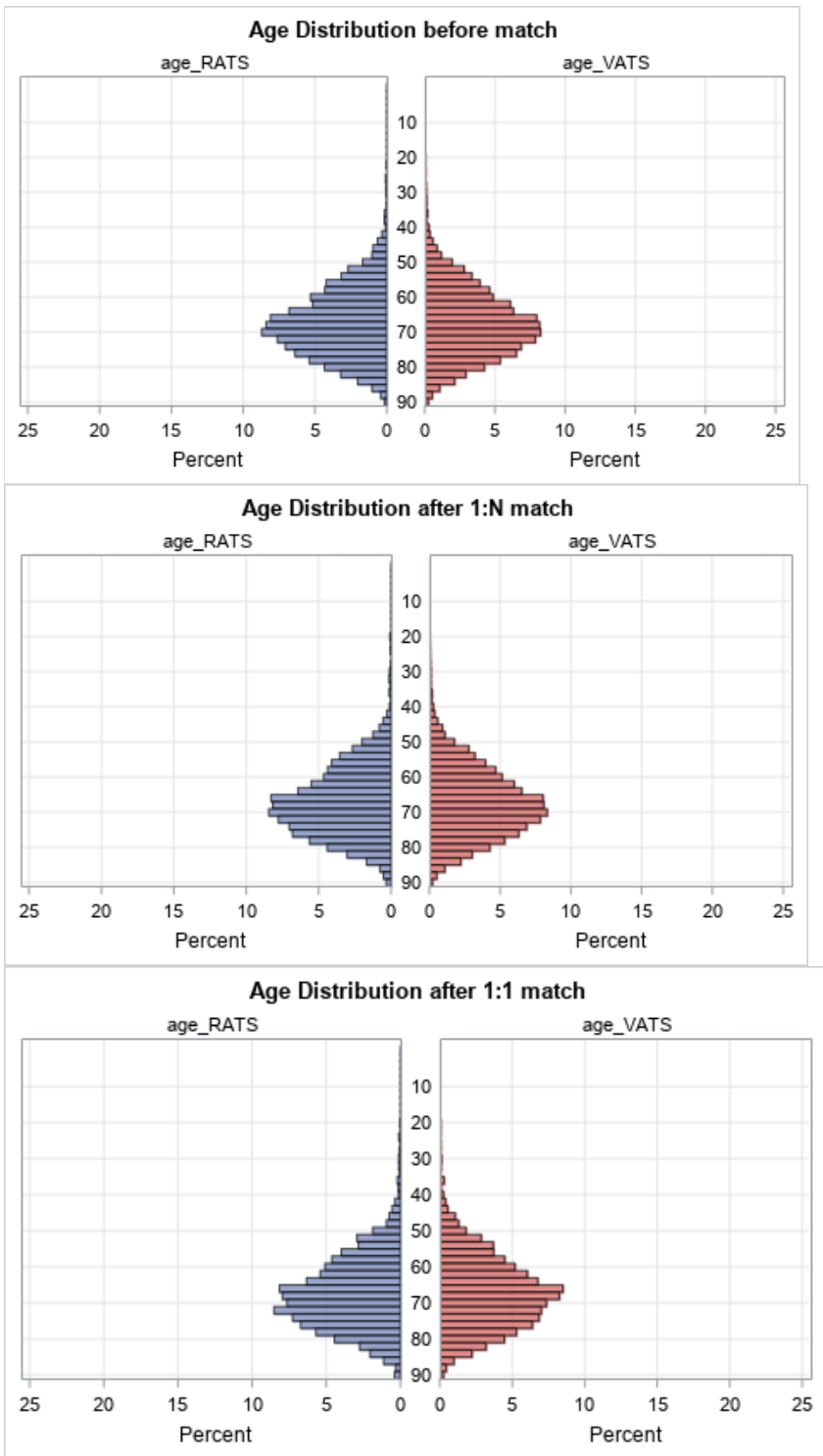
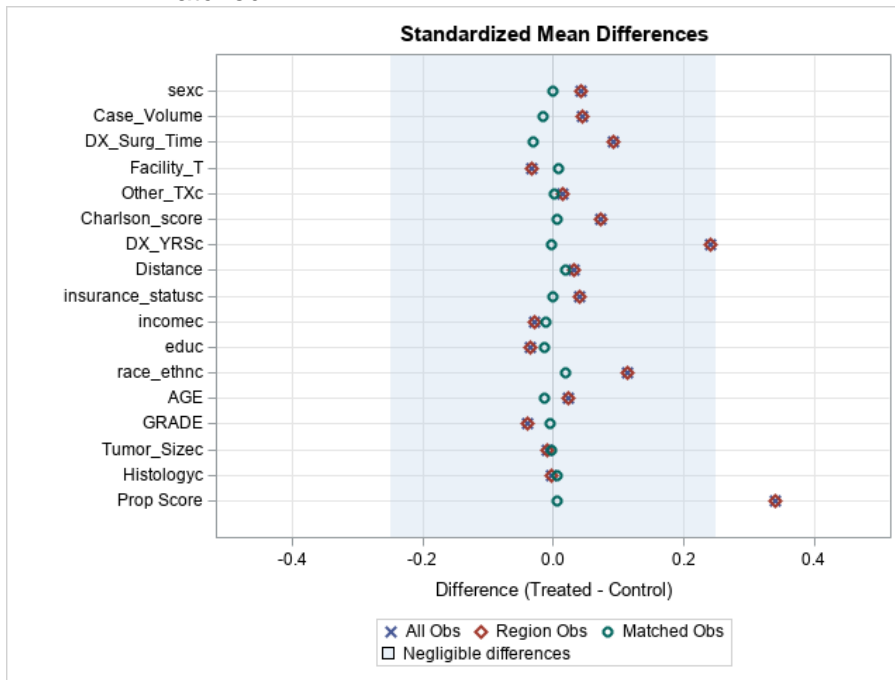


