Table S1 Clinicopathologic and demographic characteristics for patients, stratified by LSRCC versus LAC versus LMAC, for cases diagnosed before 2015

Patient characteristics	LSRCC (n=1,347)	LAC (n=339,150)	LMAC (n=10,509)	P value
Age (years), median (IQR)	63.0 (17.0)	67.0 (17.0)	67.0 (16.0)	<0.001
Sex, n (%)				<0.001
Male	717 (53.2)	164,519 (48.5)	4,998 (47.6)	
Female	630 (46.8)	174,631 (51.5)	5,511 (52.4)	
Race, n (%)				<0.001
White	1,108 (82.3)	28,3679 (83.6)	8,943 (85.1)	
Black	169 (12.5)	40,087 (11.8)	1,078 (10.3)	
Other	60 (4.5)	12,772 (3.8)	399 (3.8)	
Unknown	10 (0.7)	2,612 (0.8)	89 (0.8)	
CDCC score, n (%)				<0.001
0	883 (65.6)	204,239 (60.2)	6,361 (60.5)	
1	327 (24.3)	92,564 (27.3)	2,817 (26.8)	
2	110 (8.2)	30,514 (9.0)	988 (9.4)	
3+	27 (2.0)	11,833 (3.5)	343 (3.3)	
Tumor size (mm), median (IQR)	35.0 (35.0)	32.0 (30.0)	32.0 (30.0)	0.030
Grade				<0.001
Well differentiated	8 (0.6)	20,684 (6.1)	2,885 (27.5)	
Moderately differentiated	112 (8.3)	70,994 (20.9)	2,877 (27.4)	
Poorly differentiated	588 (43.7)	96,456 (28.4)	1,079 (10.3)	
Undifferentiated	18 (1.3)	1,809 (0.5)	23 (0.2)	
Unknown	621 (46.1)	149,207 (44.0)	3,645 (34.7)	
Tumor location, n (%)				<0.001
RUL	324 (24.1)	104,192 (30.7)	2,420 (23.0)	
RML	84 (6.2)	14,607 (4.3)	540 (5.1)	
RLL	161 (12.0)	45,940 (13.5)	2,285 (21.7)	
LUL	257 (19.1)	75,163 (22.2)	1,909 (18.2)	
LLL	126 (9.4)	36,491 (10.8)	1,739 (16.5)	
Other	92 (6.8)	14,188 (4.2)	398 (3.8)	
Unknown	303 (22.5)	48,569 (14.3)	1,218 (11.6)	
NCDB analytic stage group, n (%)				<0.001
Stage 0	1 (0.1)	457 (0.1)	7 (0.1)	
Stage I	100 (7.4)	76,727 (22.6)	3,679 (35.0)	
Stage II	56 (4.2)	22,875 (6.7)	1,134 (10.8)	
Stage III	338 (25.1)	66,851 (19.7)	1,568 (14.9)	
Stage IV	851 (63.2)	171,932 (50.7)	4,105 (39.1)	
Occult (lung only)	1 (0.1)	308 (0.1)	16 (0.2)	
Clinical T status, n (%)				<0.001
T1	267 (19.8)	97,632 (28.8)	3,382 (32.2)	
T2	204 (15.1)	67,381 (19.9)	2,152 (20.5)	
T3	129 (9.6)	38,632 (11.4)	1,217 (11.6)	
T4	461 (34.2)	88,612 (26.1)	2,524 (24.0)	
Unknown	286 (21.2)	46,893 (13.8)	1,234 (11.7)	
Clinical N status, n (%)				<0.001
N0	256 (19.0)	113,029 (33.3)	4,939 (47.0)	
N1	86 (6.4)	24,774 (7.3)	540 (5.1)	
N2	459 (34.1)	94,822 (28.0)	1,981 (18.9)	
N3	272 (20.2)	42,637 (12.6)	757 (7.2)	
Unknown	274 (20.3)	63,888 (18.8)	2,292 (21.8)	
Clinical M status, n (%)				<0.001
M0	524 (38.9)	164,509 (48.5)	6,208 (59.1)	
M1	792 (58.8)	163,228 (48.1)	3,825 (36.4)	
Unknown	31 (2.3)	11,413 (3.4)	476 (4.5)	

