Supplementary Material

Supplementary Tables

Supplementary Table 1. Missing count and rates of variables in primary study population.[a]

Variables	Missing counts (Missing rates, %)
IPLC stage at initial diagnosis	48 (4.86)
IPLC diagnosis between baseline and 10-year follow-up	11 (1.11)
Baseline pack-years	5 (0.51)
BMI	2 (0.02)
Baseline cigarettes per day	2 (0.02)
Education	2 (0.02)
Race	0 (0.0)
Family history	0 (0.0)
Prior history of cancer	0 (0.0)
Age at baseline	0 (0.0)
Sex	0 (0.0)

[a] IPLC = initial primary lung cancer, BMI = body mass index.

Supplementary Table 2. Population characteristics stratified by missing status of IPLC stage. [a]

Variable	Overall	No missing IPLC stage[b]	Missing IPLC stage[b]	P[d]
Total, No. (%)	986	938 (95.1)	48 (4.9)	
Age at baseline, mean (SD)	59.55 (7.23)	59.72 (7.24)	61.96 (6.77)	0.02
BMI (kg/m^2), mean (SD)	25.66 (5.00)	25.68 (4.97)	25.2 (5.56)	0.53
Male sex, No. (%)	527 (53.4)	501 (53.4)	26 (54.2)	1.00
Education, No. (%)				0.38
High school or less	460 (46.7)	434 (46.4)	26 (54.2)	
Some college or graduate	423 (43.0)	407 (43.5)	16 (33.3)	
Postgraduate	101 (10.3)	95 (10.1)	6 (12.5)	
Family history of lung cancer, No. (%)	81 (8.2)	81 (8.64)	0 (0)	0.06
Prior history of cancer, No. (%)	226 (22.9)	212 (22.6)	14 (29.2)	0.38
Pack-years, mean (SD)	31.50 (16.21)	31.46 (16.25)	32.40 (15.56)	0.70
Cigarettes/day, mean (SD)	17.86 (7.84)	17.87 (7.85)	17.65 (7.65)	0.85
Race, No. (%)				0.05
White	236 (23.9)	222 (23.7)	14 (29.2)	
African American	231 (23.4)	223 (23.8)	8 (16.7)	
Japanese American	232 (23.5)	222 (23.7)	10 (20.8)	
Latino	137 (13.9)	124 (13.2)	13 (27.0)	
Native Hawaiian	117 (11.9)	114 (12.2)	3 (6.3)	
Other	33 (3.3)	33 (3.52)	0 (0)	
IPLC diagnosis, No. (%)				0.22
No	826 (83.6)	771 (83.2)	44 (91.7)	
Yes[d]	160 (16.4)	156 (16.8)	4 (8.3)	

[a] Based on N=986 patients who were (i) active smokers at baseline, (ii) had 10-year follow-up information, and (iii) were diagnosed with IPLC between 1993-2017. SD = standard deviation, BMI = body mass index, IPLC = initial primary lung cancer.

[b] Smoking-related variables were measured at baseline and updated with 10-year follow-up data prior to lung cancer diagnosis.

[c] P-value was calculated across smoking cessation stratum using the chi-square test for categorical data and the t-test for continuous data. All statistical tests were 2-sided.

[d] IPLC diagnosis between baseline (1993-1996) and 10-year follow-up (2003-2008).

Supplementary Table 3. Univariate logistic analysis of factors associated with smoking cessation at 10-year follow-up.[a]

Variables	OR[b] (95% CI)	P[c]
IPLC diagnosis		
No	1.00 (Ref)	
Yes [d]	5.04 (3.34, 7.70)	<0.001
BMI (kg/m^2)	0.95 (0.93, 0.98)	<0.001
Age at baseline (years)	1.03 (1.01, 1.05)	<0.001
Smoking intensity (Cigarettes/day)	0.96 (0.94, 0.97)	<0.001
Smoking Pack-years	0.98 (0.97, 0.99)	<0.001
Family history of lung cancer		
No	1.00 (Ref)	
Yes	1.70 (1.06, 2.71)	0.03
Prior history of cancer		
No	1.00 (Ref)	
Yes	1.06 (0.79, 1.43)	0.71
Sex		
Female	1.00 (Ref)	
Male	0.98 (0.76, 1.26)	0.86
Education		
High school or less	1.00 (Ref)	
Some college or graduate	0.95 (0.73, 1.24)	0.71
Postgraduate	0.91 (0.59, 1.40)	0.67
Race		
White	1.00 (Ref)	
African American	0.79 (0.55, 1.14)	0.22
Japanese American	0.95 (0.66, 1.37)	0.79
Latino	0.82 (0.54, 1.25)	0.35
Native Hawaiian	0.60 (0.38, 0.94)	0.03
Other	1.45 (0.68, 3.09)	0.33

