EPH18

Estimating Lung Cancer Screening Utilization in the U.S. Using the 2023 Behavioral Risk Factor Surveillance System Data

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Introduction

Annual screening with low-dose computed tomography (LDCT) scans can reduce lung cancer mortality,[1] but utilization in the United States (US) remains low. Reports from the 2022 Behavioral Risk Factor Surveillance System (BRFSS) data showed 16.4-18.1% of people eligible for lung cancer screening (LCS) received screening.[2] It is crucial to monitor trends in LCS due to the recently updated eligibility criteria from the United States Preventive Services Task Force[3] and policy update from the US Centers for Medicare & Medicaid Services (see Figure 1, updates are marked in **bold**).

Figure 1. 2021 Updated LCS Recommendation

- **50-80 years old (originally 55-80 years)***
- **20+ pack-year smoking history (originally 30+ pack-years)**
- Smoke currently or quit within 15 years
- Willing/able to have follow-up tests and/or annual screening
- Shared decision-making consultation (required for CMS reimbursement)

*The 2022 updated CMS criteria include an upper age limit of 77 years

These changes in eligibility were intended to help mitigate disparities in late-stage lung cancer diagnoses among females and minoritized racial groups, particularly Black Americans.[4,5]

Our study's objective is to report on the prevalence of LCS in the US using the 2023 BRFSS data and examine differences between subgroups.

Our findings suggest that being more engaged in healthcare, whether due to health status or having a regular provider, may help facilitate LCS uptake.

Methods

We analyzed public-use data from the six states (California, Maine, New Jersey, Georgia, Kansas, and Maryland) that included the optional LCS module in the 2023 Behavioral Risk Factor Surveillance System survey.[6] We included adults 50 to 79 years old who reported smoking currently or quit within 15 years, and a 20-plus pack-year smoking history. We excluded respondents who were previously diagnosed with lung cancer Covariates include age, race and ethnicity, educational attainment, household income, urbanicity, health insurance coverage, having a primary health professional (PHP), and general health.

We conducted multivariable logistic regression using the 'survey' package[7] in R, with RStudio.

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Results

There were 932,746 respondents who were eligible for LCS and **17.7%** (164,942) completed screening in the past 12 months. Screening rates differed by state (see Table 1) and by race and ethnicity (white: 21.0%; Asian: 8.8%; Black: 22.4%; Hispanic: 9.8%).

Table 1. State-level variation in utilization of LCS

State (number eligible)	% eligible screened (95% CI)
California (431,437)	16.7% (9.1-24.1%)
Georgia (187,910)	16.2% (9.6-22.7%)
Kansas (50,412)	18.7% (11.1-26.3%)
Maine (38,071)	30.8% (23.3-38.2%)
Maryland (103,564)	22.4% (15.4-29.4%)
New Jersey (121,353)	15.1% (9.0-21.3%)

Key results in the multivariable logistic regression (Table 2) showed significant differences in receipt of LCS based on having a PHP and general health status.

Table 2. Key associations with receipt of LCS

Variable	OR (95% CI)
Primary Health Professional (PHP)	
Does not have PHP (referent)	---
Has PHP	17.5 (2.1-144.5)*
Self-Reported Health Status	
Excellent health (referent)	---
Very good health	0.81 (0.65-1.01)
Good health	0.74 (0.59-0.93)*
Fair health	3.59 (0.44-0.72)*
Poor health	3.68 (1.18-11.48)*

Note: *p<.05, **p<.01, ***p<.001

References

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