Supplementary Figure 1. Mirror histograms

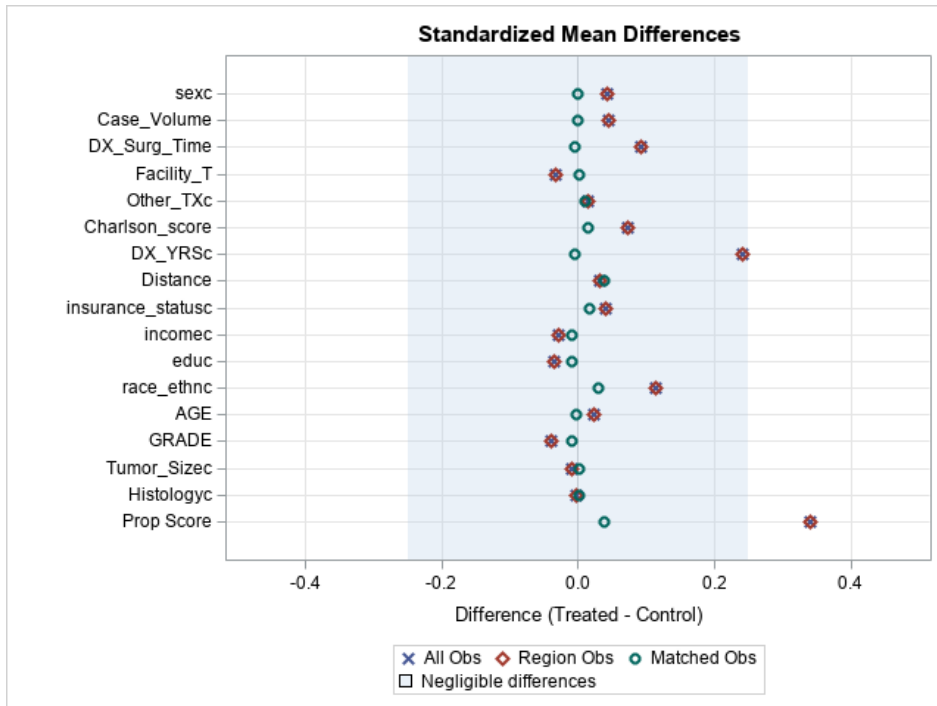


Age_RATS = Age at Diagnosis for RATS treated patients; Age_VATS = Age at Diagnosis for VATS treated patients.

