

S1: Cohort comparisons of all variables included in analyses

Variables	NSCLC (n = 105,676)	Non-NSCLC LC (n = 37,759)	Non-cancer (n = 257,047)	Other Cancer (n=69,820)
	Mean (SD) or Pct	Mean (SD) or Pct	Mean (SD) or Pct	Mean (SD) or Pct
Number (per patient) of unique days with lung cancer diagnosis codes (ICD-9-CM 162.2-162.9) in any Medicare claims	129.67 (142.06) ^b	95.01 (128.87)	29.98 (77.46)	22.85 (65.04)
Number (per patient) of unique days with inpatient lung cancer diagnosis codes (ICD-9-CM 162.2-162.9)	19.46 (25.09) ^b	16.27 (22.59)	14.7 (32.76)	14.11 (31.98)
Number (per patient) of unique days with other/non-lung cancer diagnosis codes on or pre-index (ICD-9-CM 140-162.0, 163.0-172.*, 174-196.*,197.1-209.3*, 209.7*)	33.09 (87.64) ^b	29.92 (83.05)	13.26 (57.87)	61.12 (126.67)
Abnormal chest sounds - pre index	2.74% ^b	3.58%	1.90%	2.06%
Radiologic or other abnormal lung findings - post index	50.45% ^b	34.31%	17.10%	23.20%
Radiologic or other abnormal lung findings - pre index	40.81% ^b	35.66%	10.40%	13.64%
Bronchial stent -post index	0.26% ^b	0.16%	^a	^a
COPD (including emphysema and bronchitis) - post index	75.03% ^b	67.57%	35.11%	37.41%
COPD (including emphysema and bronchitis) - pre index	66.40% ^b	72.03%	31.14%	32.45%
Chest or head and neck mass or swelling - post index	78.37% ^b	67.83%	37.76%	45.26%
Chest pain - post index	56.22% ^b	40.83%	46.25%	49.82%
Chest pain - pre index	59.93% ^b	59.89%	45.79%	47.61%
Cough - post index	39.95% ^b	26.31%	33.33%	34.80%
Dysphagia - post index	19.10% ^b	15.41%	17.28%	18.91%
Enlargement of lymph nodes - pre index	15.99% ^b	16.66%	2.24%	6.60%
Evidence of chemotherapy, biologics, or other targeted agent cancer drugs - post index	41.60% ^b	29.74%	1.93%	13.65%
Evidence of chemotherapy, biologics, or other targeted agent cancer drugs - pre index	3.92% ^b	3.80%	1.00%	9.51%
Evidence of receiving cyclophosphamide, doxorubicin, irinotecan, vincristine or topotecan - post index	1.00% ^b	7.78%	0.10%	2.88%

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	Mean (SD) or Pct	Mean (SD) or Pct	Mean (SD) or Pct	Mean (SD) or Pct
Evidence of receiving cyclophosphamide, doxorubicin, irinotecan, vincristine or topotecan - pre index	0.54% ^b	0.40%	0.05%	2.53%
Evidence of radiotherapy - post index	46.16% ^b	29.98%	0.75%	11.38%
Fatigue - post index	54.52% ^b	44.06%	50.49%	56.37%
Fatigue - pre index	51.08% ^b	56.58%	45.02%	47.03%
History of tobacco use - post index	51.17% ^b	36.21%	16.23%	20.33%
History of tobacco use - pre index	46.21% ^b	48.96%	12.45%	15.80%
LC days 2	97.57% ^b	91.84%	0.84%	3.78%
LC days 30	77.94% ^b	54.99%	0.28%	1.01%
LC days 4	96.60% ^b	87.92%	0.65%	2.72%
Lung biopsy greater than 60 days post	15.83% ^b	5.62%	1.93%	3.63%
Lung biopsy - pre index	34.76% ^b	21.75%	1.21%	2.27%
Lung fibrosis - post index	13.37% ^b	8.63%	5.44%	6.59%
Lung fibrosis - pre index	11.28%	12.07%	4.29%	5.21%
Lung resections - post index	23.24% ^b	2.16%	0.14%	0.35%
Lung resections - pre index	3.87% ^b	0.74%	0.10%	0.27%
Non-chest pain - post index	73.32% ^b	59.48%	78.87%	82.32%
Non-chest pain - pre index	82.52% ^b	82.98%	77.05%	79.61%
Other LC diagnostic procedures - pre index	22.89% ^b	23.60%	9.99%	11.64%
Other possibly related respiratory symptoms or conditions - pre index	55.79% ^b	46.91%	14.45%	20.28%
Home oxygen or supplemental oxygen - pre index	14.68% ^b	21.64%	5.69%	5.85%
PET scan - pre index	25.66% ^b	13.11%	0.84%	6.27%
Pleurisy, pleural effusion, or empyema - pre index	25.72% ^b	29.09%	9.05%	12.47%
Pneumonia - post index	53.42% ^b	47.36%	25.08%	29.28%
Other pneumonitis - post index	6.89% ^b	5.75%	6.22%	7.06%

