Supplementary Materials

Supplementary Methods

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Participants with Updated Smoking-Related Data

In this study, tobacco smoking-related data were obtained from the Multiethnic Cohort (MEC) baseline questionnaire that was administered from 1993-1996. Ten years after participants completed this questionnaire, a follow-up questionnaire was administered that solicited updated smoking-related information (2003-2008). Among 5,900 subjects included in the primary analyses, 1,526 (25.9%) provided updated smoking data through the follow-up questionnaire before their lung cancer diagnoses. As these data would more accurately reflect participants' smoking status closer to lung cancer diagnosis, we used the updated smoking information for these 1,526 participants in the primary analysis. The characteristics of these participants are summarized in **Supplementary Table 1**.

Smoking-Related Variables

Smoking-related information collected from the MEC questionnaires included the following variables: smoking status, smoking duration, cigarettes per day, and quit years (i.e., years since smoking cessation). Smoking status was categorized as never (i.e., less than 20 packs of cigarettes in lifetime), current, or former. Smoking duration was categorized as 10 years or less, 11-20 years, 21-30 years, 31-40 years, or 41 years or more. Cigarettes smoked per day were categorized as 5 cigarettes or less, 6-10 cigarettes, 11-20 cigarettes, 21-30 cigarettes, or 31 cigarettes or more. Quit years were classified as less than 1 year, 1-2 years, 3-5 years, 6-10 years, 11-15 years, 16-20 years, or 21 years or more.

Given that the study analyses required the quantification of each individual's cigarettes smoked per day, quit years, and smoking duration, these data were converted to quantitative variables from categorical variables through the following approach: (i) the middle number in each category was selected if within a range (e.g., selected 15.5 from the 11-20 cigarettes per day category), (ii) the upper or lower limit was selected if it was inclusive in the lowest or highest categories, respectively (e.g., selected 5 from the 5 cigarettes per day or less category), or (iii) selected 0.5 if "less than 1 year" was chosen for smoking quit years. Smoking-pack years were calculated by converting the number of cigarettes smoked per day into packs and multiplying by the smoking duration.

The smoking variables in this study include two that are time-dependent: smoking pack-years and quit years. Given the temporal gap between the assessment of a participant's smoking behavior (at enrollment or 10-year follow-up) and the lung cancer diagnosis, we projected the time from smoking assessment to diagnosis to attain the final smoking parameters for determining screening eligibility. This assumes that the smoking behavior was maintained during this timeframe.

Chronic Obstructive Pulmonary Disease (COPD) Status

Data on COPD status were collected via linkage to Centers for Medicare & Medicaid Services claims between 1996 and 2016 (Setiawan et al., *Am J Epidemiol* 2015). Participants who were at least 65 years of age by 2016 were linked to Medicare records by their Social Security number, sex, and date of birth. The presence of COPD was determined using diagnosis codes in the International Classification of Diseases 9th (490.0-496.0) and 10th revisions (J40-J47) through the following approach: ≥ 1 diagnosis code in inpatient claims (the Medicare Provider Analysis and Reviewer File), or ≥ 2 diagnosis codes in outpatient or carrier claims over a 1-year period between 1999 and 2016.

Supplementary Table 1. Characteristics of Participants Evaluated using Baseline versus Follow-Up Smoking Data.

