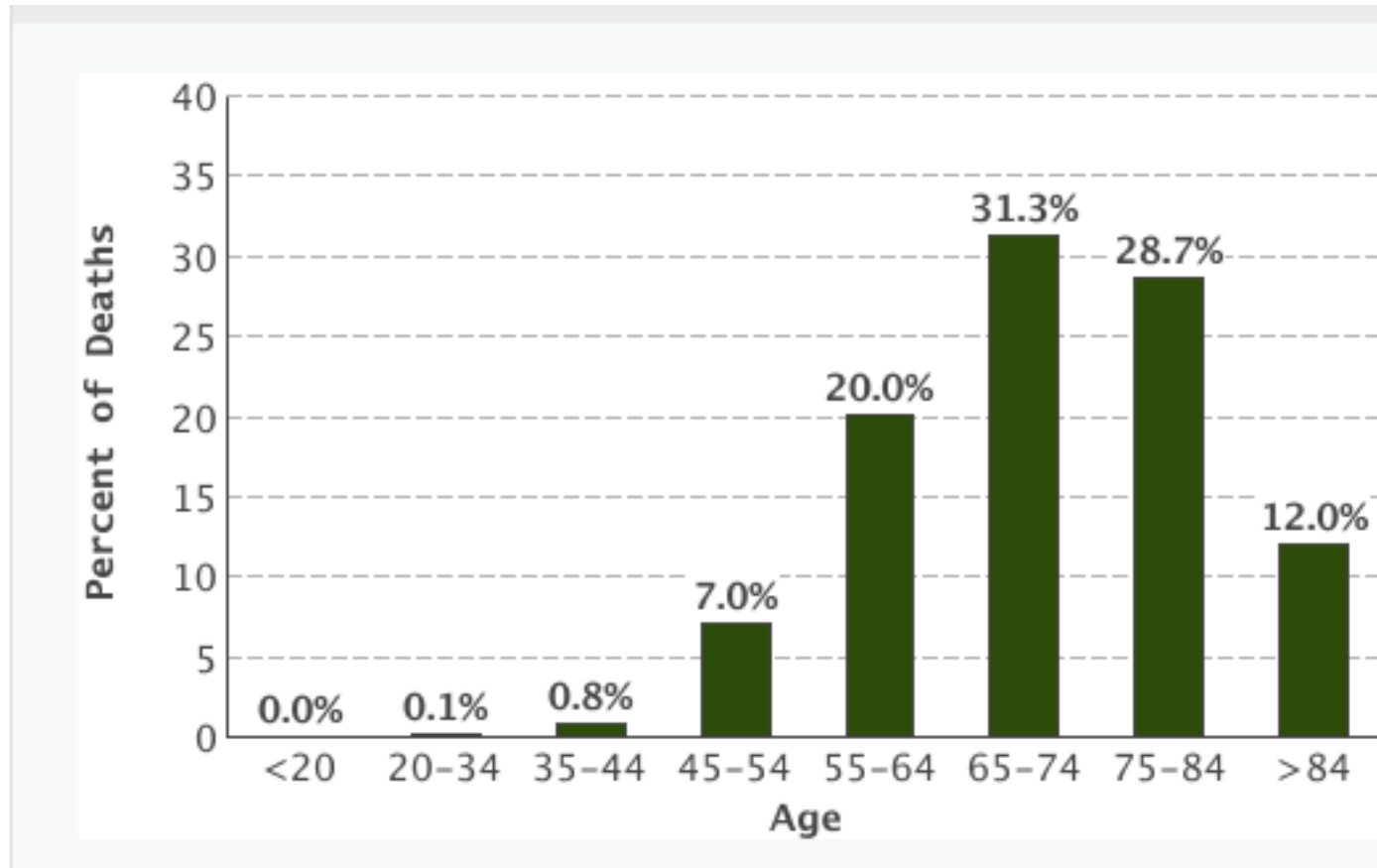
Percent of New Lung Cancer Cases in US by Age