Supplementary Figure 2. Love plots
 A. 1:1 matched



B. N:1 matched



Age = Age at Diagnosis; Sexc = Sex; Race_Ethnic = Race/Ethnicity; Educ = Educational Attainment; Incomec = Annual Household Income; Insurance_Statusc = Insurance Status; Facility_T = Facility Type; Charlson_Score = Charlson/Deyo Score; Tumor_Sizc = Tumor size; Other_TXc = Other Cancer Therapy; DX_YRSc = Year of Diagnosis; Histologyc = Histology; GRADE = Grade; Distance = Distance to Treatment Center; Case_Volume = Center Case Volume; Dx_Surg_Time = Time since Diagnosis to Surgery.

Supplementary Table 1. *P* value for interaction between surgical approaches and preoperative/existing factors in Cox models by follow-up period

| | <i>P</i> value for interaction between RATS-L/VATS-L and preoperative/existing factors in intention-to-treat cases. | <i>P</i> for interaction between RATS-L/VATS-L and preoperative/existing factors in end treatment cases |
|---|---|---|
| In 3-months post-operation | | |
| Age at Diagnosis | .40 | .42 |
| Sex | .23 | .30 |
| Race/Ethnicity | .31 | .61 |
| Educational Attainment | .83 | .96 |
| Annual Household Income | .63 | .50 |
| Insurance Status | .10 | .96 |
| Distance to Treatment Center | .48 | .19 |
| Facility Type | .30 | .39 |
| Case Volume | .09 | .36 |
| Charlson/Deyo Score | .82 | .87 |
| Year of Diagnosis | .48 | .95 |
| Time of Diagnosis to Surgery | .73 | .73 |
| Other cancer therapy | .78 | .71 |
| histology | .47 | .54 |
| Grade | .53 | .56 |
| Tumor Size | .22 | .23 |
| Follow-up starting 12-months post-operation | | |
| Age at Diagnosis | .54 | .39 |
| Sex | .68 | .66 |
| Race/Ethnicity | .67 | .59 |
| Educational Attainment | .20 | .10 |
| Annual Household Income | .42 | .37 |
| Insurance Status | .30 | .25 |
| Distance to Treatment Center | .90 | .72 |
| Facility Type | .26 | .28 |
| Case Volume | .05 | .12 |
| Charlson/Deyo Score | .71 | .48 |
| Year of Diagnosis | .58 | .68 |
| Time of Diagnosis to Surgery | .81 | .65 |
| Other cancer therapy | .42 | .28 |
| histology | .14 | .41 |
| Grade | .96 | .89 |
| Tumor Size | .02 | .01 |
| Follow-up starting 18-months post-operation | | |
| Age at Diagnosis | .67 | .90 |

| | | |
|---|-----|-----|
| Sex | .54 | .58 |
| Race/Ethnicity | .43 | .49 |
| Educational Attainment | .21 | .18 |
| Annual Household Income | .45 | .50 |
| Insurance Status | .33 | .29 |
| Distance to Treatment Center | .85 | .57 |
| Facility Type | .34 | .37 |
| Case Volume | .10 | .29 |
| Charlson/Deyo Score | .40 | .28 |
| Year of Diagnosis | .41 | .47 |
| Time of Diagnosis to Surgery | .41 | .33 |
| Other cancer therapy | .63 | .47 |
| histology | .22 | .48 |
| Grade | .52 | .58 |
| Tumor Size | .02 | .01 |
| | | |
| Follow-up starting 24-months post-operation | | |
| Age at Diagnosis | .15 | .93 |
| Sex | .60 | .46 |
| Race/Ethnicity | .35 | .38 |
| Educational Attainment | .11 | .07 |
| Annual Household Income | .16 | .14 |
| Insurance Status | .51 | .45 |
| Distance to Treatment Center | .93 | .95 |
| Facility Type | .42 | .34 |
| Case Volume | .80 | .85 |
| Charlson/Deyo Score | .81 | .57 |
| Year of Diagnosis | .94 | .90 |
| Time of Diagnosis to Surgery | .42 | .34 |
| Other cancer therapy | .90 | .84 |
| histology | .10 | .35 |
| Grade | .27 | .31 |
| Tumor Size | .03 | .02 |