Characteristic	Baseline Data (N=4,374)	Follow-up Data (N=1,526)
Age at diagnosis (years), mean (SD)	72.9 (8.1)	77.7 (7.4)
BMI (kg/m^2), mean (SD)	26.0 (4.8)	26.2 (4.6)
Sex, N (%)		
Male	2,610 (59.7)	913 (59.8)
Female	1,764 (40.3)	613 (40.2)
Race and ethnicity, N (%)		
African American	1,338 (30.6)	322 (21.1)
Japanese American	920 (21.0)	408 (26.7)
Latino	564 (12.9)	236 (15.5)
Native Hawaiian	402 (9.2)	131 (8.6)
White	1,150 (26.3)	429 (28.1)
Education, N (%)		
High school or less	2,359 (53.9)	655 (42.9)
Some college or graduate	1,677 (38.3)	705 (46.2)
Postgraduate	322 (7.4)	164 (10.7)
Unknown	16 (0.4)	2 (0.1)
Personal history of cancer, N (%)		
No	3,285 (75.1)	1,088 (71.3)
Yes	1,089 (24.9)	438 (28.7)
Family history of lung cancer, N (%)		
No	3,983 (91.1)	1,386 (90.8)
Yes	391 (8.9)	140 (9.2)
COPD, N (%)		
No	789 (18.0)	428 (28.0)
Yes	1,067 (24.4)	461 (30.2)
Unknown	2,518 (57.6)	637 (41.7)
Smoking status, N (%)		
Former	1,996 (45.6)	1,075 (70.4)
Current	2,378 (54.4)	451 (29.6)
Pack-years, mean (SD)	29.4 (17.6)	35.8 (20.1)
Cigarettes per day, mean (SD)	17.7 (8.3)	18.0 (9.9)
Quit years, median (IQR)	0 (0-8)	6.3 (0-22)

Abbreviations: *N* sample size, *SD* standard deviation, *BMI* body mass index, *kg* kilogram, *m* meter, *COPD* chronic obstructive pulmonary disease, *IQR* interquartile range.

Supplementary Table 2. $PLCO_{m2012}$ Model for Prediction of 6-Year Lung Cancer Risk Variables, Odds Ratios, and Beta Coefficients.

Variable	Odds Ratio (95% CI)	Beta Coefficient
Age, per 1-year increase, centered on 62	1.081 (1.057-1.105)	0.0778868
Race or ethnic group		
White (non-Hispanic)	1.000 (reference)	0.000 (reference)
Black (non-Hispanic)	1.484 (1.083-2.033)	0.3944778
Hispanic	0.475 (0.195-1.160)	−0.7434744
Asian	0.627 (0.332-1.185)	−0.466585
American Indian or Alaskan Native	1.000	0.000
Native Hawaiian or Pacific Islander	2.793 (0.992-7.862)	1.027152
Education, per 1-level increase, centered on level 4[a]	0.922 (0.874-0.972)	−0.0812744
Body mass index, per 1-unit increase, centered on 27	0.973 (0.955-0.991)	−0.0274194
Chronic obstructive pulmonary disease		
No	1.000 (reference)	0.000 (reference)
Yes	1.427 (1.162-1.751)	0.3553063
Personal history of cancer		
No	1.000 (reference)	0.000 (reference)
Yes	1.582 (1.172-2.128)	0.4589971
Family history of lung cancer		
No	1.000 (reference)	0.000 (reference)
Yes	1.799 (1.471-2.200)	0.587185
Smoking status		
Former	1.000 (reference)	0.000 (reference)
Current	1.297 (1.047-1.605)	0.2597431
Smoking intensity[b]	See note[c]	−1.822606
Duration of smoking, per 1-year increase, centered on 27	1.032 (1.014-1.051)	0.0317321
Smoking quit time, per 1-year increase, centered on 10	0.970 (0.950-0.990)	−0.0308572
Model constant		−4.532506

Abbreviation: *CI* confidence interval.

[a] Education is measured in six ordinal levels: less than high-school graduate (level 1), high-school graduate (level 2), some training after high school (level 3), some college (level 4), college graduate (level 5), and postgraduate or professional degree (level 6). For this study, participants who had a high school education or less were assigned to level 2, some college or college graduate education were assigned to level 5, and postgraduate education were assigned to level 6.

[b] Smoking intensity is calculated by dividing the number of cigarettes smoked per day by 10, exponentiating by the power −1, centering by subtracting 0.4021541613, and then multiplying this number by the beta coefficient of the variable.

[c] Smoking intensity is non-linear; thus, the association is not represented by the single odds ratio.

