

## Supplementary Online Content

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**eTable 1.** Baseline Characteristics Stratified by Age at Advanced Diagnosis and Year of Advanced Diagnosis

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This supplementary material has been provided by the authors to give readers additional information about their work.

**eTable 1:** Baseline characteristics stratified by age at advanced diagnosis and year of advanced diagnosis

Characteristic	AGE AT ADVANCED DIAGNOSIS				YEAR OF ADVANCED DIAGNOSIS		
	<55 N=4,436 N (%)	55-64 N=12,452 N (%)	65-74 N=19,050 N (%)	≥75 N=17,781 N (%)	2011-2013 N=13,586 N (%)	2014-2016 N=19,673 N (%)	2017-2019 N=20,460 N (%)
<b>Characteristic</b>							
<b>Sex</b>							
Female	2295 (51.7)	5827 (46.8)	8760 (46.0)	8463 (47.6)	6418 (47.2)	9311 (47.3)	9616 (47)
Male	2141 (48.3)	6625 (53.2)	10290 (54.0)	9318 (52.4)	7168 (52.8)	10362 (52.7)	10844 (53)
<b>Age at advanced NSCLC diagnosis</b>							
<55					1333 (9.8)	1651 (8.4)	1452 (7.1)
55-64					3076 (22.6)	4655 (23.7)	4721 (23.1)
65-74					4916 (36.2)	7021 (35.7)	7113 (34.8)
≥75					4261 (31.4)	6346 (32.3)	7174 (35.1)
<b>Race and Ethnicity</b>							
Asian	145 (3.3)	288 (2.3)	421 (2.2)	431 (2.4)	229 (1.7)	474 (2.4)	582 (2.8)
Black or African American	502 (11.3)	1370 (11.0)	1612 (8.5)	1158 (6.5)	1092 (8.0)	1725 (8.8)	1825 (8.9)
Hispanic or Latino	193 (4.4)	399 (3.2)	594 (3.1)	562 (3.2)	386 (2.8)	698 (3.6)	664 (3.3)
Other	360 (8.1)	994 (8.0)	1549 (8.1)	1309 (7.4)	998 (7.4)	1580 (8.0)	1634 (8.0)
White	2831 (63.8)	8199 (65.8)	12977 (68.1)	12309 (69.2)	9165 (67.5)	13600 (69.1)	13551 (66.2)
Missing	405 (9.1)	1202 (9.7)	1897 (10.0)	2012 (11.3)	1716 (12.6)	1596 (8.1)	2204 (10.8)
<b>Stage at Initial Diagnosis</b>							
Stage I	88 (2.0)	428 (3.4)	983 (5.2)	1262 (7.1)	644 (4.7)	997 (5.1)	1120 (5.5)
Stage II	158 (3.6)	523 (4.2)	1060 (5.6)	1075 (6.1)	693 (5.1)	1004 (5.1)	1119 (5.5)
Stage III	936 (21.1)	2702 (21.7)	4146 (21.8)	3361 (18.9)	2861 (21.1)	3964 (20.2)	4320 (21.1)
Stage IV	3126 (70.5)	8248 (66.2)	11496 (60.4)	10383 (58.4)	8398 (61.8)	12346 (62.8)	12509 (61.1)
Unknown	128 (2.9)	551 (4.4)	1365 (7.2)	1700 (9.6)	990 (7.3)	1362 (6.9)	1392 (6.8)
<b>Smoking status</b>							
No history of smoking	727 (16.4)	1281 (10.3)	1802 (9.5)	2336 (13.1)	1422 (10.5)	2308 (11.7)	2416 (11.8)
History of smoking	3660 (82.5)	11048 (88.7)	17050 (89.5)	15233 (85.7)	11798 (86.8)	17191 (87.4)	18002 (88)
Unknown	49 (1.1)	123 (1.0)	198 (1.0)	212 (1.2)	366 (2.7)	174 (0.9)	42 (0.2)