**Median Age
At Diagnosis**
70

SEER 18 2010-2014, All Races, Both Sexes

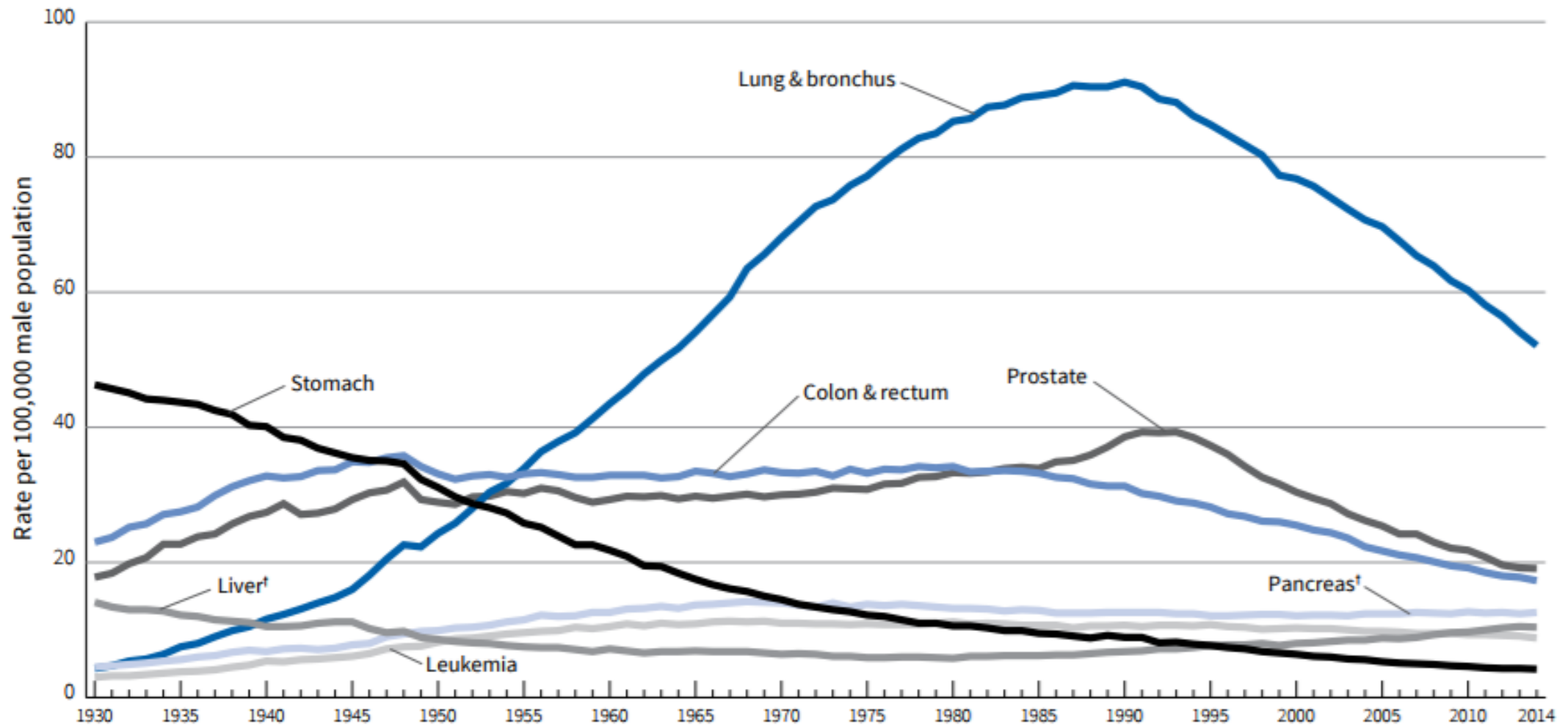
Percent of Lung Cancer Deaths in US by Age