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	Mean (SD) or Pct	Mean (SD) or Pct	Mean (SD) or Pct	Mean (SD) or Pct
Other pneumonitis - pre index	2.68% ^b	4.38%	2.11%	2.07%
Pulmonary collapse (including pneumothorax) - post index	49.40%	26.81%	15.06%	21.14%
Pulmonary collapse (including pneumothorax) - pre index	24.81% ^b	22.66%	9.26%	12.76%
Spirometry - post index	38.98% ^b	15.74%	13.27%	14.26%
Spirometry - pre index	41.70% ^b	32.88%	14.31%	15.55%
Cachexia and weight loss - pre index	18.85% ^b	23.13%	10.41%	11.79%
Diabetes without chronic complications	33.51% ^b	33.16%	31.49%	31.87%
Moderate or severe liver disease	1.96% ^b	3.74%	1.10%	1.65%
Diabetes with chronic complications	19.19% ^b	19.09%	19.67%	19.07%
Dementia	6.00% [†]	13.26%	11.42%	8.83%
Cerebrovascular disease	31.58% [†]	35.44%	21.17%	20.81%
Rheumatic disease	6.44%	6.04%	5.29%	4.82%
Type of other cancer codes pre-index (using cancer code groupers)	44.88% ^b	49.70%	53.86%	63.79%
Patients with at least 2 LC diagnosis codes (ICD-9-CM: 162.2-162.9)	89.06% ^b	81.62%	0.26%	0.77%
Patients with LC diagnosis codes (ICD-9-CM: 162.2-162.9) at least 30 days apart	82.21% ^b	63.86%	0.26%	0.77%
Patients with LC diagnosis codes (ICD-9-CM: 162.2-162.9) at least 60 days apart	75.65% ^b	55.44%	0.26%	0.76%
162.3 Malignant neoplasm of upper lobe, bronchus, or lung	60.50% ^b	38.16%	0.28%	0.73%
162.4 Malignant neoplasm of middle lobe, bronchus, or lung	13.37% ^b	8.51%	0.05%	0.18%
162.5 Malignant neoplasm of lower lobe, bronchus, or lung	39.26% ^b	21.48%	0.18%	0.53%
162.8 Malignant neoplasm of other parts of bronchus, or lung	41.11% ^b	29.77%	0.17%	0.70%
162.9 Malignant neoplasm of bronchus and lung, unspecified	97.30% ^b	90.59%	1.20%	5.54%
165.8 Malignant neoplasm of other sites within the respiratory system and intrathoracic organs	0.28% ^b	0.26%	^a	^a
197.0 Secondary malignant neoplasm of lung	28.55% ^b	21.50%	0.28%	5.81%