Supplementary Table 2. Association between preoperative factors and conversion to open operation in VATS-L or RATS-L in patients with stage I NSCLC, NCDB 2010-2014

| Surgical approaches | VATS-L (Conversion vs. Non-Conversion) | | | RATS-L (Conversion vs. Non-Conversion) | | |
|--|--|------------------|-------------------|--|------------------|------------------|
| | Convention/All | OR (95%CI) | Adj OR (95%CI)* | Convention/All | OR (95%CI) | Adj OR (95%CI)* |
| Age at Diagnosis (yrs) | | | | | | |
| ≤ 60 | 564/3,650 | 1.00 (ref) | 1.00 (ref) | 99/1,163 | 1.00 (ref) | 1.00 (ref) |
| 61-70 | 834/5,248 | 1.03 (0.92-1.16) | 0.96 (0.84-1.10) | 138/1,721 | 0.94 (0.72-1.23) | 0.88 (0.65-1.19) |
| > 70 | 763/5,381 | 0.90 (0.80-1.02) | 0.83 (0.71-0.97) | 127/1,745 | 0.84 (0.64-1.11) | 0.79 (0.56-1.12) |
| Sex | | | | | | |
| Male | 965/5891 | 1.00 (ref) | 1.00 (ref) | 164/2,005 | 1.00 (ref) | 1.00 (ref) |
| Female | 1,196/8,388 | 0.85 (0.77-0.93) | 0.85 (0.78-0.94) | 200/2,624 | 0.93 (0.75-1.15) | 0.96 (0.77-1.19) |
| Race/Ethnicity | | | | | | |
| Non-Hispanic White | 1,782/11,824 | 1.00 (ref) | 1.00 (ref) | 309/3,638 | 1.00 (ref) | 1.00 (ref) |
| Black/African American | 168/1,083 | 1.04 (0.87-1.23) | 1.05 (0.88-1.26) | 21/394 | 0.61 (0.39-0.96) | 0.62 (0.39-1.00) |
| Other | 211/1,372 | 1.02 (0.88-1.20) | 1.01 (0.86-1.19) | 34/597 | 0.65 (0.45-0.94) | 0.74 (0.51-1.07) |
| Educational Attainment | | | | | | |
| < Median | 865/5,482 | 1.00 (ref) | 1.00 (ref) | 149/2,054 | 1.00 (ref) | 1.00 (ref) |
| > Median | 1,291/8,753 | 0.92 (0.84-1.01) | 1.06 (0.95 -1.19) | 214/2,566 | 1.16 (0.94-1.45) | 1.21 (0.92-1.59) |
| Annual Household Income | | | | | | |
| < Median | 876/5,195 | 1.00 (ref) | 1.00 (ref) | 151/1,910 | 1.00 (ref) | 1.00 (ref) |
| > Median | 1,279/9,034 | 0.81 (0.74-0.89) | 0.84 (0.75-0.94) | 212/2,708 | 0.99 (0.80-1.23) | 0.89 (0.68-1.17) |
| Insurance Status | | | | | | |
| Not Insured | 42/263 | 1.00 (ref) | 1.00 (ref) | 4/72 | 1.00 (ref) | 1.00 (ref) |
| Private Insurance /Managed Care | 696/4,714 | 0.91 (0.65-1.28) | 1.00 (0.71-1.42) | 123/1,447 | 1.58 (0.57-4.40) | 1.78 (0.63-5.05) |
| Medicaid | 100/668 | 0.93 (0.63-1.37) | 0.98 (0.66-1.45) | 16/206 | 1.43 (0.46-4.43) | 1.62 (0.52-5.11) |
| Medicare | 1,285/8,386 | 0.95 (0.68-1.33) | 1.13 (0.79-1.61) | 214/2,793 | 1.41 (0.51-3.90) | 1.75 (0.61-5.00) |
| Other Government | 25/148 | 1.07 (0.62-1.84) | 1.07 (0.61-1.86) | 5/64 | 1.44 (0.37-5.62) | 1.65 (0.41-6.58) |
| Distance to Treatment Center | | | | | | |
| < 25 miles | 1,536/10,262 | 1.00 (ref) | 1.00 (ref) | 265/3,414 | 100 (ref) | 1.00 (ref) |
| 25-100 miles | 517/3,327 | 1.05 (0.94-1.17) | 1.14 (1.02-1.28) | 86/1,034 | 1.08 (0.84-1.39) | 1.22 (0.93-1.60) |
| >100 miles | 103/642 | 1.09 (0.87-1.35) | 1.29 (1.03-1.62) | 11/154 | 0.91 (0.49-1.71) | 1.20 (0.63-2.29) |
| Facility Type | | | | | | |
| Academic/research program | 850/6,409 | 1.00 (ref) | 1.00 (ref) | 125/2,119 | 1.00 (ref) | 1.00 (ref) |
| Community cancer program/other | 143/538 | 2.37 (1.93-2.91) | 1.42 (1.12-1.79) | 18/175 | 1.83 (1.09-3.08) | 1.29 (0.73-2.25) |
| Comprehensive community cancer program | 975/5,706 | 1.35 (1.22-1.49) | 1.00 (0.89-1.12) | 187/1,770 | 1.88 (1.49-2.39) | 1.52 (1.15-1.99) |
| Integrated network cancer program | 174/1,483 | 0.87 (0.73-1.03) | 0.74 (0.62-0.89) | 32/533 | 1.02 (0.68-1.52) | 0.93 (0.62-1.41) |
| Case Volume (Quartile 1-4) | | | | | | |
| Quartile 1 (1-49) | 766/3,761 | 1.00 (ref) | 1.00 (ref) | 100/983 | 1.00 (ref) | 1.00 (ref) |
| Quartile 2 (50-88) | 597/3,403 | 0.83 (0.74-0.94) | 0.86 (0.76-0.98) | 123/1,335 | 0.90 (0.68-1.18) | 0.96 (0.73-1.29) |
| Quartile 3 (89-145) | 421/3,558 | 0.53 (0.46-0.60) | 0.54 (0.47-0.62) | 89/1,169 | 0.73 (0.54-0.98) | 0.74 (0.54-1.01) |
| Quartile 4 (>145) | 377/3,557 | 0.46 (0.41-0.53) | 0.46 (0.39-0.54) | 52/1,142 | 0.42 (0.30-0.60) | 0.52 (0.34-0.77) |