Supplementary Table 3. Missing Rates of Variables in the USPSTF Criteria and $PLCO_{m2012}$ Model among All Ever-Smoking Lung Cancer Cases in MEC and in the Primary Study Cohort.

Variable	N (%)
All Ever-Smoking Cases	Total N=6,372
Age at diagnosis	0 (0.0)
Race and ethnicity	0 (0.0)
Education	33 (0.5)
BMI	77 (1.2)
COPD	3,387 (53.2)
Personal history of cancer	0 (0.0)
Family history of lung cancer	0 (0.0)
Smoking status	0 (0.0)
Smoking pack-years	133 (2.1)
Smoking intensity	77 (1.2)
Smoking duration	166 (2.6)
Years since smoking cessation	48 (0.8)
Primary Study Cohort	Total N=5,900
Age at diagnosis	0 (0.0)
Race and ethnicity	0 (0.0)
Education	18 (0.3)
BMI	66 (1.1)
COPD	3,155 (53.5)
Personal history of cancer	0 (0.0)
Family history of lung cancer	0 (0.0)
Smoking status	0 (0.0)
Smoking pack-years	0 (0.0)
Smoking intensity	0 (0.0)
Smoking duration	0 (0.0)
Years since smoking cessation	0 (0.0)

Abbreviations: *USPSTF* United States Preventive Services Task Force, *MEC* Multiethnic Cohort, *N* sample size, *BMI* body mass index, *COPD* chronic obstructive pulmonary disease.

Supplementary Table 4. Characteristics of Participants with Complete or Missing Data in the Primary Study Cohort.