Variables	NSCLC (n = 105,676)	Non-NSCLC LC (n = 37,759)	Non-cancer (n = 257,047)	Other Cancer (n=69,820)
	Mean (SD) or Pct	Mean (SD) or Pct	Mean (SD) or Pct	Mean (SD) or Pct
212.3 Benign neoplasm of bronchus and lung	8.44% ^b	5.77%	0.41%	0.65%
231.2 Carcinoma in situ of bronchus and lung	16.23% ^b	10.52%	0.08%	0.31%
V10.20 Personal history of malignant neoplasm of unspecified respiratory organ	0.58% ^b	0.24%	0.00%	0.05%
V10.29 Personal history of malignant neoplasm of other respiratory and intrathoracic organs	0.26% ^b	0.16%	0.01%	0.14%
Presence of any malignant neoplasm code (ICD-9-CM 140-172.*, 174-209.3*, 209.7*)	98.92% ^b	96.98%	16.14%	88.55%
Presence of ICD-9-CM codes 162.2-162.9 on inpatient claim	82.99% ^b	73.30%	0.39%	1.03%
Presence of other cancer (not LC; ICD-9-CM 140-162.0, 163.0-172.*, 174-196.*, 197.1-209.3*, 209.7*) diagnosis code on or post-index in Medicare	75.97% ^b	65.16%	9.66%	76.73%
Presence of other cancer (not LC; ICD-9-CM 140-162.0, 163.0-172.*, 174-196.*, 197.1-209.3*, 209.7*) diagnosis code pre-index in Medicare	40.79% ^b	40.54%	8.66%	62.74%
Diagnostic radiology	45.41% ^b	44.18%	49.19%	46.64%
Hematology	2.98% ^b	2.29%	0.45%	2.12%
Hematology/oncology	33.27% ^b	24.34%	4.86%	20.09%
Thoracic surgery	16.14% ^b	7.24%	3.52%	3.94%
Charlson Comorbidity Index in the 12 months prior to index	3.05 (2.23)	3.45 (2.33)	2.01 (2.21)	2.07 (2.19)
Number of other cancer diagnosis codes post-index	31.55 (79)	24.5 (62.95)	22.29 (70.34)	67.05 (124.01)
Number of other cancer diagnosis codes pre-index	34.21 (92.91)	30.8 (91.78)	12.57 (53.77)	55.63 (110.07)
Number of other cancer diagnosis codes pre-and post-index	26.41 (89.53)	17.98 (70.84)	3.06 (30.31)	85.52 (154.6)
Number (per patient) of unique days with outpatient LC diagnosis codes (ICD-9-CM 162.2-162.9)	32.93 (55.46)	31.72 (55.14)	12.77 (32.74)	7.91 (21.29)
Number (per patient) of unique days with other/non-LC diagnosis codes on or post-index (ICD-9-CM 140-162.0, 163.0-172.*,174-196.*, 197.1-209.3*, 209.7*)	57.67 (101.91)	51.43 (89.63)	24.11 (77.83)	77.66 (147.63)
Evidence of airway obstruction -post index	76.53%	68.65%	39.49%	41.58%

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	Mean (SD) or Pct	Mean (SD) or Pct	Mean (SD) or Pct	Mean (SD) or Pct
Evidence of airway obstruction -pre index	69.25%	73.90%	35.72%	36.88%
Bronchial stent -pre index	0.03%	a	a	a
Brochospasm -post index	2.13%	1.15%	1.66%	1.56%
Brochospasm -pre index	1.54%	1.59%	0.76%	0.69%
Current reason for entitlement to Medicare at index year				
Old age and survivors insurance (age)	99.75%	99.83%	98.08%	98.06%
Disability insurance benefits	0.12%	0.06%	1.78%	1.80%
End-stage renal disease	0.12%	0.10%	0.10%	0.11%
Disability insurance benefits/end-stage renal disease	a	a	0.04%	0.02%
Chest or head and neck mass or swelling -pre index	70.09%	66.50%	31.58%	36.48%
Cough -pre index	48.38%	47.32%	29.95%	31.21%
Diagnostic radiology -post index	93.93%	84.19%	69.39%	80.25%
Diagnostic radiology -pre index	91.09%	90.01%	64.10%	73.47%
Dysphagia -pre index	12.14%	15.28%	10.96%	11.35%
Evidence of radiotherapy -pre index	6.00%	5.05%	0.44%	10.49%
Family history of respiratory malignant neoplasm-post index	2.94%	1.31%	0.21%	0.47%
Family history of respiratory malignant neoplasm-pre index	0.70%	0.54%	0.11%	0.32%
Abnormal sputum, including hemoptysis -post index	4.44%	2.58%	1.25%	1.42%
Abnormal sputum, including hemoptysis -pre index	2.24%	2.02%	0.51%	0.51%
LungBiopsy0_59	43.41%	25.86%	0.14%	0.27%
Medicare status code at index				
Aged	99.22%	99.30%	99.51%	97.88%
Aged with end-stage renal disease	0.66%	0.66%	0.11%	0.36%
Disabled	0.12%	0.04%	0.35%	1.73%
Disabled with end-stage renal disease	a	a	0.01%	a
End-stage renal disease only	a	a	0.02%	0.02%