Table S1 *(continued)*

Table S1 *(continued)*

Patient characteristics	LSRCC (n=1,347)	LAC (n=339,150)	LMAC (n=10,509)	P value
Insurance type, n (%)				<0.001
Uninsured	72 (5.3)	13,771 (4.1)	318 (3.0)	
Private	521 (38.7)	107,190 (31.6)	3,529 (33.6)	
Medicaid	113 (8.4)	24,078 (7.1)	608 (5.8)	
Medicare	580 (43.1)	182,410 (53.8)	5,719 (54.4)	
Other government	15 (1.1)	4,457 (1.3)	89 (0.8)	
Unknown	46 (3.4)	7,244 (2.1)	246 (2.3)	
Facility type, n (%)				<0.001
Community	75 (5.6)	23,978 (7.1)	633 (6.0)	
Comprehensive	438 (32.5)	138,408 (40.8)	3,774 (35.9)	
Academic/research	533 (39.6)	105,740 (31.2)	3,882 (36.9)	
Integrated	253 (18.8)	68,358 (20.2)	2,061 (19.6)	
Unknown	48 (3.6)	2,666 (0.8)	159 (1.5)	
Distance from facility (miles), median (IQR)	9.6 (20.4)	8.9 (17.8)	9.2 (18.3)	<0.001
Median household income, n (%)				<0.001
Less than $40,227	247 (18.3)	68,451 (20.2)	1,801 (17.1)	
$40,277 to $50,353	281 (20.9)	75,372 (22.2)	2,143 (20.4)	
$50,353 to $63,332	275 (20.4)	76,004 (22.4)	2,305 (21.9)	
$63,333 or greater	468 (34.7)	103,398 (30.5)	3,702 (35.2)	
Unknown	76 (5.6)	15,925 (4.7)	558 (5.3)	
Education: % without HS diploma, n (%)				<0.001
17.6% or greater	280 (20.8)	72,007 (21.2)	2,008 (19.1)	
10.9% to 17.5%	322 (23.9)	90,569 (26.7)	2,600 (24.7)	
6.3% to 10.8%	338 (25.1)	91,141 (26.9)	2,949 (28.1)	
Less than 6.3%	334 (24.8)	70,168 (20.7)	2,408 (22.9)	
Unknown	73 (5.4)	15,265 (4.5)	544 (5.2)	
Surgery, n (%)				<0.001
Yes	244 (18.2)	95,276 (28.2)	5,218 (49.8)	
No	1,103 (81.8)	243,874 (71.8)	5,291 (50.2)	
Chemotherapy, n (%)				<0.001
Yes	805 (61.5)	166,003 (50.2)	4,373 (42.8)	
No	542 (38.5)	173,147 (49.8)	6,136 (57.2)	
Chemoradiation, n (%)				<0.001
Yes	181 (13.4)	38,247 (11.3)	658 (6.3)	
No	1,166 (86.6)	300,903 (88.7)	9,851 (93.7)	
Radiation, n (%)				<0.001
Yes	313 (29.0)	77,691 (27.8)	1,586 (17.6)	
No	1,034 (71.0)	261,459 (72.2)	8,923 (82.4)	
Year of diagnosis, median (IQR)	2,009.0 (5.0)	2,010.0 (5.0)	2,010.0 (7.0)	<0.001

LSRCC, lung signet-ring cell carcinoma; LAC, lung adenocarcinoma; LMAC, lung mucinous adenocarcinoma; IQR, interquartile range; CDCC, Charlson/Deyo comorbidity condition; RUL, right upper lobe; RML, right middle lobe; RLL, right lower lobe; LUL; left upper lobe; LLL, left lower lobe; NCDB, national cancer database; HS, XXXXXXXXXXXXXXXX.
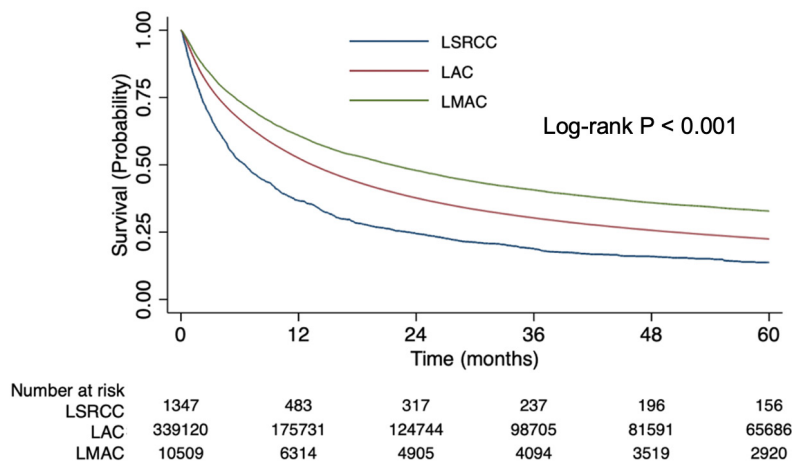
Figure S1 Overall survival of patients, stratified by LSRCC *vs.* LAC *vs.* LMAC for cases diagnosed before 2015. LSRCC, lung signet-ring cell carcinoma; LAC, lung adenocarcinoma; LMAC, lung mucinous adenocarcinoma.