Characteristic	Education			BMI			COPD		
	Complete Data (N=5,882)	Missing Data (N=18)	P[a]	Complete Data (N=5,834)	Missing Data (N=66)	P[a]	Complete Data (N=2,745)	Missing Data (N=3,155)	P[a]
Age at diagnosis (years), mean (SD)	74.2 (8.2)	74.6 (10.0)	0.82	74.1 (8.2)	77.9 (7.0)	<0.001	75.8 (6.9)	72.8 (9.0)	<0.001
BMI (kg/m^2)[b], mean (SD)	26.0 (4.7)	26.2 (5.9)	0.87	26.0 (4.7)	NE	NE	26.1 (4.7)	26.0 (4.7)	0.20
Sex, N (%)			0.91			0.03			0.65
Male	3,513 (59.7)	10 (55.6)		3,493 (59.9)	30 (45.5)		1,630 (59.4)	1,893 (60.0)	
Female	2,369 (40.3)	8 (44.4)		2,341 (40.1)	36 (54.5)		1,115 (40.6)	1,262 (40.0)	
Race and ethnicity, N (%)			0.04			<0.001			<0.001
African American	1,650 (28.1)	10 (55.6)		1,615 (27.7)	45 (68.2)		649 (23.6)	1,011 (32.0)	
Japanese American	1,326 (22.5)	2 (11.1)		1,323 (22.7)	5 (7.6)		705 (25.7)	623 (19.7)	
Latino	796 (13.5)	4 (22.2)		796 (13.6)	4 (6.1)		349 (12.7)	451 (14.3)	
Native Hawaiian	532 (9.0)	1 (5.6)		527 (9.0)	6 (9.1)		263 (9.6)	270 (8.6)	
White	1,578 (26.8)	1 (5.6)		1,573 (27.0)	6 (9.1)		779 (28.4)	800 (25.4)	
Education, N (%)			<0.001			<0.001			0.02
High school or less	3,014 (51.2)	0 (0.0)		2,965 (50.8)	49 (74.2)		1,368 (49.8)	1,646 (52.2)	
Some college or graduate	2,382 (40.5)	0 (0.0)		2,366 (40.6)	16 (24.2)		1,111 (40.5)	1,271 (40.3)	
Postgraduate	486 (8.3)	0 (0.0)		486 (8.3)	0 (0.0)		256 (9.3)	230 (7.3)	
Unknown	0 (0.0)	18 (100.0)		17 (0.3)	1 (1.5)		10 (0.4)	8 (0.3)	
Personal history of cancer, N (%)			0.93			0.04			<0.001
No	4,359 (74.1)	14 (77.8)		4,332 (74.3)	41 (62.1)		1,971 (71.8)	2,402 (76.1)	
Yes	1,523 (25.9)	4 (22.2)		1,502 (25.7)	25 (37.9)		774 (28.2)	753 (23.9)	
Family history of lung cancer, N (%)			0.92			0.29			0.89
No	5,352 (91.0)	17 (94.4)		5,306 (90.9)	63 (95.5)		2,500 (91.1)	2,869 (90.9)	
Yes	530 (9.0)	1 (5.6)		528 (9.1)	3 (4.5)		245 (8.9)	286 (9.1)	
COPD, N (%)			0.71			0.44			<0.001
No	1,213 (20.6)	4 (22.2)		1,204 (20.6)	13 (19.7)		1,217 (44.3)	0 (0.0)	
Yes	1,522 (25.9)	6 (33.3)		1,515 (26.0)	13 (19.7)		1,528 (55.7)	0 (0.0)	
Unknown	3,147 (53.5)	8 (44.4)		3,115 (53.4)	40 (60.6)		0 (0.0)	3,155 (100.0)	
Smoking status, N (%)			0.18			0.23			<0.001
Former	3,065 (52.1)	6 (33.3)		3,042 (52.1)	29 (43.9)		1,521 (55.4)	1,550 (49.1)	
Current	2,817 (47.9)	12 (66.7)		2,792 (47.9)	37 (56.1)		1,224 (44.6)	1,605 (50.9)	
Pack-years, mean (SD)	31.0 (18.5)	22.8 (18.5)	0.06	31.1 (18.5)	23.2 (16.7)	0.001	32.1 (19.0)	30.1 (18.0)	<0.001
Cigarettes per day, mean (SD)	17.8 (8.7)	14.6 (9.1)	0.13	17.8 (8.7)	13.8 (8.1)	<0.001	18.0 (9.0)	17.7 (8.5)	0.20
Quit years, median (IQR)	0.5 (0-13)	0.0 (0-12)	0.25	0.5 (0-13)	0.0 (0-8)	0.04	1.5 (0-13)	0.0 (0-13)	<0.001
Stage at diagnosis, N (%)			0.06			0.69			<0.001
I-III	2,342 (39.8)	12 (66.7)		2,331 (40.0)	23 (34.8)		1,193 (43.5)	1,161 (36.8)	
IV	3,178 (54.0)	5 (27.8)		3,144 (53.9)	39 (59.1)		1,372 (50.0)	1,811 (57.4)	
Unknown	362 (6.2)	1 (5.6)		359 (6.2)	4 (6.1)		180 (6.6)	183 (5.8)	
Histology, N (%)			0.49			0.40			<0.001
Adenocarcinoma	2,180 (37.1)	6 (33.3)		2,168 (37.2)	18 (27.3)		1,071 (39.0)	1,115 (35.3)	
Squamous cell carcinoma	1,288 (21.9)	7 (38.9)		1,281 (22.0)	14 (21.2)		611 (22.3)	684 (21.7)	
Large cell carcinoma	180 (3.1)	0 (0.0)		179 (3.1)	1 (1.5)		69 (2.5)	111 (3.5)	
Small cell lung carcinoma	668 (11.4)	2 (11.1)		659 (11.3)	11 (16.7)		293 (10.7)	377 (11.9)	
Non-small cell lung carcinoma NOS	463 (7.9)	0 (0.0)		457 (7.8)	6 (9.1)		244 (8.9)	219 (6.9)	
Other	1,103 (18.8)	3 (16.7)		1,090 (18.7)	16 (24.2)		457 (16.6)	649 (20.6)	

Abbreviations: *BMI* body mass index, *COPD* chronic obstructive pulmonary disease, *N* sample size, *SD* standard deviation, *kg* kilogram, *m* meter, *NE* not estimable, *IQR* interquartile range, *NOS* not otherwise specified.