| | | | | | | |
|---------------------------------|-------------|------------------|------------------|-----------|------------------|------------------|
| Charlson/Deyo Score | | | | | | |
| 0 | 1,056/7,397 | 1.00 (ref) | 1.00 (ref) | 141/2,216 | 1.00 (ref) | 1.00 (ref) |
| 1 | 798/4,994 | 1.14 (1.03-1.26) | 1.12 (1.01-1.24) | 154/1,742 | 1.43 (1.13-1.81) | 1.39 (1.09-1.77) |
| ≥ 2 | 307/1,888 | 1.17 (1.02-1.34) | 1.14 (0.99-1.32) | 69/671 | 1.69 (1.25-2.28) | 1.64 (1.20-2.23) |
| Year of Diagnosis | | | | | | |
| 2010 | 437/2,122 | 1.00 (ref) | 1.00 (ref) | 40/356 | 1.00 (ref) | 1.00 (ref) |
| 2011 | 473/2,675 | 0.83 (0.72-0.96) | 0.84 (0.72-0.97) | 62/673 | 0.80 (0.53-1.22) | 0.80 (0.52-1.23) |
| 2012 | 421/2,793 | 0.68 (0.59-0.79) | 0.66 (0.57-0.77) | 81/1,006 | 0.69 (0.46-1.03) | 0.67 (0.45-1.01) |
| 2013 | 388/3,184 | 0.54 (0.46-0.62) | 0.53 (0.45-0.61) | 99/1,259 | 0.67 (0.46-0.99) | 0.65 (0.44-0.97) |
| 2014 | 442/3,505 | 0.56 (0.48-0.64) | 0.55 (0.47-0.64) | 82/1,335 | 0.52 (0.35-0.77) | 0.48 (0.32-0.72) |
| Time since Diagnosis to Surgery | | | | | | |
| 0-7 days | 763/4,569 | 1.00 (ref) | 1.00 (ref) | 101/1,344 | 1.00 (ref) | 1.00 (ref) |
| 7-30 days | 507/3,572 | 0.83 (0.73-0.93) | 0.84 (0.75-0.95) | 81/1,058 | 1.02 (0.75-1.38) | 0.97 (0.71-1.33) |
| 31-90 days | 772/5,318 | 0.85 (0.76-0.95) | 0.86 (0.77-0.96) | 151/1,928 | 1.05 (0.81-1.36) | 1.05 (0.81-1.38) |
| > 90 days | 119/820 | 0.85 (0.69-1.04) | 0.84 (0.68-1.03) | 31/299 | 1.43 (0.93-2.18) | 1.53 (0.99-2.35) |

*Variables in the table are neutrally adjusted.