Median Age At Death
72

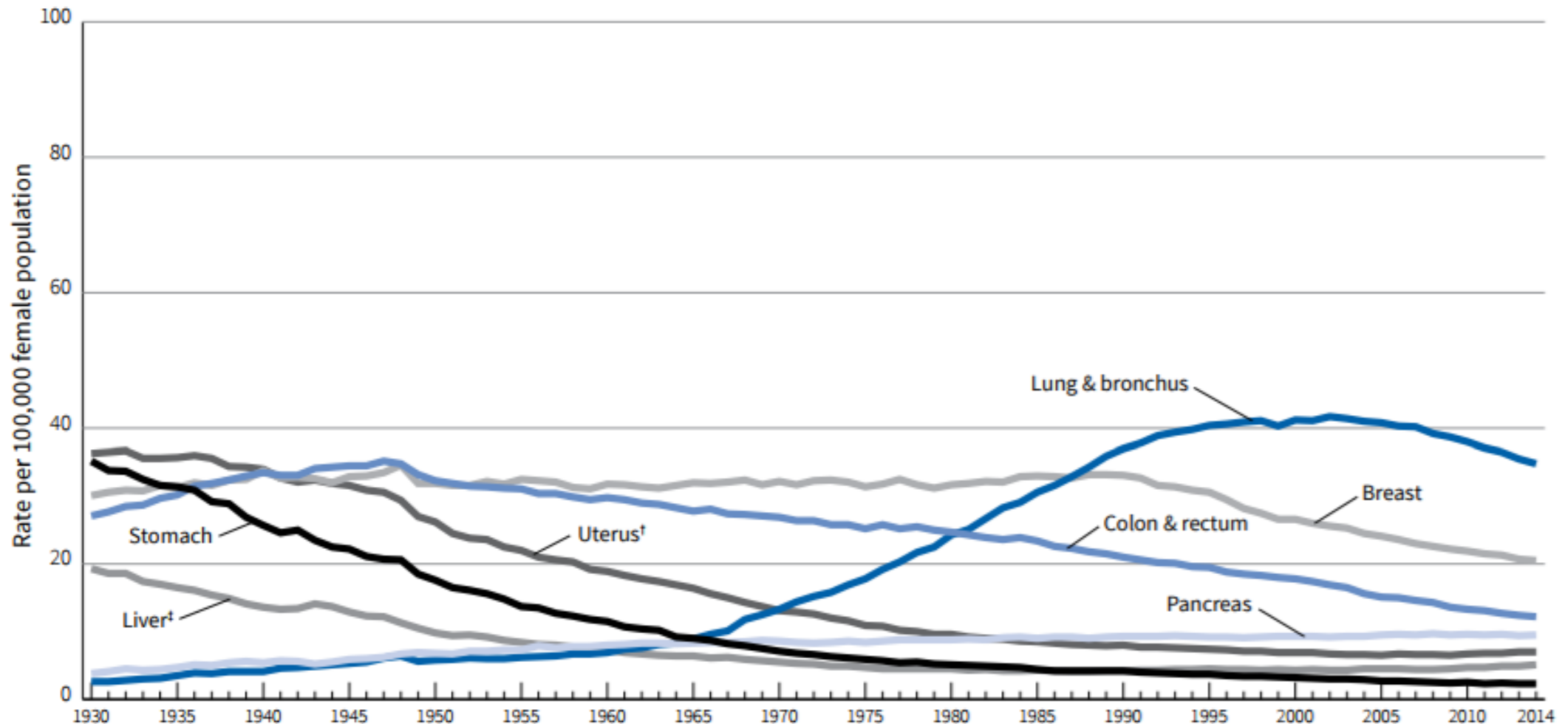
US 2010-2014, All Races, Both Sexes

Trends in Age-Adjusted Death Rates, by Site, Males, US, 1930-2014



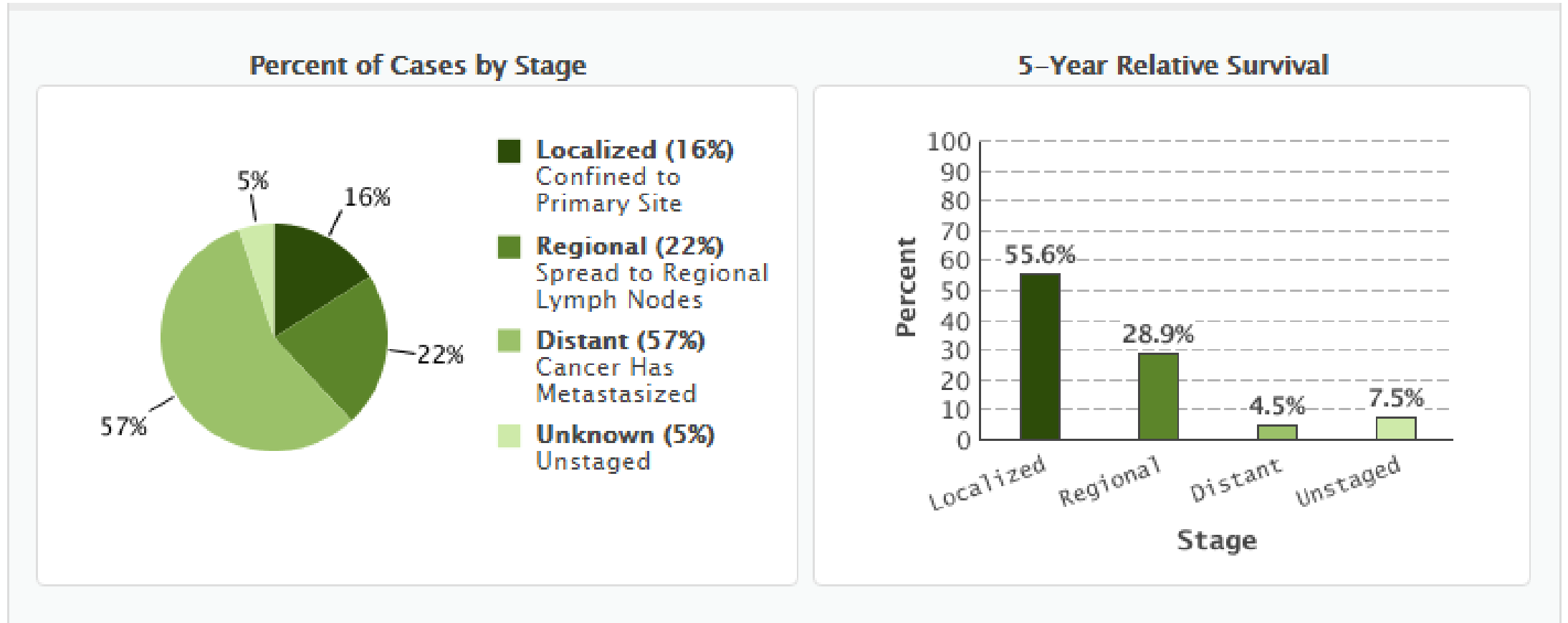
Resource: ACS Facts and Figures 2017

Trends in Age-Adjusted Death Rates, by Site, Females, US, 1930-2014



Resource: ACS Facts and Figures 2017