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	Mean (SD) or Pct	Mean (SD) or Pct	Mean (SD) or Pct	Mean (SD) or Pct
Other LC diagnostic procedures -post index	23.22%	12.76%	10.83%	11.73%
Other possibly related respiratory symptoms or conditions -post index	64.74%	45.98%	21.66%	30.35%
Home oxygen or supplemental oxygen -post index	34.76%	29.12%	9.61%	10.94%
Physician management -post index	96.29%	87.89%	84.19%	91.21%
Physician management -pre index	94.75%	93.73%	82.30%	88.38%
Pneumonia -pre index	37.48%	44.35%	17.03%	18.67%
Respiratory failure -post index	35.02%	28.87%	14.33%	16.92%
Respiratory failure -pre index	13.99%	19.33%	5.89%	6.33%
Personal history of other respiratory diseases -post index	0.81%	0.39%	0.39%	0.46%
Personal history of other respiratory diseases -pre index	0.49%	0.49%	0.19%	0.17%
Shortness of breath including wheezing -post index	75.73%	61.66%	47.83%	53.27%
Shortness of breath including wheezing -pre index	64.01%	66.84%	39.63%	42.51%
Tuberculosis -post index	1.02%	0.61%	0.44%	0.55%
Tuberculosis -pre index	1.20%	1.02%	0.57%	0.52%
Cachexia and weight loss -post index	21.72%	18.09%	13.35%	17.66%
Myocardial infarction	13.07%	14.45%	6.63%	7.53%
Hemiplegia or paraplegia	6.17%	9.07%	4.73%	4.20%
Renal disease	30.82%	36.97%	22.03%	25.33%
AIDS/HIV	0.91%	0.80%	0.57%	0.66%
Congestive heart failure	28.63%	36.87%	20.26%	20.80%
Peripheral vascular disease	34.66%	37.61%	22.14%	22.75%
Peptic ulcer disease	4.55%	5.00%	2.85%	3.18%
Mild liver disease	14.62%	17.76%	4.88%	7.79%
Evidence of a primary payer other than Medicare				
No	90.95%	92.34%	94.76%	94.73%

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	Mean (SD) or Pct	Mean (SD) or Pct	Mean (SD) or Pct	Mean (SD) or Pct
Yes	9.05%	7.66%	5.24%	5.27%
Type of other cancer codes post-index (using cancer code groupers)	77.21%	68.38%	60.01%	78.97%
162.0 Malignant neoplasm of trachea	4.11%	2.70%	0.02%	0.14%
165.0 Malignant neoplasm of upper respiratory tract, part unspecified	0.18%	0.11%	a	0.02%
165.9 Malignant neoplasm of ill-defined sites within the respiratory system	0.79%	0.57%	0.01%	0.04%
197.3 Secondary malignant neoplasm of other respiratory organs	0.78%	0.50%	0.01%	0.23%
212.8 Benign neoplasm of other specified sites of respiratory and intrathoracic organs	0.04%	0.04%	a	a
212.9 Benign neoplasm of respiratory and intrathoracic organs, site unspecified	0.10%	0.09%	0.02%	0.03%
231.8 Carcinoma in situ of other specified parts of respiratory system	0.32%	0.26%	0.01%	0.05%
231.9 Carcinoma in situ of respiratory system, part unspecified	1.03%	0.73%	0.01%	0.05%
235.7 Neoplasm of uncertain behavior of trachea, bronchus, and lung	19.34%	13.66%	0.50%	1.10%
235.9 Neoplasm of uncertain behavior of other and unspecified respiratory organs	0.45%	0.29%	0.11%	0.19%
239.1 Neoplasm of unspecified nature of respiratory system	28.35%	20.80%	0.58%	1.81%
Interventional radiology	13.80%	10.73%	8.97%	10.51%
Medical oncology	14.81%	10.33%	1.57%	9.04%
Pulmonary disease	37.56%	31.52%	16.01%	17.38%
Radiation oncology	25.51%	17.35%	3.04%	14.26%
Radiation therapy centers	0.34%	0.20%	0.01%	0.13%
Surgical oncology	1.28%	0.66%	0.62%	2.08%
Urban vs. rural				