Supplementary Table 3. Association between center case volume and all-cause mortality risk in VATS-L/RATS-L in all participants or non-conversion subgroup

| Analytic Models | All (Unmatched)* | | N:1 matched by PS† | | 1:1 matched by PS† | |
|--|------------------|------------------|--------------------|------------------|--------------------|------------------|
| | Death/All | adj. HR (95%CI) | Death/All | adj. HR (95%CI) | Death/All | adj. HR (95%CI) |
| Follow-up starting from 12-months post-operation | | | | | | |
| Among VATS-L/RATS-L (All participants) | | | | | | |
| Case Volume Quartile 1 (1-49) | 679/4,281 | 1.00 (ref) | 532/3,630 | 1.00 (ref) | 262/1,913 | 1.00 (ref) |
| Case Volume Quartile 2 (50-88) | 588/4,265 | 0.93 (0.80-1.08) | 478/3,694 | 0.86 (0.76-0.97) | 279/2,095 | 0.97 (0.82-1.15) |
| Case Volume Quartile 3 (89-145) | 595/4,332 | 0.91 (0.78-1.05) | 515/3,879 | 0.85 (0.75-0.96) | 294/2,106 | 0.97 (0.82-1.15) |
| Case Volume Quartile 4 (>145) | 516/4,335 | 0.78 (0.66-0.93) | 444/3,855 | 0.69 (0.61-0.79) | 261/2,092 | 0.81 (0.68-0.96) |
| <i>P</i> for trend | | .001 | | <.001 | | .02 |
| Among VATS-L/RATS-L (No conversion) | | | | | | |
| Case Volume Quartile 1 (1-49) | 544/3,516 | 1.00 (ref) | 427/3,012 | 1.00 (ref) | 215/1,622 | 1.00 (ref) |
| Case Volume Quartile 2 (50-88) | 482/3,610 | 0.86 (0.75-0.97) | 396/3,175 | 0.84 (0.73-0.97) | 237/1,827 | 0.96 (0.80-1.16) |
| Case Volume Quartile 3 (89-145) | 521/3,881 | 0.86 (0.76-0.91) | 456/3,489 | 0.86 (0.75-0.98) | 267/1,927 | 0.99 (0.83-1.19) |
| Case Volume Quartile 4 (>145) | 466/3,953 | 0.78 (0.67-0.91) | 400/3,526 | 0.70 (0.61-0.80) | 244/1,956 | 0.82 (0.68-0.98) |
| <i>P</i> for trend | | .003 | | <.001 | | .04 |
| Follow-up starting from 18-months post-operation | | | | | | |
| Among VATS-L/RATS-L (All participants) | | | | | | |
| Case Volume Quartile 1 (1-49) | 538/3,848 | 1.00 (ref) | 410/3,227 | 1.00 (ref) | 206/1,703 | 1.00 (ref) |
| Case Volume Quartile 2 (50-88) | 489/3,892 | 0.93 (0.82-1.06) | 392/3,361 | 0.91 (0.79-1.04) | 226/1,886 | 1.00 (0.83-1.21) |
| Case Volume Quartile 3 (89-145) | 477/3,944 | 0.90 (0.78-1.02) | 409/3,508 | 0.86 (0.75-0.99) | 230/1,881 | 0.95 (0.79-1.15) |
| Case Volume Quartile 4 (>145) | 413/3,968 | 0.80 (0.69-0.94) | 457/3,521 | 0.70 (0.61-0.81) | 204/1,910 | 0.78 (0.64-0.95) |
| <i>P</i> for trend | | .006 | | <.001 | | .01 |
| Among VATS-L/RATS-L (No conversion) | | | | | | |
| Case Volume Quartile 1 (1-49) | 422/3,148 | 1.00 (ref) | 323/2,671 | 1.00 (ref) | 169/1,439 | 1.00 (ref) |
| Case Volume Quartile 2 (50-88) | 399/3,299 | 0.91 (0.79-1.06) | 326/2,888 | 0.91 (0.78-1.06) | 196/1,646 | 1.01 (0.83-1.25) |
| Case Volume Quartile 3 (89-145) | 416/3,535 | 0.91 (0.76-1.02) | 361/3,157 | 0.88 (0.76-1.02) | 208/1,722 | 0.96 (0.78-1.18) |
| Case Volume Quartile 4 (>145) | 376/3,621 | 0.82 (0.69-0.97) | 325/3,226 | 0.73 (0.62-0.84) | 192/1,786 | 0.79 (0.64-0.97) |
| <i>P</i> for trend | | .02 | | <.001 | | .02 |
| Follow-up starting from 24-months post-operation | | | | | | |
| Among VATS-L / RATS-L (All participants) | | | | | | |