[a] P-value was calculated for categorical data using the chi-square test and for continuous data using one-way analysis of variance.
[b] BMI was unknown in 65 (1.1%) participants with complete and 1 (5.6%) participant with missing education data (P=0.503, chi-square test) and in 26 (0.9%) participants with complete and 40 (1.3%) participants with missing COPD data (P=0.30, chi-square test)

Supplementary Table 5. 2013 USPSTF Criteria Eligibility (i.e., Screening Sensitivity) and Sources of Ineligibility among All and Ineligible Lung Cancer Cases by Race and Ethnicity.

Source	Overall	African American	Japanese American	Latino	Native Hawaiian	White
All Lung Cancer Cases, N	5,900	1,660	1,328	800	533	1,579
Age < 55 years	108 (1.8)	41 (2.5)	12 (0.9)	4 (0.5)	20 (3.8)	31 (2.0)
Age > 80 years	1,454 (24.6)	393 (23.7)	413 (31.1)	216 (27.0)	71 (13.3)	361 (22.9)
Pack-years < 30	2.626 (44.5)	981 (59.1)	519 (39.1)	434 (54.2)	212 (39.8)	480 (30.4)
Quit years > 15	1,998 (33.9)	457 (27.5)	560 (42.2)	294 (36.8)	120 (22.5)	567 (35.9)
Eligible Lung Cancer Cases, N (%[a])	2,068 (35.1)	460 (27.7)	443 (33.4)	231 (28.9)	247 (46.3)	687 (43.5)
Ineligible Lung Cancer Cases, N (%[a])	3,832 (64.9)	1,200 (72.3)	885 (66.6)	569 (71.1)	286 (53.7)	892 (56.5)
Age < 55 years	108 (2.8)	41 (3.4)	12 (1.4)	4 (0.7)	20 (7.0)	31 (3.5)
Age > 80 years	1,454 (37.9)	393 (32.8)	413 (46.7)	216 (38.0)	71 (24.8)	361 (40.5)
Pack-years < 30	2,626 (68.5)	981 (81.8)	519 (58.6)	434 (76.3)	212 (74.1)	480 (53.8)
Quit years > 15	1,998 (52.1)	457 (38.1)	560 (63.3)	294 (51.7)	120 (42.0)	567 (63.6)

Abbreviations: *USPSTF* United States Preventive Services Task Force, *N* sample size.
[a] Percentages correspond to the number of eligible or ineligible lung cancer cases divided by all lung cancer cases overall and within each race or ethnicity stratum.

Supplementary Table 6. Screening Eligibilities (i.e., Screening Sensitivities) and Racial and Ethnic Disparities through Risk-Based Screening and the USPSTF Criteria Among Complete Cases.

Screening Assessment	Overall	African American	Japanese American	Latino	Native Hawaiian	White	P[a]
	N=2,710	N=625	N=700	N=345	N=262	N=778	
SCREENING ELIGIBILITY/SCREENING SENSITIVITY, N (%)							
RBS: risk ≥ 1.51%	2,093 (77.2)	499 (79.8)	502 (71.7)	180 (52.2)	248 (94.7)	664 (85.3)	<0.001
2021 USPSTF	1,075 (39.7)	233 (37.3)	246 (35.1)	111 (32.2)	147 (56.1)	338 (43.4)	<0.001
RACIAL AND ETHNIC DISPARITY, %							
RBS: risk ≥ 1.51%	-	5.5	13.6	33.1	-9.4	Ref	
2021 USPSTF	-	6.1	8.3	11.2	-12.7	Ref	

Risk-based screening was evaluated through the $PLCO_{m2012}$ model. Racial and ethnic disparity is defined as the absolute difference in screening sensitivities between each racial and ethnic group and White.
Abbreviations: *USPSTF* United States Preventive Services Task Force, *N* sample size, *RBS* risk-based screening.
[a] P-value was calculated across racial and ethnic strata using the chi-square test.