Table S2 Multivariable Cox proportional hazards analyses for patients, stratified by LSRCC versus LAC versus LMAC for cases diagnosed before 2015

Patient characteristics	Hazard ratio (95% CI)	P value
Histology (ref = LSRCC)		
LAC	0.81 (0.71, 0.92)	0.002
LMAC	0.88 (0.76, 1.01)	0.076
Age (per year)	1.02 (1.02, 1.02)	<0.001
Female *vs.* male	0.81 (0.80, 0.82)	<0.001
Race (ref = White)		
Black	0.93 (0.91, 0.95)	<0.001
Other	0.76 (0.73, 0.80)	<0.001
Year of diagnosis (per year)	0.96 (0.96, 0.97)	<0.001
Median household income (ref <$40,227)		
$40,277 to $50,353	0.95 (0.93, 0.97)	<0.001
$50,353 to $63,332	0.91 (0.89, 0.94)	<0.001
$63,333 or greater	0.86 (0.84, 0.89)	<0.001
Education: % without HS diploma (ref >17.6%)		
10.9% to 17.5%	1.03 (1.01, 1.06)	0.004
6.3% to 10.8%	1.03 (1.00, 1.06)	0.022
Less than 6.3%	0.98 (0.96, 1.01)	0.300
Insurance type (ref = uninsured)		
Private	0.82 (0.79, 0.86)	<0.001
Medicaid	0.98 (0.93, 1.03)	0.418
Medicare	0.92 (0.88, 0.96)	<0.001
Other government	0.86 (0.79, 0.93)	<0.001
Facility type (ref = community)		
Comprehensive	0.94 (0.92, 0.97)	<0.001
Academic/research	0.83 (0.80, 0.86)	<0.001
Integrated	0.92 (0.90, 0.95)	<0.001
Distance from facility (per mile)	1.00 (1.00, 1.00)	0.005
CDCC score (ref =0)		
1	1.17 (1.15, 1.19)	<0.001
2	1.36 (1.33, 1.40)	<0.001
3+	1.68 (1.61, 1.74)	<0.001

Table S2 *(continued)*

Table S2 *(continued)*

Patient characteristics	Hazard ratio (95% CI)	P value
Clinical T status (ref = T1)		
T2	1.20 (1.18, 1.22)	<0.001
T3	1.25 (1.22, 1.28)	<0.001
T4	1.37 (1.33, 1.40)	<0.001
Clinical N status (ref = N0)		
N1	1.23 (1.19, 1.26)	<0.001
N2	1.32 (1.29, 1.36)	<0.001
N3	1.47 (1.43, 1.51)	<0.001
Clinical M1 status (ref = M0)	1.47 (1.37, 1.57)	<0.001
NCDB analytic stage group (ref = stage I)		
Stage II	1.59 (1.54, 1.63)	<0.001
Stage III	1.93 (1.88, 1.99)	<0.001
Stage IV	2.29 (2.13, 2.45)	<0.001
Tumor size (per cm)	1.00 (1.00, 1.00)	<0.001
Grade (ref = well differentiated)		
Moderately differentiated	1.30 (1.26, 1.33)	<0.001
Poorly differentiated	1.52 (1.48, 1.56)	<0.001
Undifferentiated	1.45 (1.33, 1.57)	<0.001
Tumor location (ref = RUL)		
RML	1.08 (1.05, 1.12)	<0.001
RLL	1.12 (1.10, 1.15)	<0.001
LUL	1.02 (1.00, 1.04)	0.037
LLL	1.08 (1.05, 1.10)	<0.001
Other	1.14 (1.09, 1.18)	<0.001
Surgery *vs.* no surgery	0.43 (0.42, 0.44)	<0.001
Chemotherapy *vs.* no chemotherapy	0.60 (0.59, 0.62)	<0.001
Chemoradiation *vs.* no chemoradiation	0.85 (0.82, 0.87)	<0.001
Radiation *vs.* no radiation	0.97 (0.95, 0.99)	0.007

LSRCC, lung signet-ring cell carcinoma; LAC, lung adenocarcinoma; LMAC, lung mucinous adenocarcinoma; CI, confidence interval; ref, reference; HS, XXXXXXXXXXXXXXXXX; CDCC, Charlson/Deyo comorbidity condition; NCDB, national cancer database; RUL, right upper lobe; RML, right middle lobe; RLL, right lower lobe; LUL; left upper lobe; LLL, left lower lobe.