| | | | | | | |
|--|-----------|------------------|-----------|------------------|-----------|------------------|
| Case Volume Quartile 1 (1-49) | 413/3,261 | 1.00 (ref) | 306/2,678 | 1.00 (ref) | 158/1,405 | 1.00 (ref) |
| Case Volume Quartile 2 (50-88) | 378/3,296 | 0.93 (0.80-1.08) | 298/2,794 | 0.92 (0.79-1.09) | 175/1,548 | 1.02 (0.82-1.26) |
| Case Volume Quartile 3 (89-145) | 379/3,389 | 0.91 (0.78-1.05) | 316/2,971 | 0.87 (0.75-1.02) | 183/1,590 | 0.96 (0.78-1.20) |
| Case Volume Quartile 4 (>145) | 320/3,419 | 0.78 (0.66-0.93) | 269/2,991 | 0.68 (0.57-0.80) | 147/1,622 | 0.70 (0.56-0.88) |
| <i>P</i> for trend | | .008 | | <.001 | | .002 |
| Among VATS-L/RATS-L (No conversion) | | | | | | |
| Case Volume Quartile 1 (1-49) | 322/2,658 | 1.00 (ref) | 239/2,210 | 1.00 (ref) | 130/1,186 | 1.00 (ref) |
| Case Volume Quartile 2 (50-88) | 312/2,784 | 0.93 (0.79-1.09) | 249/2,397 | 0.94 (0.79-1.12) | 154/1,351 | 1.04 (0.83-1.32) |
| Case Volume Quartile 3 (89-145) | 325/3,025 | 0.88 (0.75-1.04) | 275/2,663 | 0.88 (0.74-1.05) | 165/1,453 | 0.97 (0.77-1.22) |
| Case Volume Quartile 4 (>145) | 286/3,106 | 0.79 (0.66-0.96) | 240/2,729 | 0.69 (0.57-0.83) | 137/1,514 | 0.70 (0.55-0.89) |
| <i>P</i> for trend | | .02 | | <.001 | | .002 |

* In unmatched model: adjusting for age at diagnosis, sex, race/ethnicity, educational level, annual income, insurance status, coexisting medical conditions, distance to treatment center, facility type, histology, grade, tumor size, other cancer treatment, year of cancer diagnosis, time since diagnosis to surgery, and case volume of surgery (VATS-L and RATS-L) performed.

† In 1:1 and N:1 propensity score matched models: adjusting for propensity score matched set.

Supplementary Table 4. Comparison of Hazard ratios between VATS-L and RATS-L associated with all-cause death by case volume