eTable 1 continued

	AGE AT ADVANCED DIAGNOSIS				YEAR OF ADVANCED DIAGNOSIS		
	<55 N=4,436 N (%)	55-64 N=12,452 N (%)	65-74 N=19,050 N (%)	≥75 N=17,781 N (%)	2011-2013 N=13,586 N (%)	2014-2016 N=19,673 N (%)	2017-2019 N=20,460 N (%)
<b>Location</b>							
Northeast	699 (15.8)	2157 (17.3)	3278 (17.2)	3502 (19.7)	2597 (19.1)	3408 (17.3)	3631 (17.8)
South	1748 (39.4)	4978 (40.0)	7823 (41.1)	6547 (36.8)	5183 (38.2)	7458 (37.9)	8455 (41.3)
Midwest	806 (18.2)	2007 (16.1)	2682 (14.1)	2498 (14.1)	1909 (14.1)	2984 (15.2)	3100 (15.2)
West	541 (12.2)	1674 (13.4)	2829 (14.9)	2996 (16.9)	2103 (15.5)	2997 (15.2)	2940 (14.4)
Missing	642 (14.5)	1636 (13.1)	2438 (12.8)	2238 (12.6)	1794 (13.2)	2826 (14.4)	2334 (11.4)
<b>Insurance</b>							
Medicare	233 (5.3)	1120 (9.0)	19050 (100.0)	17781 (100.0)	9481 (69.8)	13895 (70.6)	14808 (72.4)
Commercial	1447 (32.6)	4529 (36.4)	0 (0)	0 (0)	1202 (8.9)	2240 (11.4)	2534 (12.4)
Other including Medicaid	886 (20.0)	2199 (17.7)	0 (0)	0 (0)	700 (5.2)	1110 (5.6)	1275 (6.2)
Uninsured/unknown	1870 (42.2)	4604 (37.0)	0 (0)	0 (0)	2203 (16.2)	2428 (12.3)	1843 (9.0)
<b>Histological type</b>							
Squamous cell carcinoma	755 (17.0)	2842 (22.8)	5338 (28.0)	5003 (28.1)	3505 (25.8)	4982 (25.3)	5451 (26.6)
Non-squamous cell carcinoma (i.e. adenocarcinoma, large cell carcinoma)	3383 (76.3)	8949 (71.9)	12713 (66.7)	11836 (66.6)	9181 (67.6)	13641 (69.3)	14059 (68.7)
Not otherwise specified	298 (6.7)	661 (5.3)	999 (5.2)	942 (5.3)	900 (6.6)	1050 (5.3)	950 (4.6)
<b>First-line treatment regimen</b>							
No treatment	909 (20.5)	2794 (22.4)	4807 (25.2)	5937 (33.4)	4217 (31.0)	5385 (27.4)	4845 (23.7)
Immune checkpoint inhibitor alone <sup>1</sup>	264 (6.0)	871 (7.0)	1470 (7.7)	1844 (10.4)	45 (0.3)	1034 (5.3)	3370 (16.5)
Immune checkpoint inhibitor with chemotherapy <sup>2</sup>	359 (8.1)	1144 (9.2)	1585 (8.3)	1170 (6.6)	6 (0.0)	39 (0.2)	4213 (20.6)
Tyrosine kinase inhibitor <sup>3</sup>	510 (11.5)	964 (7.7)	1339 (7.0)	1677 (9.4)	1197 (8.8)	1638 (8.3)	1655 (8.1)
Other treatment	2394 (54.0)	6679 (53.6)	9849 (51.7)	7153 (40.2)	8121 (59.8)	11577 (58.9)	6377 (31.2)

<sup>1</sup>Immune checkpoint inhibitors included Pembrolizumab, Nivolumab, Atezolizumab, Durvalumab, Ipilimumab, Cemiplimab

<sup>2</sup>Also includes a small number of patients who received immune checkpoint inhibitors with tyrosine kinase inhibitors