Variables	NSCLC (n = 105,676)	Non-NSCLC LC (n = 37,759)	Non-cancer (n = 257,047)	Other Cancer (n=69,820)
	Mean (SD) or Pct	Mean (SD) or Pct	Mean (SD) or Pct	Mean (SD) or Pct
Big metro (urban = 00 or 01)	53.48%	48.25%	52.22%	55.15%
Metro (urban = 02 or 03)	29.30%	29.18%	30.05%	28.80%
Urban (urban = 04 or 05)	5.87%	7.39%	6.13%	5.94%
Less urban (urban = 06 or 07)	9.19%	12.31%	9.40%	8.24%
Rural (urban = 08 or 09)	2.15%	2.87%	2.20%	1.86%

Abbreviations: AIDS/HIV = acquired immunodeficiency syndrome/ human immunodeficiency virus; COPD = chronic obstructive pulmonary disease; ICD-9-CM = International Classification of Diseases, Ninth Revision, Clinical Modification; LC = lung cancer; NSCLC = non-small cell lung cancer; PET = positron emission tomography.

^a Percentages suppressed to conform with CMS cell size policy

^b Selected by variable reduction methods to best discriminate NSCLC vs. non-NSCLC LC/non-cancer/other cancer

The * indicates include all codes in this range

S2: Performance results for logistic regression after variable selection (method II, A, 1 from Table 2) and 10-variable score (method II, B, 1 from Table 2) in model building and validation subsets, using different cut points (after re-categorizing high-probability lung cancer cases)

	Model Building Subset							Testing Models with the Validation Subset						
	Specificity							Specificity						
	NSCLC Sens	Non-cancer	Other Cancer	Non-NSCLC LC	Bayes' PPV	Bayes' NPV	F-score	NSCLC Sens	Non-cancer	Other Cancer	Non-NSCLC LC	Bayes' PPV	Bayes' NPV	F-score
Models based on LC positive score subgroup applied to entire sample														
Points score														
NSCLC ≥ 1	82.51	99.93	99.66	37.46	61.75	99.95	70.64	82.83	99.94	99.70	37.77	62.52	99.95	71.26
NSCLC ≥ 3	81.53	99.94	99.68	43.10	63.16	99.95	71.18	81.91	99.94	99.72	43.27	64.20	99.95	71.99
NSCLC ≥ 4	79.71	99.95	99.73	49.99	66.01	99.94	72.22	80.05	99.94	99.75	50.35	65.88	99.94	72.28
NSCLC ≥ 5	77.34	99.95	99.78	55.22	68.37	99.93	72.58	77.69	99.95	99.79	55.57	67.61	99.93	72.30
NSCLC ≥ 6	74.89	99.96	99.81	59.14	70.04	99.93	72.38	75.21	99.95	99.81	59.24	69.19	99.93	72.07
NSCLC ≥ 7	70.65	99.96	99.83	65.22	71.66	99.91	71.15	70.86	99.96	99.84	65.09	71.78	99.91	71.32
NSCLC ≥ 10	40.64	99.99	99.94	90.40	80.88	99.82	54.10	41.08	99.98	99.93	90.21	79.57	99.83	54.19
Non-interaction logistic model														
Probability of NSCLC $\geq 50.0\%$ cutoff	95.22	35.16	29.03	36.88	69.55	82.41	80.38	95.30	26.44	21.62	36.49	67.99	80.34	79.36
Probability of NSCLC $\geq 60.0\%$ cutoff	92.10	47.25	38.71	45.31	72.35	78.53	81.04	92.24	39.08	33.33	44.42	70.74	76.96	80.07
Probability of NSCLC	89.95	52.75	49.19	49.80	74.09	76.45	81.26	90.21	42.53	37.84	48.93	71.74	74.45	79.92

