LUNG CANCER SCREENING: WHERE ARE WE NOW AND WHERE ARE WE GOING?

Morgan Shan, MSc

Co-Chair, CCC Lung Cancer Task Force

AGENDA

- What Is Lung Cancer Screening (LCS)?
- Current Understanding of LCS
- New USPSTF LCS Recommendations
- Gaps Still Occurring With LCS

WHAT IS LUNG CANCER SCREENING?

WHAT IS LUNG CANCER SCREENING?

- Relatively new screening tool compared to screenings like colon cancer screening or breast cancer screening
- Done by completing a low-dose CT (LDCT) scan on the patient to prevent radiation exposure
- Frequency of screening depends on the results
  - No nodules/masses – screening is usually prescribed annually
  - Nodules/masses – require monitoring and/or treatment based on size, location n, etc.
  - Radiology criteria called LungRADS is used to determine risk of any nodule present

CURRENT STATE OF LUNG CANCER SCREENING

CURRENT STATE OF LCS

- Awareness and understanding of LCS is growing; not as much awareness compared to screenings for breast or colon
  - Literature (National Lung Cancer Screening Trial, Nelson trial)
  - Eligibility Criteria
  - Stigma
- Recent USPSTF guidelines update give us hope that rate of LCS will increase as more individuals will be eligible
- Provider education is key → this has been a hallmark of the CCC Lung Cancer Task Force

NEW USPSTF GUIDELINES

NEW USPSTF GUIDELINES - WHAT IS THE USPSTF?

- "Independent, volunteer panel of national experts in prevention and evidence-based medicine. The Task Force works to improve the health of people nationwide by making evidence-based recommendations about clinical preventive services such as screenings, counseling services, and preventive medications. All recommendations are published on the Task Force's Web site and/or in a peer-reviewed journal."

Source: https://www.uspreventiveservicestaskforce.org/uspstf/about-uspstf

USPSTF REVIEW PROCESS

- Evidence Synthesis https://www.uspreventiveservicestaskforce.org/uspstf/document/draft-evidence-review/lung-cancer-screening1
- 223 publications, 7 randomized controlled described in 26 articles involving 86,486 participants were evaluated
- The National Lung Screening Trial in the US and the NELSON Trial in the Netherlands were the only adequately powered RCTs

USPSTF LCS GUIDELINE HISTORY

V1
1996

Recommendation Summary

Population	Recommendation	Grade
Asymptomatic persons	Routine screening of asymptomatic persons for lung cancer with chest radiography or sputum cytology is not recommended.	D