[a] Based on N=986 patients who were (i) active smokers at baseline, (ii) had 10-year follow-up information, and (iii) were diagnosed with IPLC between 1993-2017. OR = odds ratio, CI = confidence interval, IPLC = initial primary lung cancer, BMI = body mass index

[b] Based on N=986 patients who were (i) current smokers at baseline, (ii) had 10-year follow-up information, and (iii) were diagnosed with IPLC between 1993-2017.

[c] P-value was calculated using the 2-sided Wald test.

[d] IPLC diagnosis between baseline (1993-1996) and 10-year follow-up (2003-2008).

Supplementary Table 4. Sensitivity analysis for multivariate logistic regression of smoking cessation using covariates selected after multiple testing adjustment (with P<0.005) in univariable logistic analysis.[a]

Variable	aOR (95% CI)	P[b]
IPLC diagnosis		
No	1.00 (Ref)	
Yes[c]	5.11 (3.39, 7.95)	<0.001
BMI (kg/m^2)	0.96 (0.93, 0.99)	0.005
Age at baseline (years)	1.03 (1.01, 1.05)	0.003
Pack-years	0.98 (0.97, 0.99)	<0.001

[a] Based on N=986 patients who were (i) current smokers at baseline, (ii) had 10-year follow-up information, and (iii) were diagnosed with IPLC between 1993-2017. aOR = adjusted odds ratio, CI = confidence interval, IPLC = initial primary lung cancer, BMI = body mass index.
[b] P-value was calculated using the 2-sided Wald test.
[c] IPLC between baseline (1993-1996) and 10-year follow-up (2003-2008).

Supplementary Table 5. Sensitivity analysis for multivariate logistic regression of smoking cessation when limiting those with IPLC diagnosis between baseline and 10-year follow-up to only those whose diagnosis occurred within 5 years from baseline assessment.[a]

Variable	aOR (95% CI)	P[b]
IPLC diagnosis (%)		
No	1.00 (Ref)	
Yes[c]	7.14 (3.80, 14.68)	<0.001
BMI (kg/m^2)	0.97 (0.94, 1.00)	0.06
Age at baseline (years)	1.03 (1.01, 1.05)	0.003
Pack-years	0.97 (0.96, 0.98)	<0.001
Family history of lung cancer (%)		
No	1.00 (Ref)	
Yes	1.93 (1.15, 3.31)	0.01
Race (%)		
White	1.00 (Ref)	
African American	0.65 (0.42, 1.01)	0.06
Japanese American	0.86 (0.57, 1.30)	0.48
Latino	0.59 (0.35, 0.97)	0.04
Native Hawaiian	0.50 (0.29, 0.85)	0.01
Other	1.07 (0.46, 2.56)	0.88

[a] Based on N=893 patients who were (i) current smokers at baseline, (ii) had 10-year follow-up information, and (iii) were diagnosed with IPLC between 1993-2017. aOR = adjusted odds ratio, CI = confidence interval, IPLC = initial primary lung cancer, BMI = body mass index

[b] P-value was calculated using the 2-sided Wald test.

[c] IPLC diagnosis between baseline (1993-1996) and 5-year follow-up (1998-2001).

Supplementary Table 6. Complete-case analysis for cause-specific hazard regression of the risk of second primary lung cancer with associated factors.[a]

Variable	aHR (95% CI)	P[b]
Smoking cessation[c]		
No (Current-current)	1.00 (Ref)	
Yes (Current-former)	0.25 (0.11, 0.55)	<0.001
Age at initial diagnosis (years)	1.00 (0.95, 1.05)	0.98
Stage at initial diagnosis		
Early (I-III)	1.00 (Ref)	
Advanced (IV)	0.56 (0.18, 1.71)	0.31
IPLC histology		
NSCLC	1.00 (Ref)	
SCLC	0.46 (0.06, 3.49)	0.45
Other	1.04 (0.30, 3.60)	0.95