<sup>3</sup> Tyrosine kinase inhibitors included Osimertinib, Erlotinib, Afatinib, Gefitinib, Dacomitinib, Mobocertinib, Lazertinib, Icotinib, Sotarasib, Adagrasib, Alectinib, Brigatinib, Lorlatinib, Ceritinib, Crizotinib, Entrectinib, Crizotinib, Ceritinib, Lorlatinib, Dabrafenib, Trametinib, Vemurafenib, Encorafenib, Tepotinib, Capmatinib, Pralsetinib, Selpercatinib, Entrectinib, Larotrectinib

**eTable 2:** Initial treatment class by year of advanced diagnosis among all treated patients (% by year)

	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
<b>Immune Checkpoint Inhibitors</b>	0.3	0.2	0.6	1.1	4.7	10.3	27.3	38.8	45.6
<b>Tyrosine Kinase Inhibitors</b>	8.6	9.5	8.4	8.9	7.9	8.3	7.9	7.6	8.9
<b>Any other treatment</b>	60.2	60.1	59.2	60.2	60.2	56.3	40.9	29.3	22.8
<b>No treatment</b>	31.0	30.1	31.8	29.9	27.3	25.2	24.0	24.3	22.8

**eTable 3:** Unadjusted and adjusted association between patient characteristics and two-year survival

Characteristic	UNADJUSTED			ADJUSTED		
	Odds Ratio	95% Confidence Interval		Odds Ratio	95% Confidence Interval	
<b>Sex</b>						
Female		Reference			Reference	
Male	0.71	0.68	0.73	0.76	0.73	0.79
<b>Age at advanced NSCLC diagnosis</b>						
<55		Reference			Reference	
55-64	0.91	0.84	0.98	0.94	0.86	1.01
65-74	0.83	0.77	0.89	1.05	0.90	1.21
≥75	0.67	0.62	0.72	0.80	0.69	0.93
<b>Year of diagnosis</b>						
2011-2013		Reference			Reference	
2014-2016	1.12	1.07	1.18	1.10	1.05	1.16
2017-2019	1.35	1.29	1.43	1.34	1.27	1.42
<b>Race and Ethnicity</b>						
Asian	1.79	1.57	2.05	1.53	1.33	1.76
Black or African American	1.18	1.10	1.27	1.16	1.08	1.25
Hispanic or Latino	1.32	1.17	1.48	1.27	1.13	1.43
Other	1.01	0.93	1.11	0.99	0.91	1.08
White		Reference			Reference	
Missing	0.75	0.70	0.81	0.78	0.72	0.84
<b>Stage at Initial Diagnosis</b>						
Stage I		Reference			Reference	
Stage II	0.91	0.81	1.02	0.91	0.81	1.03
Stage III	0.81	0.73	0.88	0.81	0.74	0.89
Stage IV	0.50	0.46	0.54	0.46	0.42	0.50
Unknown	0.84	0.75	0.93	0.87	0.78	0.97
<b>Smoking status</b>						
No history of smoking		Reference			Reference	
History of smoking	0.60	0.57	0.64	0.64	0.60	0.68
Unknown	0.24	0.19	0.31	0.30	0.24	0.37
<b>Location</b>						
Northeast		Reference			Reference	
South	1.13	0.92	1.38	1.13	0.93	1.38
Midwest	1.71	1.34	2.19	1.61	1.26	2.05
West	1.09	0.84	1.42	1.17	0.91	1.50

Missing	0.66	0.53	0.82	0.75	0.60	0.93
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**eTable 3 continued**

Characteristic	UNADJUSTED			ADJUSTED		
	Odds Ratio	95% Confidence Interval		Odds Ratio	95% Confidence Interval	
<b>Insurance</b>						
Medicare		Reference			Reference	
Commercial	1.19	1.11	1.26	1.15	1.00	1.32
Other including Medicaid	1.22	1.12	1.32	1.21	1.04	1.40
Uninsured/unknown	1.35	1.27	1.43	1.43	1.25	1.65
<b>Histological type</b>						
Squamous cell carcinoma		Reference			Reference	
Non-squamous cell carcinoma	1.31	1.25	1.37	1.31	1.25	1.37
Not otherwise specified	0.80	0.72	0.88	0.85	0.77	0.94

**eFigure: Cohort Formation**