5 Year Relative Survival by Stage at Diagnosis



Based on data from SEER 18 2007-2013, Both Sexes by Seer Summary Stage 2000.

5 Year Relative Survival Rate



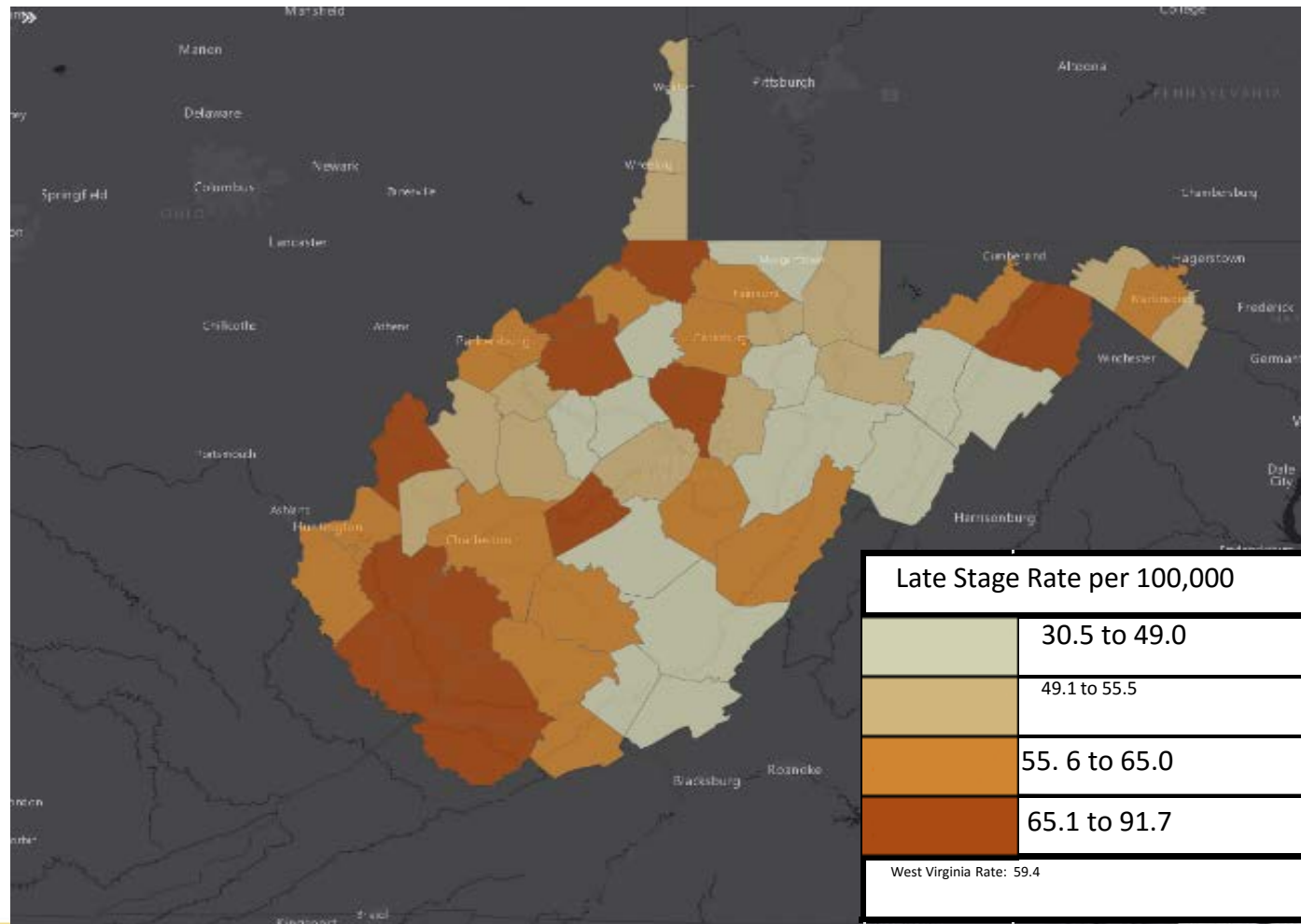
Gray figures represent those who have died from lung and bronchus cancer. Green figures represent those who have survived 5 years or more.