Supplementary Table 7. Screening Eligibilities (i.e., Screening Sensitivities) and Racial and Ethnic Disparities through Risk-Based Screening and the USPSTF Criteria Utilizing a Conservative COPD Analysis in the Primary Study Cohort.

Screening Assessment	Overall	African American	Japanese American	Latino	Native Hawaiian	White	P[a]
	N=5,900	N=1,660	N=1,328	N=800	N=533	N=1,579	
SCREENING ELIGIBILITY/SCREENING SENSITIVITY, N (%)							
Risk-based Screening							
Risk ≥ 1.51%	4,251 (72.1)	1,238 (74.6)	889 (66.9)	378 (47.2)	476 (89.3)	1,270 (80.4)	<0.001
Risk ≥ 1.7%	4,088 (69.3)	1,200 (72.3)	845 (63.6)	349 (43.6)	471 (88.4)	1,223 (77.5)	<0.001
Risk ≥ 2.0%	3,816 (64.7)	1,134 (68.3)	769 (57.9)	306 (38.2)	452 (84.8)	1,155 (73.1)	<0.001
USPSTF Criteria							
2013 USPSTF	2,068 (35.1)	460 (27.7)	443 (33.4)	231 (28.9)	247 (46.3)	687 (43.5)	<0.001
2021 USPSTF	2,552 (43.3)	638 (38.4)	531 (40.0)	298 (37.2)	302 (56.7)	783 (49.6)	<0.001
Alternate USPSTF Strategies							
55-80/20/15	2,491 (42.2)	624 (37.6)	521 (39.2)	296 (37.0)	294 (55.2)	756 (47.9)	<0.001
55-80/20/20	2,731 (46.3)	671 (40.4)	577 (43.4)	330 (41.2)	318 (59.7)	835 (52.9)	<0.001
55-80/20/25	2,903 (49.2)	697 (42.0)	638 (48.0)	349 (43.6)	329 (61.7)	890 (56.4)	<0.001
50-80/20/20	2,792 (47.3)	685 (41.3)	587 (44.2)	332 (41.5)	326 (61.2)	862 (54.6)	<0.001
50-80/20/25	2,964 (50.2)	711 (42.8)	648 (48.8)	351 (43.9)	337 (63.2)	917 (58.1)	<0.001
RACIAL AND ETHNIC DISPARITY, %							
Risk-based Screening							
Risk ≥ 1.51%	-	5.8	13.5	33.2	-8.9	Ref	
Risk ≥ 1.7%	-	5.2	13.9	33.9	-10.9	Ref	
Risk ≥ 2.0%	-	4.8	15.2	34.9	-11.7	Ref	
USPSTF Criteria							
2013 USPSTF	-	15.8	10.1	14.6	-2.8	Ref	
2021 USPSTF	-	11.2	9.6	12.4	-7.1	Ref	
Alternate USPSTF Strategies							
55-80/20/15	-	10.3	8.7	10.9	-7.3	Ref	
55-80/20/20	-	12.5	9.5	11.7	-6.8	Ref	
55-80/20/25	-	14.4	8.4	12.8	-5.3	Ref	
50-80/20/20	-	13.3	10.4	13.1	-6.6	Ref	
50-80/20/25	-	15.3	9.3	14.2	-5.1	Ref	

In the conservative COPD analysis, participants with missing COPD data were assigned null values (i.e., no history of COPD) when calculating the $PLCO_{m2012}$ risk scores. Risk-based screening was evaluated through the $PLCO_{m2012}$ model. Racial and ethnic disparity is defined as the absolute difference in screening sensitivities between each racial or ethnic group and White. Abbreviations: *USPSTF* United States Preventive Services Task Force, *N* sample size.

