

**Table S1** Multivariable logistic regression analysis of factors associated with newly diagnosed lung cancer confirmed by pathological reports at ED

Variables	AOR	95% CI	P value
Eligibility of lung cancer screen			
Noneligible or unknown (ref)			
Eligible	3.36	2.25–5.02	<0.001
Age	1.05	1.02–1.07	<0.001
Sex			
Male (ref)			
Female	1.31	0.89–1.94	0.17
Race and ethnicity			
Hispanic/Latino (ref)			
Non-Hispanic White	3.46	1.55–7.72	0.002
Non-Hispanic Black	4.20	1.85–9.50	0.001
Others	3.33	1.06–10.47	0.04
Marital status			
Single (ref)			
Married	0.92	0.56–1.50	0.73
Others	0.80	0.51–1.26	0.34
Preferred language speaking			
English/Spanish (ref)			
Other languages	2.17	0.92–5.12	0.08
Insurance coverage			
No (ref)			
Yes	0.85	0.47–1.54	0.59
Primary care physician			
Yes (ref)			
No/unknown	0.62	0.41–0.94	0.03
Social/behavior risks			
Positive (ref)			
Negative	0.93	0.61–1.41	0.73
Multimorbidity			
No (ref)			
Yes	2.55	1.08–5.98	0.03

Based on a total of 18,335 unique patients who had CT of chest performed at ED. A multivariable logistic regression analysis was performed to determine the factors associated with newly diagnosed lung cancer at ED. ED, Emergency Department; AOR, adjusted odds ratio; CI, confidence interval; CT, computer tomography.

**Table S2** A misclassification analysis of corrected prevalence of newly diagnosed lung cancer in the ED under varying assumptions of sensitivity and specificity

Sensitivity	Specificity of 0.95	Specificity of 0.98	Specificity of 1.00
0.1	86.60%	16.63%	6.70%
0.2	28.87%	7.39%	3.35%
0.3	17.32%	4.75%	2.23%
0.4	12.37%	3.50%	1.68%
0.5	9.62%	2.77%	1.34%
0.6	7.87%	2.29%	1.12%
0.7	6.66%	1.96%	0.96%
0.8	5.77%	1.71%	0.84%
0.9	5.09%	1.51%	0.74%
1.0	4.56%	1.36%	0.67%

Given the extremely low observed prevalence of newly diagnosed lung cancer, we assumed three different specificities (i.e., 0.95, 0.98, and 1.00) and the sensitivity assumed from 0.10 to 1.00. ED, Emergency Department.

**Table S3** Age, chronic conditions, and eligibility of lung cancer screening comparisons among ED patients with different races and ethnicities

Characteristics	NHW	NHB	Hispanic/Latino	Others	P
Number, n	7,426	5,313	4,561	1,048	
Age, year					
Mean (SD)	61.47 (7.45)	61.29 (7.54)	61.17 (8.00)	62.83 (8.03)	<0.001
Median (IQR)	61 (56–66)	60 (55–66)	60 (55–67)	63 (56–69)	
Eligibility, n (%)					<0.001
Eligible for lung cancer screening	1,627 (21.91)	721 (13.57)	281 (6.16)	96 (9.16)	
Chronic conditions, n (%)					<0.001
Multimorbidity	6,247 (84.12)	4,767 (89.72)	3,643 (79.87)	859 (81.97)	

ED, Emergency Department; NHW, non-Hispanic White; NHB, non-Hispanic Black; SD, standard deviation; IQR, interquartile range.

**Table S4** Comparisons of ED and clinical visits in the past among ED patients speaking different languages

Clinical and ED Visits	Patients speaking English or Spanish	Patients speaking other languages	p
Number	17,520	828	
Number of clinical visits in the past 5 years			
Mean (SD)	16 (26)	13 (16)	0.001
Median (IQR)	8 (3–20)	8 (3–18)	0.002
Number of ED visits in the past 12 months			
Mean (SD)	1 (4)	1 (2)	<0.001
Median (IQR)	0 (0–2)	0 (0–1)	<0.001

ED, Emergency Department; SD, standard deviation; IQR, interquartile range.