Based on data from SEER 18 2007–2013.

Lung Cancer in WV

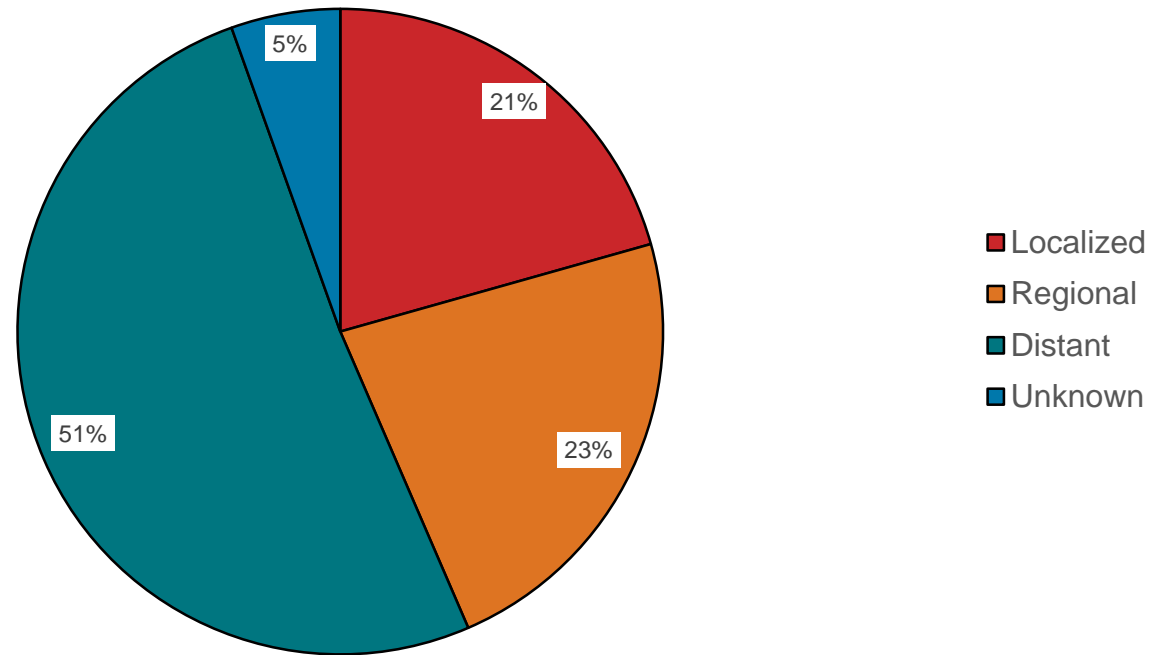
- Each year approximately 2,003 people are diagnosed with lung cancer
- Accounts for 18% of all new cancers
- Lung cancer is the second most common cancer in both men and women
- Leading cause of cancer related deaths
- Each year 1,460 die of lung cancer
- More people die of lung cancer than colorectal, prostate, and breast cancer combined
- Between 24 and 27% of WV adults smoke

Average Annual Age-Adjusted Late Stage Lung Cancer Incidence Rates by County, West Virginia, 2009 - 2013