[a] P-value was calculated across race and ethnicity strata using the chi-square test.

Supplementary Table 8. Screening Eligibilities (i.e., Screening Sensitivities) and Racial and Ethnic Disparities through Risk-Based Screening and the USPSTF Criteria in the Primary Study Cohort Using a Modified $PLCO_{m2012}$ Model.

Screening Assessment	Overall	African American	Japanese American	Latino	Native Hawaiian	White	P[a]
	N=5,900	N=1,660	N=1,328	N=800	N=533	N=1,579	
SCREENING ELIGIBILITY/SCREENING SENSITIVITY, N (%)							
Risk-based Screening							
Risk ≥ 1.51%	4,674 (79.2)	1,273 (76.7)	1,060 (79.8)	547 (68.4)	490 (91.9)	1,304 (82.6)	<0.001
Risk ≥ 1.7%	4,558 (77.3)	1,241 (74.8)	1,038 (78.2)	533 (66.6)	480 (90.1)	1,266 (80.2)	<0.001
Risk ≥ 2.0%	4,353 (73.8)	1,184 (71.3)	993 (74.8)	509 (63.6)	463 (86.9)	1,204 (76.3)	<0.001
USPSTF Criteria							
2013 USPSTF	2,068 (35.1)	460 (27.7)	443 (33.4)	231 (28.9)	247 (46.3)	687 (43.5)	<0.001
2021 USPSTF	2,552 (43.3)	638 (38.4)	531 (40.0)	298 (37.3)	302 (56.7)	783 (49.6)	<0.001
Alternate USPSTF Strategies							
55-80/20/15	2,491 (42.2)	624 (37.6)	521 (39.2)	296 (37.0)	294 (55.2)	756 (47.9)	<0.001
55-80/20/20	2,731 (46.3)	671 (40.4)	577 (43.4)	330 (41.2)	318 (59.7)	835 (52.9)	<0.001
55-80/20/25	2,903 (49.2)	697 (42.0)	638 (48.0)	349 (43.6)	329 (61.7)	890 (56.4)	<0.001
50-80/20/20	2,792 (47.3)	685 (41.3)	587 (44.2)	332 (41.5)	326 (61.2)	862 (54.6)	<0.001
50-80/20/25	2,964 (50.2)	711 (42.8)	648 (48.8)	351 (43.9)	337 (63.2)	917 (58.1)	<0.001
RACIAL AND ETHNIC DISPARITY, %							
Risk-based Screening							
Risk ≥ 1.51%	-	5.9	2.8	14.2	-9.3	Ref	
Risk ≥ 1.7%	-	5.4	2.0	13.6	-9.9	Ref	
Risk ≥ 2.0%	-	5.0	1.5	12.7	-10.6	Ref	
USPSTF Criteria							
2013 USPSTF	-	15.8	10.1	14.6	-2.8	Ref	
2021 USPSTF	-	11.2	9.6	12.4	-7.1	Ref	
Alternate USPSTF Strategies							
55-80/20/15	-	10.3	8.7	10.9	-7.3	Ref	
55-80/20/20	-	12.5	9.5	11.7	-6.8	Ref	
55-80/20/25	-	14.4	8.4	12.8	-5.3	Ref	
50-80/20/20	-	13.3	10.4	13.1	-6.6	Ref	
50-80/20/25	-	15.3	9.3	14.2	-5.1	Ref	

Risk-based screening was evaluated through a modified $PLCO_{m2012}$ model in which the positive beta coefficients for the African American (beta=0.394) and Native Hawaiian (beta=1.027152) groups are retained but all other racial and ethnic groups (beta=0.000) equal the Non-Hispanic White group (the reference group). Racial and ethnic disparity is defined as the absolute difference in screening sensitivities between each racial or ethnic group and White. Abbreviations: *USPSTF* United States Preventive Services Task Force, *N* sample size.