	Model Building Subset							Testing Models with the Validation Subset						
	Specificity							Specificity						
	NSCLC Sens	Non-cancer	Other Cancer	Non-NSCLC LC	Bayes' PPV	Bayes' NPV	F-score	NSCLC Sens	Non-cancer	Other Cancer	Non-NSCLC LC	Bayes' PPV	Bayes' NPV	F-score
≥65.0% cutoff														
Probability of NSCLC ≥67.0% cutoff	88.85	57.14	50.81	51.95	75.05	75.61	81.37	89.13	43.68	41.44	50.98	72.21	73.25	79.78
Probability of NSCLC ≥70.0% cutoff	86.95	57.14	53.23	55.03	75.35	73.19	80.73	87.21	48.28	45.95	54.54	73.37	71.72	79.70
Probability of NSCLC ≥75.0% cutoff	82.61	59.34	58.87	61.38	76.39	68.91	79.38	83.02	54.02	54.95	60.71	75.10	68.28	78.86
Probability of NSCLC ≥90.0% cutoff	43.04	91.21	90.32	91.99	88.65	50.70	57.95	43.05	90.80	88.29	91.64	87.92	50.53	57.80

Abbreviations: LC = lung cancer; NPV = negative predictive value; NSCLC = non-small cell lung cancer; PPV = positive predictive value; Sens = Sensitivity; Spec = Specificity.

S3: Logistic regression after variable selection (method II, A, 1 from Table 2)

Variable	Regression Estimate	Standard Error	p-value
Intercept	3.8669	43.5458	0.9292
Urban vs. rural			
Big metro (urban = 00 or 01)	0.1574	0.0239	<.0001
Metro (urban = 02 or 03)	0.1162	0.0256	<.0001
Urban (urban = 04 or 05)	-0.0267	0.0397	0.5017
Less urban (urban = 06 or 07)	-0.1544	0.033	<.0001
Race/ethnicity			
Unknown	0.0362	0.3402	0.9152
White	-0.1697	0.0703	0.0157
Black	0.0745	0.0777	0.3373
Other	0.0707	0.1154	0.54
Asian	0.098	0.0951	0.3026
Hispanic	0.1014	0.1195	0.3964
Medicare status code at index			
Aged	-4.3172	43.545	0.921
Aged with end-stage renal disease	-3.9626	43.5451	0.9275
Disabled	-3.5239	43.5472	0.9355
Disabled with end-stage renal disease	5.8269	117.7	0.9605
No evidence of a primary payer other than Medicare	-0.0424	0.0224	0.0588
Evidence of receiving cyclophosphamide, doxorubicin, irinotecan, vincristine or topotecan-post index	-3.08	0.0689	<.0001
PET scan -post index	0.6326	0.0293	<.0001
Lung resections -post index	1.6753	0.0625	<.0001
Presence of ICD-9-CM codes 162.2-162.9 on outpatient claim	0.3735	0.0316	<.0001
Lung biopsy -pre index	0.8014	0.0291	<.0001