V2
2004

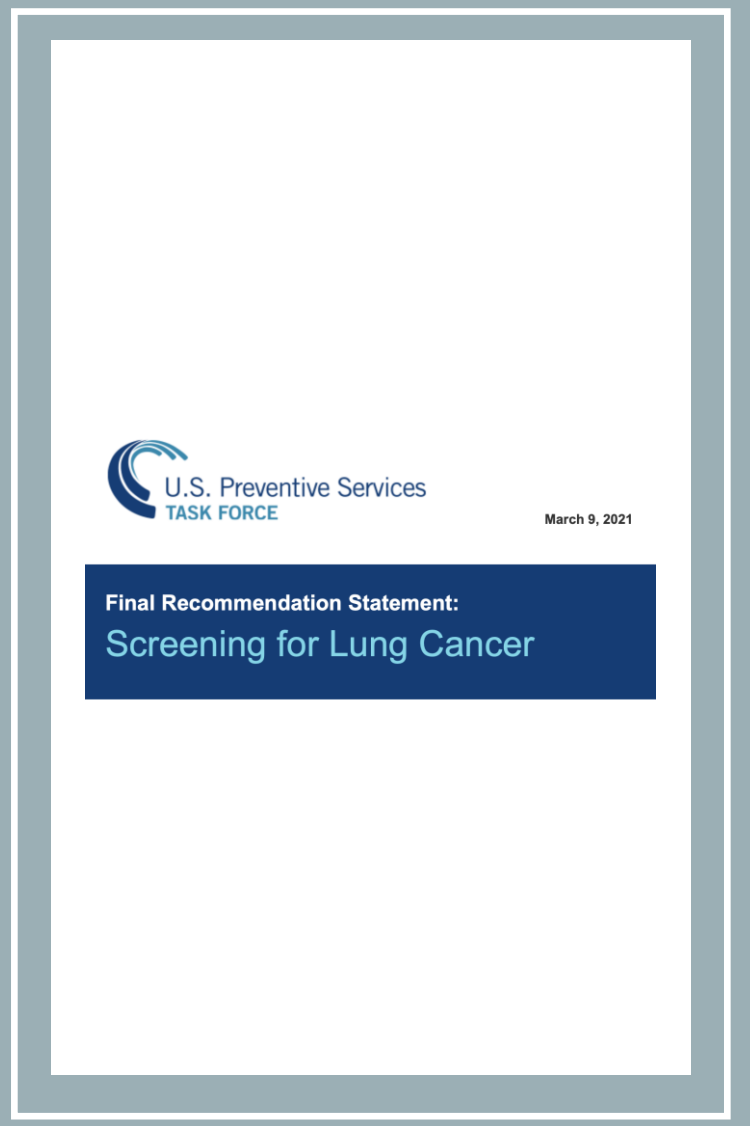
Recommendation Summary

Population	Recommendation	Grade
Asymptomatic Adults	The U.S. Preventive Services Task Force (USPSTF) concludes that the evidence is insufficient to recommend for or against screening asymptomatic persons for lung cancer with either low dose computerized tomography (LDCT), chest x-ray (CXR), sputum cytology, or a combination of these tests.	I

V3
2013

Recommendation Summary

Population	Recommendation	Grade
Adults Aged 55-80, with a History of Smoking	The USPSTF recommends annual screening for lung cancer with low-dose computed tomography (LDCT) in adults aged 55 to 80 years who have a 30 pack-year smoking history and currently smoke or have quit within the past 15 years. Screening should be discontinued once a person has not smoked for 15 years or develops a health problem that substantially limits life expectancy or the ability or willingness to have curative lung surgery.	B



FINAL RECOMMENDATION SUMMARY

See the full statement

Population	Recommendation	Grade
Adults aged 50 to 80 years who have a 20 pack-year smoking history and currently smoke or have quit within the past 15 years	The USPSTF recommends annual screening for lung cancer with low-dose computed tomography (LDCT) in adults aged 50 to 80 years who have a 20 pack-year smoking history and currently smoke or have quit within the past 15 years. Screening should be discontinued once a person has not smoked for 15 years or develops a health problem that substantially limits life expectancy or the ability or willingness to have curative lung surgery.	B

NEW USPSTF RECOMMENDATIONS

- Released March 2021
- Grade B recommendation
- Recommended start LCS at age 50
- Recommended decrease in smoking history to minimum of 20 pack years
- Keeps in place upper age limit of 80
- Keeps in place 15 years since quit
- “50-80-20-15”

BENEFITS

- Drop in age and pack years will help address the disparities in LCS
- The 50-80-20-15 strategy will increase the relative percentage of persons eligible by 87% (by 80% in men and 96% in women)
- The new strategy will help address racial disparities, particularly in Blacks and Hispanics with relative increase in eligibility of 107% and 112%

GAPS STILL OCCURRING

ASSESSMENT OF MAGNITUDE OF NET BENEFIT – WHY GRADE B?

- "Moderate certainty that annual screening for lung cancer with LDCT has a moderate net benefit in persons at high risk of lung cancer"
- "The moderate net benefit depends on limited screening to persons at high risk, the accuracy of image interpretation being similar to or better than that found in clinical trials, and the resolution of most false-positive results with serial imaging rather than invasive procedures."

A Grade A recommendation requires "high certainly that net benefit is substantial"

EVALUATION OF USPSTF LUNG CANCER SCREENING GUIDELINES AMONG AFRICAN AMERICAN ADULT SMOKERS

Aldrich MC et al. JAMA Oncology 2019; 5(9):1318-1324

- **E**valuated diagnostic accuracy of USPSTF criteria in a predominantly African American & low-income cohort (Southern Community Cohort Study, 48,364 ever smokers; 67% African American, observed for 12 years)
- **Results:**
  - Adjusting for age & smoking history, African American ever smokers at higher risk for lung cancer than White ever smokers
  - Smaller % of African Americans met USPSTF criteria than Whites (17% vs 31%)
  - Lowering pack-year criteria to 20-pack-years was associated with increased screening eligibility of African Americans, with equitable performance of sensitivity & specificity compared to whites across all ages
- **Conclusions:** ***Current USPSTF guidelines may be too conservative for African Americans -*** race-specific adjustment of pack-year criteria would result in more equitable screening for African Americans at high risk for lung cancer

WHO ARE WE MISSING?

- Eligibility criteria currently only applies to smokers
  - Second-hand smoke?
  - Radon exposures?
  - Family/genetic history of lung cancer for non-smokers?
- Varying factions of LCS haven't been able to agree on how to address this unmet clinical need

NEXT STEPS

WHERE DO WE GO FROM HERE?

- Continued PCP education – Lung TF Annual LCS Symposium(s)
- Continued understanding of the LCS needs for Coloradans (what are the state's barriers to screening?)
- Use of data to develop targeted interventions
- Addressing gaps in current LCS policies and guidelines that eclipse vulnerable populations