[a] P-value was calculated across racial and ethnic strata using the chi-square test.

Supplementary Table 9. Screening Eligibilities (i.e., Screening Sensitivities) and Racial and Ethnic Disparities through Risk-Based Screening and the USPSTF Criteria in the Primary Study Cohort 6 Years Prior to Lung Cancer Diagnosis Using a Modified $PLCO_{m2012}$ Model.

Screening Assessment	Overall	African American	Japanese American	Latino	Native Hawaiian	White	P[a]
	N=5,900	N=1,660	N=1,328	N=800	N=533	N=1,579	
SCREENING ELIGIBILITY/SCREENING SENSITIVITY, N (%)							
Risk-based Screening							
Risk ≥ 1.51%	3,980 (67.5)	1,067 (64.3)	909 (68.4)	460 (57.5)	442 (82.9)	1,102 (69.8)	<0.001
Risk ≥ 1.7%	3,790 (64.2)	1,019 (61.4)	856 (64.5)	422 (52.8)	430 (80.7)	1,063 (67.3)	<0.001
Risk ≥ 2.0%	3,503 (59.4)	942 (56.7)	792 (59.6)	385 (48.1)	420 (78.8)	964 (61.1)	<0.001
USPSTF Criteria							
2013 USPSTF	2,081 (35.3)	421 (25.4)	500 (37.7)	250 (31.3)	201 (37.7)	709 (44.9)	<0.001
2021 USPSTF	3,055 (51.8)	729 (43.9)	697 (52.5)	357 (44.6)	321 (60.2)	951 (60.2)	<0.001
Alternate USPSTF Strategies							
55-80/20/15	2,874 (48.7)	701 (42.2)	661 (49.8)	348 (43.5)	281 (52.7)	883 (55.9)	<0.001
55-80/20/20	3,118 (52.8)	739 (44.5)	739 (55.6)	374 (46.8)	298 (55.9)	968 (61.3)	<0.001
55-80/20/25	3,247 (55.0)	754 (45.4)	786 (59.2)	388 (48.5)	305 (57.2)	1,014 (64.2)	<0.001
50-80/20/20	3,299 (55.9)	767 (46.2)	775 (58.4)	383 (47.9)	338 (63.4)	1,036 (65.6)	<0.001
50-80/20/25	3,428 (58.1)	782 (47.1)	822 (61.9)	397 (49.6)	345 (64.7)	1,082 (68.5)	<0.001
RACIAL AND ETHNIC DISPARITY, %							
Risk-based Screening							
Risk ≥ 1.51%	-	5.5	1.4	12.3	-13.1	Ref	
Risk ≥ 1.7%	-	5.9	2.8	14.5	-13.4	Ref	
Risk ≥ 2.0%	-	4.4	1.5	13.0	-17.7	Ref	
USPSTF Criteria							
2013 USPSTF	-	19.5	7.2	13.6	7.2	Ref	
2021 USPSTF	-	16.3	7.7	15.6	0.0	Ref	
Alternate USPSTF Strategies							
55-80/20/15	-	13.7	6.1	12.4	3.2	Ref	
55-80/20/20	-	16.8	5.7	14.5	5.4	Ref	
55-80/20/25	-	18.8	5.0	15.7	7.0	Ref	
50-80/20/20	-	19.4	7.2	17.7	2.2	Ref	
50-80/20/25	-	21.4	6.6	18.9	3.8	Ref	

Risk-based screening was evaluated through a modified $PLCO_{m2012}$ model in which the positive beta coefficients for the African American (beta=0.394) and Native Hawaiian (beta=1.027152) groups are retained but all other racial and ethnic groups (beta=0.000) equal the Non-Hispanic White group (the reference group). Racial and ethnic disparity is defined as the absolute difference in screening sensitivities between each racial or ethnic group and White. Abbreviations: *USPSTF* United States Preventive Services Task Force, *N* sample size.

[a] P-value was calculated across racial and ethnic strata using the chi-square test.