Source: WV Cancer Registry, 2016

Percentage of Lung Cancer Cases by Stage at Diagnosis, West Virginia, 2010-2014



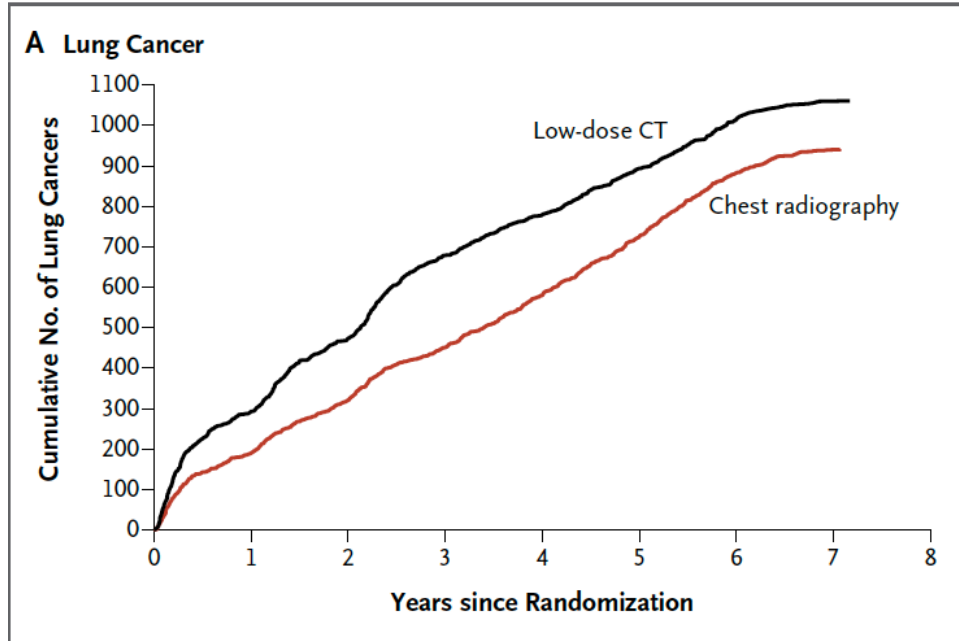
Source: WV Cancer Registry, 2017

LUNG CANCER SCREENING

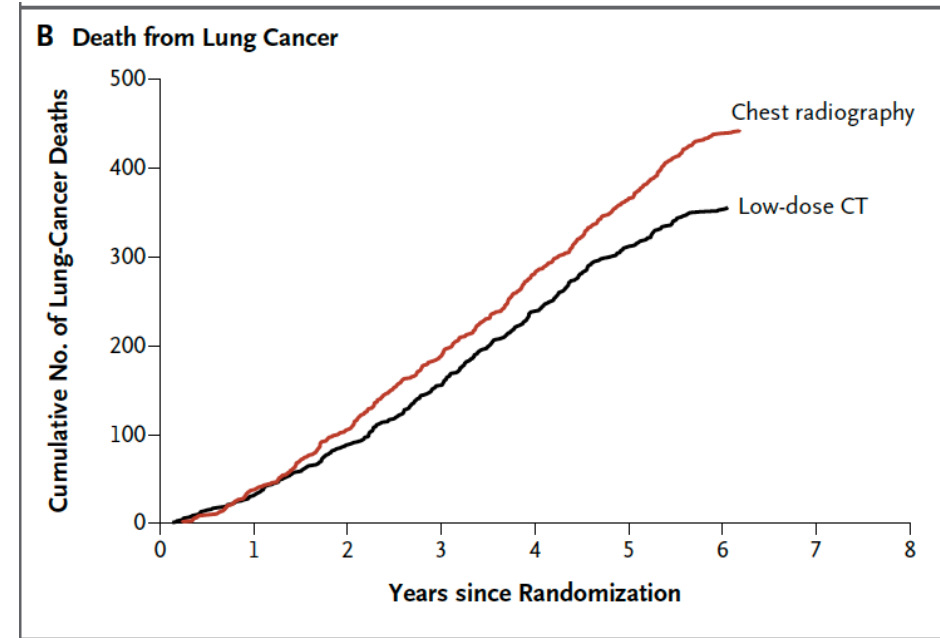
National Lung Screening Trial

- NLST
- Lung cancer screening research trial sponsored by National Cancer Institute
- Conducted to determine if screening with low-dose CT could reduce mortality from lung cancer.
- Prior to this trial, chest x-rays were used for screening symptomatic individuals.