Variable	Regression Estimate	Standard Error	p-value
Lung biopsy -post index	0.6867	0.0304	<.0001
≥10 days of lung cancer codes	0.4819	0.0597	<.0001
Lung resections -pre index	1.3267	0.1057	<.0001
Physician management -post index	0.5615	0.0601	<.0001
COPD (including emphysema and bronchitis) -pre index	-0.1172	0.0363	0.0012
162.3 malignant neoplasm of upper lobe, bronchus or lung	0.295	0.0256	<.0001
162.5 malignant neoplasm of lower lobe, bronchus or lung	0.3209	0.0269	<.0001
Gender (male=1; female=2)	-0.2694	0.024	<.0001
162.2 malignant neoplasm of main bronchus	-0.3015	0.0309	<.0001
History of tobacco use -pre index	-0.1932	0.0258	<.0001
Pleurisy, pleural effusion, or empyema -post index	0.2242	0.0264	<.0001
Enlargement of lymph nodes -post index	-0.207	0.0286	<.0001
Lung biopsy greater than 60 days post	-0.2948	0.0477	<.0001
PET scan -pre index	0.2083	0.0344	<.0001
Home oxygen or supplemental oxygen -pre index	-0.1649	0.0325	<.0001
Dementia	-0.181	0.0431	<.0001
Pulmonary collapse (including pneumothorax)-post index	0.1913	0.0273	<.0001
Evidence of chemotherapy, biologics, or other targeted agent cancer drugs -post index	-0.2914	0.0315	<.0001
Evidence of radiotherapy -post index	0.1728	0.0283	<.0001
Chest or head and neck mass or swelling -post index	-0.2054	0.0319	<.0001
197.0 secondary malignant neoplasm of lung	0.208	0.0278	<.0001
Spirometry -post index	0.2554	0.0315	<.0001
COPD (including emphysema and bronchitis) -post index	-0.1335	0.0341	<.0001
Charlson Comorbidity Index	-0.0349	0.00732	<.0001
≥30 days of lung cancer codes	0.1858	0.0344	<.0001
Fatigue -post index	-0.0913	0.0258	0.0004
Specialist: hematology/oncology	0.2417	0.039	<.0001

Variable	Regression Estimate	Standard Error	p-value
Specialist: diagnostic radiology	-0.1615	0.0364	<.0001
Spirometry -pre index	0.1244	0.0276	<.0001
Other lung cancer diagnostic procedures -pre index	-0.1496	0.0294	<.0001
Number (per patient) of unique days with lung cancer diagnosis codes (ICD-9-CM 162.2-162.9) in any Medicare claims	-0.00041	0.000103	<.0001
Pleurisy, pleural effusion, or empyema -pre index	0.1003	0.0288	0.0005
Enlargement of lymph nodes -pre index	-0.122	0.032	0.0001
Age (in years)	-0.00538	0.00191	0.0048
Specialist: thoracic surgery	0.141	0.0438	0.0013
212.3 benign neoplasm of bronchus and lung	-0.1722	0.0451	0.0001
Mild liver disease	-0.07	0.0332	0.035
Evidence of chemotherapy, biologics, or other targeted agent cancer drugs -pre index	-0.233	0.0608	0.0001
Number of other cancer diagnosis codes post-index	0.00123	0.000333	0.0002
History of tobacco use -post index	-0.0908	0.0269	0.0008
Other possibly related respiratory symptoms or conditions -pre index	0.0968	0.0269	0.0003
Other pneumonitis -pre index	-0.138	0.0662	0.0371
Diagnostic radiology -post index	-0.1067	0.0487	0.0285
Chronic pulmonary disease	-0.1208	0.0415	0.0036
Dysphagia -post index	-0.0694	0.0321	0.0305
231.2 carcinoma in situ of bronchus and lung	0.1036	0.0341	0.0024
Lung fibrosis -post index	-0.1218	0.0396	0.0021
162.9 malignant neoplasm of bronchus and lung, unspecified	0.3489	0.1647	0.0341
≥4 days of lung cancer codes	0.2055	0.1303	0.1148
165.8 malignant neoplasm of other sites within the respiratory system and intrathoracic organs	-0.5287	0.2152	0.014
Other pneumonitis -post index	-0.1222	0.0486	0.0119
Diabetes with chronic complications	0.0455	0.0236	0.0533
Chest pain -post index	-0.0569	0.0258	0.0272

Variable	Regression Estimate	Standard Error	p-value
Respiratory failure -pre index	-0.0664	0.0341	0.0517
Rheumatic disease	0.085	0.0481	0.0771
Patients with at least 2 lung cancer diagnosis codes(ICD-9-CM: 162.2-162.9)	0.0978	0.0644	0.1292
Abnormal sputum, including hemoptysis -pre index	0.1314	0.0782	0.0928

Abbreviations: COPD = chronic obstructive pulmonary disease; ESRD = end-stage renal disease; ICD-9-CM = International Classification of Diseases, Ninth Revision, Clinical Modification; PET = positron emission tomography