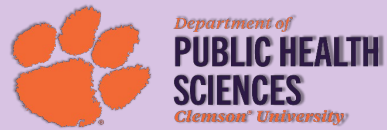


# Disparities in Lung Cancer Screening Accessibility and Utilization in South Carolina

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## Background

Lung cancer is the leading cause of cancer death in the U.S. Lung cancer screening (LCS) with low-dose CT scan can reduce lung cancer mortality by 20%. It is unknown whether LCS accessibility varies across the counties in South Carolina (SC) and what are the individual and county level predictors of LCS utilization.

## Objectives

1. To investigate the differences in LCS accessibility by county level rurality and other socioeconomic status (SES) factors in SC
2. To examine the individual and county level predictors of LCS utilization

## Methods

### Objective 1

- ❖ **Data source:** addresses of all LCS sites in SC; county-level SES from 2015-2019 American Community Survey
- ❖ **Study population:** All SC counties
- ❖ **Outcome:** LCS accessibility of each SC county: 1) access to LCS defined as <30 minutes driving time from the centroid of the census block group to the nearest LCS site; 2) at the county level, the access of each block group weighted by the proportion of population aged 55-80 years in the county
- ❖ **Exposure:** county-level SES; county-level rurality determined by Rural-Urban Continuum Codes
- ❖ **Analysis:** geographic information system mapping, Chi-square, Students' t-test, Pearson correlation

### Objective 2

- ❖ **Data source:** 2017 SC Adult Tobacco Survey
- ❖ **Study population:** current or former smokers aged 55-80 years, without lung cancer history
- ❖ **Outcome:** LCS utilization
- ❖ **Predictors:** age, sex, race, education, marital status, insurance, income, smoking status, chronic pulmonary disease (COPD), county-level rurality, and county-level LCS accessibility
- ❖ **Analyses:** multilevel logistic regression

## Results

Figure. The distribution of LCS sites by county socioeconomic status in SC.

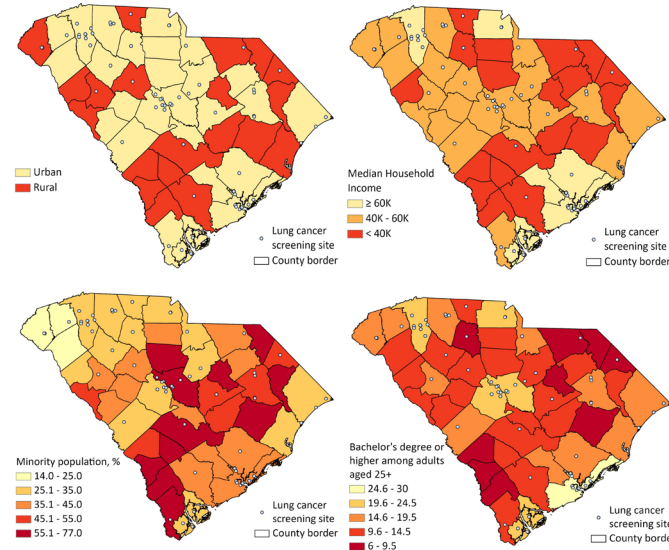


Table 1. Characteristics of survey participants.

Variable	Categories	All	LCS, %	No LCS, %	P
		1441	19.8	80.2	
Age, years	55-64	511	17.4	82.6	0.10
	65-84	930	21.1	78.9	
Gender	Male	732	23.2	76.8	0.0008
	Female	709	16.2	83.8	
Race	NH white	1012	17.8	82.2	0.003
	NH black	313	26.5	73.5	
	Other	116	19.0	81.0	
Education	High school or lower	497	23.7	76.3	0.006
	Above high school	944	17.7	82.3	
Marital Status	Married or living with a partner	795	19.3	80.8	0.57
	Other	646	20.4	79.6	
Insurance	Insured	113	17.7	82.3	0.75
	Not insured	1327	20.0	80.0	
Income	≤median	743	21.7	78.3	0.06
	>median	698	17.8	82.2	
Smoking	Current smoker	327	26.9	73.1	0.0002
	Former smoker	1114	17.7	82.3	
COPD	Yes	222	33.8	66.2	<.0001
	No	1219	17.2	82.8	
County Urbanicity	Metropolitan	1078	19.0	81.0	0.21
	Non-metropolitan	363	22.0	78.0	

Abbreviations: COPD: chronic obstructive pulmonary disease.

Table 2. Adjusted odds ratio (95% confidence interval) of using LCS.

	aOR	95% CI	P
Non-metro vs. Metro counties	1.02	0.73, 1.43	0.93
With vs. Without LCS access	0.84	0.62, 1.16	0.30
65-80 vs. 55-64 years age	1.46	1.07, 2.01	0.018
Female vs. Male	1.59	1.21, 2.10	0.0009
NH black vs. NH white	1.66	1.20, 2.29	0.002
>High school vs. ≤High school	0.79	0.58, 1.06	0.11
Other marital status vs. Married or living with partner	0.95	0.71, 1.29	0.76
Without vs. with insurance	1.08	0.64, 1.90	0.77
>Median vs. ≤Median income	1.00	0.73, 1.39	0.98
Former vs. Current smokers	0.58	0.42, 0.80	0.0008
With vs. Without COPD	2.28	1.63, 3.15	<.0001

Abbreviations: aOR: adjusted odds ratio; CI: confidence interval; LCS: lung cancer screening; NH: non-Hispanic; COPD: chronic obstructive pulmonary disease.

## Summary

- ❖ SC has 46 (26 urban and 20 rural) counties
- ❖ As of August 2021, 72 LCS sites included 63 sites in 18 urban counties and 9 sites in 9 rural counties
- ❖ The driving time to the nearest LCS site ranged from <5 to 60 minutes, with an average of 13.7 minutes
- ❖ 74.9% of the residents aged 55-80 had LCS access
- ❖ Residents in counties with lower SES had significantly less access to LCS than those in counties with higher SES
- ❖ Among survey participants, 19.8% of SC current or former smokers used LCS in 2017-2018
- ❖ Being 65-80 years old, female, black, current smoker, and having COPD were associated with increased LCS utilization
- ❖ County level rurality and LCS accessibility were not significant predictors of LCS utilization

## Acknowledgment

- ❖ This work was supported by Dabo's All In Team Foundation.