Results of National Lung Screening Trial



20% reduction in lung cancer-specific mortality w/ LDCT



6.7% reduction in overall mortality with LDCT

Current Lung Cancer Screening Guidelines

Organization	Groups eligible for Screening
American Academy of Family Physicians	<ul style="list-style-type: none"> Evidence is insufficient to recommend for or against screening.
American Association for Thoracic Surgery	<ul style="list-style-type: none"> Age 55 to 79 years with ≥ 30 pack year smoking history. Long-term lung cancer survivors who have completed 4 years of surveillance without recurrence Age 50 to 79 years with a 20 pack year smoking history and additional comorbidity
American Cancer Society	<ul style="list-style-type: none"> Age 55 to 74 years with ≥ 30 pack year smoking history Currently smoke or have quit within the past 15 years Who are in relatively good health
American Lung Association	<ul style="list-style-type: none"> Age 55 to 74 years with ≥ 30 pack year smoking history and no history of lung cancer
American College of Chest Physicians	<ul style="list-style-type: none"> Age 55 to 74 years with ≥ 30 pack year smoking history, who either currently smoke or have quit within the past 15 years
National Comprehensive Cancer Network	<ul style="list-style-type: none"> Age 55 to 74 years with ≥ 30 pack year smoking history and smoking cessation < 15 years Age ≥ 50 years and ≥ 20 pack year smoking history and 1 additional risk factor

Lung Cancer Screening: Low Dose Computed Tomography (CT)

- The bottom line...
- Yearly CT (low-dose) is recommended for people who:
 - Are age 55 to 80, and
 - Have a 30 pack-year* smoking history, and
 - Are either current smokers or smokers who quit in the past 15 years.
- Now exactly what is a pack year?
 - pack-year = packs a day x number of years smoking
 - (ex: 2 packs a day x 15 years = 30 pack-year smoking history)

Requirements for Lung Cancer Screening

- Shared decision making
- Smoking cessation
 - Decreases risk of lung cancer and other smoking related illnesses
 - Increases cost effectiveness of screening
 - Right thing to do

STAGE 1



IF DETECTED AT

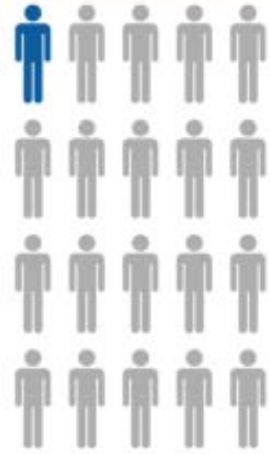
OUT OF **100**

75

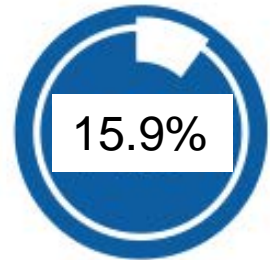
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PEOPLE WILL **SURVIVE** LUNG CANCER

STAGE 4



UNFORTUNATELY **ONLY**



OF **PATIENTS** ARE DETECTED AT STAGE 1



THERE IS AN **URGENT AND GROWING NEED TO IMPROVE EARLY DIAGNOSIS** IN LUNG CANCER



LUNG CANCER DISPARITIES

Disparities Among Minorities

- Increased rates in black males compared to whites
- Increased mortality in black males compared to whites
- Black early stage NSCLC patients were
 - 37% less likely to receive surgery
 - 42% less likely to receive treatment

Resource: Bhavaraju, Nanni, Carlson, Sholk, Peterson & Smith, 2016

Disparities Among Minorities (cont)

- 50% of people do not have access to consistent translation services
 - Women with access to information in primary language are 2X as likely to be up to date on recommended screenings
- 19% of transgender patients report being denied treatment
 - 28% postponed treatment for fear of discrimination

Resource: Bhavaraju, Nanni, Carlson, Sholk, Peterson & Smith, 2016

Socioeconomic Disparities

- Income is related to stage of disease at presentation
- Copays reduce screening uptake
- Presentation of distant disease:
 - Non-Medicaid Insurance – 16.9%
 - Medicaid - 29.1%
 - Uninsured – 34.7%

Socioeconomic Disparities (cont)

- Refusal of uninsured patients and reluctance to see Medicaid patients
- The wait for an oncology appointment is significantly longer for Medicaid patients
- Early diagnosis and treatment saves an average of
 - 30% of treatment costs in the first year and
 - up to 50% of costs over seven years
- 3 year survival and relapse rates were lower for patients at safety net facilities
- Those with limited financial reserves reported:
 - Increased pain
 - Greater symptom burden
 - Poorer quality of life

Geography

- Only 3% of medical oncologists practice in rural areas
- Rural patients experience higher mortality rates than their urban peers
- 46.5% of elderly WV lung cancer patients receive guideline concordant appropriate care
- Limited patient resources

Resource: Bhavaraju, Nanni, Carlson, Sholk, Peterson & Smith, 2016;
Nadpara Prमित A., Madhavan S. Suresh, and Tworek Cindy, 2016.