[a] Based on N=934 patients who were (i) current smokers at baseline, (ii) had 10-year follow-up information, (iii) were diagnosed with IPLC between 1993-2017 and (iv) had complete data for all variables. aHR = adjusted hazard ratio, CI = confidence interval, IPLC = initial primary lung cancer, NSCLC = Non-small cell lung cancer, SCLC = small cell lung cancer.
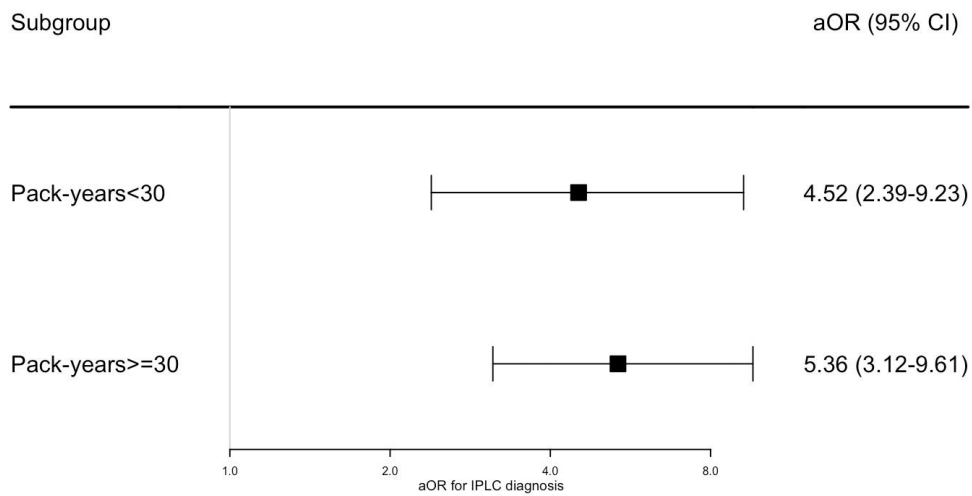
[b] P-value was calculated using the 2-sided Wald test.

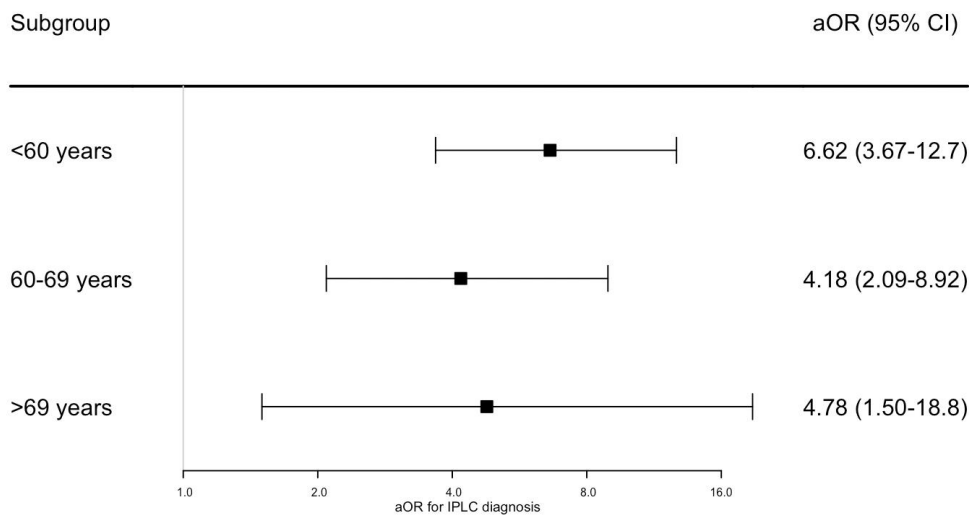[c] Surveyed at baseline and 10-year follow-up.

Supplementary Figures

Supplementary Figure 1. Adjusted odds ratios for evaluating an association between initial primary lung cancer (IPLC) diagnosis and smoking cessation based on subgrouping by **A**) smoking pack-years and **B**) age category. The model was adjusted for family history, body mass index, smoking pack-years, and race. Error bars represent the 95% confidence intervals (CIs). aOR = adjusted odds ratio,·

A

Subgroup	aOR (95% CI)
Pack-years<30	4.52 (2.39-9.23)
Pack-years>=30	5.36 (3.12-9.61)

aOR for IPLC diagnosis

B

Subgroup	aOR (95% CI)
<60 years	6.62 (3.67-12.7)
60-69 years	4.18 (2.09-8.92)
>69 years	4.78 (1.50-18.8)

aOR for IPLC diagnosis

Supplementary Figure 2. Time distribution from cohort enrollment to diagnosis of **A**) initial primary lung cancer (IPLC) (N=982), and from IPLC diagnosis to **B**) second primary lung cancer (SPLC) diagnosis (N=33).