Table S3 Independent predictors of overall survival after Cox proportional hazards adjustment for patients with lung signet-ring cell carcinoma for cases diagnosed before 2015

Patient characteristics	Hazard ratio (95% CI)	P value
Age (per year)	1.04 (1.01, 1.06)	0.003
Female vs. male	0.87 (0.64, 1.20)	0.405
Race (ref = White)		
Black	0.97 (0.56, 1.68)	0.924
Other	1.40 (0.65, 3.03)	0.390
Year of diagnosis (per year)	0.91 (0.86, 0.97)	0.001
Median household income (ref <$40,227)		
$40,277 to $50,353	0.76 (0.44, 1.32)	0.329
$50,353 to $63,332	0.44 (0.25, 0.78)	0.005
$63,333 or greater	0.85 (0.46, 1.58)	0.610
Education: % without HS diploma (ref >17.6%)		
10.9% to 17.5%	1.42 (0.80, 2.49)	0.227
6.3% to 10.8%	1.19 (0.64, 2.21)	0.575
Less than 6.3%	0.92 (0.47, 1.82)	0.816
Insurance type (ref = uninsured)		
Private	0.64 (0.31, 1.35)	0.244
Medicaid	0.56 (0.22, 1.41)	0.219
Medicare	0.62 (0.27, 1.43)	0.262
Other government	0.65 (0.13, 3.30)	0.600
Facility type (ref = community)		
Comprehensive	0.48 (0.23, 0.99)	0.047
Academic/research	0.47 (0.23, 0.94)	0.033
Integrated	0.63 (0.31, 1.28)	0.204
Distance from facility (per mile)	1.00 (1.00, 1.00)	0.819
CDCC score (ref =0)		
1	1.39 (0.96, 2.00)	0.081
2	1.76 (0.87, 3.57)	0.119
3+	1.45 (0.43, 4.88)	0.549

Table S3 (*continued*)

Table S3 (*continued*)

Patient characteristics	Hazard ratio (95% CI)	P value
Clinical T status (ref = T1)		
T2	1.31 (0.77, 2.22)	0.315
T3	2.18 (1.22, 3.89)	0.008
T4	1.67 (0.88, 3.16)	0.118
Clinical N status (ref = N0)		
N1	1.25 (0.71, 2.21)	0.440
N2	1.62 (1.01, 2.60)	0.045
N3	1.53 (0.85, 2.75)	0.156
Clinical M1 status (ref = M0)	1.49 (0.59, 3.76)	0.398
NCDB analytic stage group (ref = stage I)		
Stage II	1.82 (0.85, 3.89)	0.121
Stage III	1.87 (0.87, 3.98)	0.107
Stage IV	1.55 (0.56, 4.29)	0.403
Tumor size (per cm)	1.00 (0.99, 1.01)	0.814
Grade (ref = well differentiated)		
Moderately differentiated	3.29 (0.30, 36.28)	0.331
Poorly differentiated	2.92 (0.28, 30.20)	0.368
Undifferentiated	0.82 (0.06, 11.93)	0.884
Tumor location (ref = RUL)		
RML	0.74 (0.41, 1.34)	0.322
RLL	0.72 (0.43, 1.20)	0.207
LUL	0.90 (0.59, 1.35)	0.599
LLL	0.91 (0.53, 1.55)	0.726
Other	0.70 (0.39, 1.25)	0.230
Surgery vs. no surgery	0.37 (0.21, 0.64)	<0.001
Chemotherapy vs. no chemotherapy	0.80 (0.54, 1.17)	0.251
Chemoradiation vs. no chemoradiation	0.96 (0.55, 1.66)	0.879
Radiation vs. no radiation	0.58 (0.37, 0.92)	0.019

CI, confidence interval; ref, reference; HS, XXXXXXXXXXXXXXXX; CDCC, Charlson/Deyo comorbidity condition; NCDB, national cancer database; RUL, right upper lobe; RML, right middle lobe; RLL, right lower lobe; LUL; left upper lobe; LLL, left lower lobe.