Research Investment Concern

US Cancer Deaths vs. Federal Research Funding per Death ^{1, 8-9}

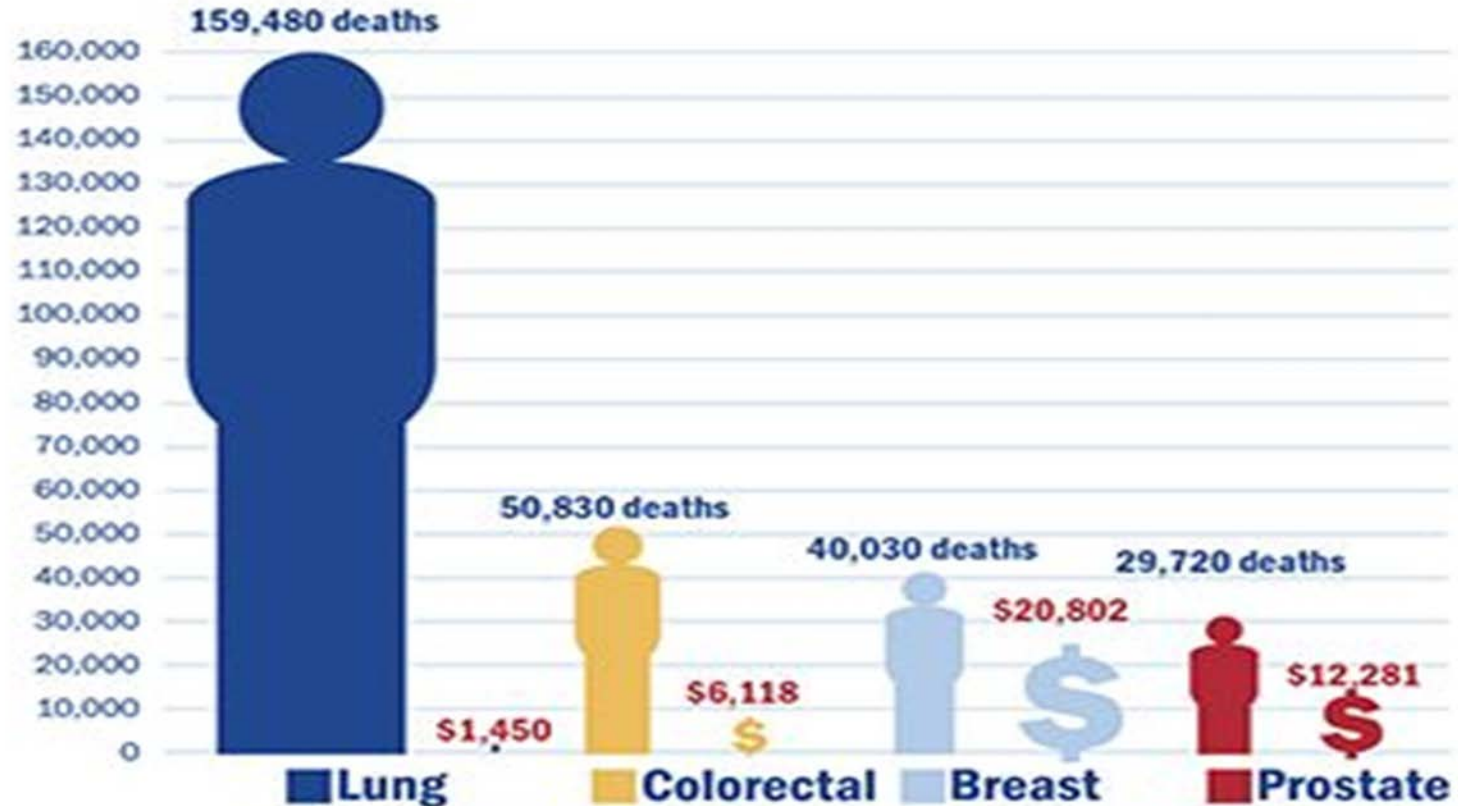


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Thank You



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