CHEST

Lung Cancer Screening Uptake in the United States

To the Editor:

The United States Preventive Services Task Force (USPSTF) guidelines recommend yearly low-dose CT (LDCT) screening for high-risk smokers. These guidelines are based on the National Lung Screening Trial (NLST), which showed that yearly LDCT screening for high-risk smokers decreased lung cancer-related mortality.[1] Despite strong supporting evidence, national data indicate low screening uptake, with < 6% of USPSTF criteria-eligible smokers being screened in 2015.[2] However, it is unclear if screening uptake is increasing, and very little is known about predictors of screening uptake.

The current study estimated 2017 rates of LDCT screening among USPSTF criteria-eligible smokers in Florida, Nevada, and Georgia and investigated factors associated with utilization of screening.

Materials and Methods

The 2017 Behavioral Risk Factor Surveillance System (BRFSS) dataset was used to identify respondents across three states who met the USPSTF criteria for lung cancer screening. BRFSS comprises health survey data collected via random digit-dialed probability sampling across all 50 states. Self-reported LDCT imaging for lung cancer screening was the primary outcome. Weighted percentages of self-reported covariates were used to summarize the data, and logistic regression was corrected for sampling weight. All analyses were conducted by using SAS version 9.4 (SAS Institute, Inc.). This study was based on a de-identified, publicly available database and was exempt from institutional review board review.

Results

Of the estimated 866,305 smokers eligible for lung cancer screening according to USPSTF criteria, 141,161 (95% CI, 107,392-174,930) or 16.3% (95% CI, 12.7-19.9) received it. Among the screened and unscreened, the majority were white (85.2% and 83.2%, respectively) (Table 1). Black race and Hispanic ethnicity were not associated with different screening rates, nor was sex or income. Lack of insurance and annual income less than $15,000 were associated with lower screening rates; self-reported COPD diagnosis was associated with higher screening rates. The proportion of participants with income less than $15,000 and self-reported COPD were similar across the three states, whereas the proportion of uninsured participants was highest in Georgia (10.2%) and lowest in Nevada (2.3%) (Table 2).

Discussion

Compared with a previous study that reported low national rates of lung cancer screening from 2010 to 2015,[2] we found that in the states of Florida, Nevada, and Georgia, the collective rate in 2017 was much higher at 16.3%. This increase in lung cancer screening rates may reflect recent campaigns to identify high-risk smokers for screening and raise physician and public awareness, as well as progressive uptake as observed following introduction of other cancer screening tests such as mammography.[3] Negative predictors of screening include lack of insurance and low income, expected findings consistent with drivers of access to health care.[4] Notably, the rates of uninsured participants were higher in states that did not expand Medicaid (Florida and Georgia), although on the state level this fact did not correlate with increased lung cancer screening.[5] Self-reported COPD correlated with increased lung cancer screening, perhaps reflecting more aggressive screening in participants with this well-known risk factor for lung cancer. It may also reflect the inclusion of LDCT imaging as part of the initial COPD evaluation.

A limitation of this study is that only three of the 11 states that adopted the lung cancer screening module also adopted the respiratory module, limiting the generalizability of the findings among screening eligible individuals with COPD. Efforts should be made to include lung cancer screening questions into the core set of BRFSS questions. Data regarding demographic characteristics, smoking history, and lung cancer screening were all self-reported with limited validation, which may contribute to biased responses such as the underestimation of rates of the uninsured. Despite this, our study is the first to provide an updated prevalence of

TABLE 1] Baseline Characteristics, Prevalence of LDCT Testing, and Adjusted ORs for Predictors of LDCT Screening in USPSTF Criteria-Eligible Respondents

Characteristic	Received Screening (n = 141,161)	Did Not Receive Screening (n = 725,144)	OR (95% CI)
Age, y	66.9 ± 0.6	65.8 ± 0.4	1.16 (0.69-1.96)
Race/ethnicity			
White (16.6% screened)	120,213 (85.2)	603,389 (83.2)	Reference
Black (18.6% screened)	11,793 (8.4)	51,608 (7.1)	1.95 (0.49-7.8)
Hispanic (9.5% screened)	2,234 (1.6)	21,224 (2.9)	0.60 (0.16-2.26)
Other (8.8% screened)	6,921 (4.9)	48,923 (6.7)	0.73 (0.31-1.75)
Male	85,479 (60.6)	430,733 (59.4)	1.37 (0.80-2.35)
Married	50,207 (35.6)	338,121 (46.6)	0.52 (0.31-0.88)
College (less than high school, high school, college)	74,346 (52.7)	355,195 (49.0)	1.18 (0.70-1.99)
LGB	9,956 (7.1)	22,174 (3.1)	2.36 (0.95-5.82)
Income, $			
< 15,000	9,318 (6.6)	89,015 (12.3)	Reference
> 15,000	131,843 (93.4)	636,129 (87.7)	0.33 (0.16-0.68)
No insurance	269 (0.2)	59,737 (8.2)	0.02 (0.01-0.10)
COPD	90,613 (64.2)	230,161 (31.7)	4.61 (2.56-8.30)
Pack years	58.0 ± 3.1	53.0 ± 1.5	1.00 (0.99-1.01)

Data are presented as mean ± SD or No. (%). LDCT = low-dose CT; LGB = lesbian, gay, bisexual; USPSTF = United States Preventive Services Task Force.

TABLE 2] State-Based Breakdown of Baseline Characteristics and Prevalence of LDCT Testing for Lung Cancer Among USPSTF-Criteria Screening-Eligible Smokers

Characteristic	Florida (n = 597,830)	Nevada (n = 82,036)	Georgia (n = 186,438)
Age, y	66.2 ± 0.4	65.7 ± 2.9	65.4 ± 0.5
Race/ethnicity			
White	497,067 (83.1)	69,444 (84.6)	157,092 (84.3)
Black	49,121 (8.2)	2,366 (2.9)	11,914 (6.4)
Hispanic	20,158 (3.4)	2,342 (2.9)	959 (0.5)
Other	31,484 (5.3)	7,885 (9.6)	16,474 (8.8)
Male	346,056 (57.9)	49,883 (60.8)	120,273 (64.5)
Married	259,084 (43.4)	34,505 (42.1)	94,739 (50.8)
College (less than high school, high school, college)	303,310 (5.7)	42,299 (51.6)	83,932 (45.0)
LGB	19,656 (3.3)	1,537 (1.9)	10,937 (5.9)
Income, $			
< 15,000	71,120 (11.9)	6,795 (8.3)	20,419 (11.0)
15,000-50,000	306,751 (51.3)	33,074 (40.3)	74,972 (40.2)
> 50,000	219,959 (36.8)	42,167 (51.4)	91,047 (48.8)
No insurance	39,023 (6.5)	1,925 (2.3)	19,059 (10.2)
COPD	224,774 (37.6)	31,140 (38.0)	64,859 (34.8)
Pack years	55.0 ± 1.8	52.0 ± 2.9	51.0 ± 2.0
Received LDCT screening	114,914 (19.2)	5,646 (6.9)	20,600 (11.0)

Data are presented as mean ± SD or No. (%). See Table 1 legend for expansion of abbreviations.

LDCT screening and identify a predictor of screening among USPSTF criteria-eligible populations.

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The Morphological Domain Does Not Affect the Rate of Progression to Defined Autoimmune Diseases in Patients With Interstitial Pneumonia With Autoimmune Features

To the Editor:

The term interstitial pneumonia with autoimmune features (IPAF) defines patients with interstitial lung disease (ILD) with some autoimmune characteristics that are insufficient to fulfill classification criteria for a specific connective tissue disease (CTD).[1] IPAF classification comprises several items subdivided into clinical, serological, and morphological domains.

Patients with a radiological or histological pattern of usual interstitial pneumonia (UIP) need at least one item from both the clinical and serological domains, whereas patients with other ILD patterns can be classified as IPAF even with only one item. In a prospective study of patients with IPAF, we found that the large majority of these patients fulfilled only one criterion associated with a compatible ILD pattern, making it very difficult to select patients who have UIP.[2] Despite this, UIP is a potential pattern in all ILD-CTDs.[3]

The purpose of the current prospective study therefore was to describe a cohort of patients with UIP in whom only one IPAF domain (clinical or serological) was satisfied. We defined these patients as "UIPAF." This group of patients was compared with an IPAF cohort in terms of prevalence of specific criteria and rate of progression to specific autoimmune diseases (SADs).

Patients and Methods

Patients were enrolled from October 2016 to May 2019. A clinical assessment performed by pulmonologists and rheumatologists (together), laboratory evaluation for general examinations, 6-min walk test, and pulmonary function tests were evaluated every 3 months in both the UIPAF cohort and the IPAF cohort. Laboratory evaluation for autoimmunity, high-resolution CT (HRCT) imaging, and nailfold videocapillaroscopy were performed in all patients at baseline and after 12 months. Minor salivary gland, lung or skin biopsy, or electromyography was performed if clinically indicated. Each SAD was diagnosed according to the latest version of the specific classification criteria.[4]

Results

This study included 20 patients (UIPAF) from 160 patients with UIP evaluated by pulmonologists and rheumatologists together (12.5%) and a control group of 61 patients with IPAF.

Patients with UIPAF were more frequently male. No differences were found between the two groups in terms of age, smoking habit, pulmonary function test results, or prevalence of IPAF items (Fig 1A, Table 1). Median follow-up time was 13 (5.8-16.5) months and 12 (3-15)