| Center volume | 1-88 (Quartile 1 and 2) | | More than 88 (Quartile 3 and 4) | | More than 145 (Quartile 4 only) | |
|--|-------------------------|------------------|---------------------------------|-------------------|---------------------------------|------------------|
| Unmatched model | Death/All | adj. HR (95%CI)* | Death/All | adj. HR (95%CI)* | Death/All | adj. HR (95%CI)* |
| Follow-up starting from 12-months post-operation | | | | | | |
| VATS-L/RATS-L (All participants) | | | | | | |
| Tumor size: 1-20 mm | 494/4,033 | 1.16 (0.93-1.43) | 421/4,265 | 1.53 (1.23-1.89) | 175/2,139 | 1.65 (1.17-2.32) |
| Tumor size: 21-40 mm | 600/3,824 | 0.87 (0.71-1.07) | 589/3,810 | 1.22 (1.00-1.47) | 292/1,905 | 1.06 (0.79-1.43) |
| Tumor size: other/unknown | 173/679 | 1.03 (0.69-1.54) | 101/592 | 0.96 (0.58-1.653) | 49/291 | 0.42 (0.17-1.05) |
| P for interaction | | .22 | | .09 | | .01 |
| VATS-L/RATS-L (No Conversion) | | | | | | |
| Tumor size: 1-20 mm | 391/3,319 | 1.14 (1.01-1.27) | 374/3,851 | 1.24 (1.10-1.38) | 162/1,942 | 1.30 (1.08-1.55) |
| Tumor size: 21-40 mm | 496/3,228 | 0.92 (0.82-1.02) | 526/3,462 | 1.09 (0.99-1.21) | 258/1,747 | 1.05 (0.90-1.22) |
| Tumor size: other/unknown | 139/569 | 1.08 (0.84-1.34) | 87/521 | 0.95 (0.72-1.24) | 46/264 | 0.57 (0.35-0.93) |
| P for Interaction | | .04 | | .11 | | .01 |
| Follow-up starting from 18-months post-operation | | | | | | |
| VATS-L/RATS-L (All participants) | | | | | | |
| Tumor size: 1-20 mm | 412/3,695 | 1.23 (0.97-1.55) | 345/3,911 | 1.50 (1.18-1.90) | 144/1,971 | 1.78 (1.22-2.60) |
| Tumor size: 21-40 mm | 487/3,450 | 0.88 (0.70-1.10) | 473/3,470 | 1.20 (0.97-1.49) | 235/1,738 | 1.06 (0.77-1.47) |
| Tumor size: other/unknown | 1,25/595 | 1.04 (0.65-1.67) | 72/531 | 0.75 (0.39-1.42) | 37/259 | 0.33 (0.11-1.00) |
| P for Interaction | | .14 | | .08 | | .006 |
| VATS-L/RATS-L (No Conversion) | | | | | | |
| Tumor size: 1-20 mm | 325/3,038 | 1.17 (1.03-1.32) | 307/3,533 | 1.22 (1.08-1.38) | 133/1,787 | 1.33 (1.09-1.62) |
| Tumor size: 21-40 mm | 400/2,917 | 0.93 (0.82-1.05) | 422/3,156 | 1.09 (0.98-1.22) | 208/1,600 | 1.06 (0.90-1.26) |
| Tumor size: other/unknown | 96/492 | 1.11 (0.86-1.44) | 63/467 | 0.76 (0.54-1.08) | 35/234 | 0.44 (0.23-0.83) |
| P for Interaction | | .03 | | .09 | | .005 |
| Follow-up starting from 24-months post-operation | | | | | | |
| VATS-L / RATS-L (All participants) | | | | | | |
| Tumor size: 1-20 mm | 326/3,167 | 1.17 (0.89-1.52) | 262/3,396 | 1.65 (1.26-2.17) | 105/1,712 | 1.87 (1.20-2.92) |
| Tumor size: 21-40 mm | 375/2,898 | 0.94 (0.72-1.21) | 380/2,967 | 1.17 (0.92-1.50) | 184/1,494 | 0.86 (0.58-1.27) |
| Tumor size: other/unknown | 90/492 | 1.02 (0.57-1.82) | 57/446 | 0.49 (0.22-1.09) | 31/213 | 0.13 (0.03-0.57) |
| P for Interaction | | .47 | | .02 | | .001 |
| VATS-L/RATS (No Conversion) | | | | | | |
| Tumor size: 1-20 mm | 255/2,592 | 1.12 (0.97-1.29) | 228/3,054 | 1.31 (1.13-1.51) | 97/1,544 | 1.38 (1.09-1.74) |
| Tumor size: 21-40 mm | 311/2,447 | 0.97 (0.85-1.12) | 333/3,687 | 1.09 (0.96-1.24) | 160/1,371 | 0.96 (0.78-1.18) |
| Tumor size: other/unknown | 68/403 | 1.14 (0.83-1.56) | 50/390 | 0.56 (0.36-0.87) | 29/191 | 0.20 (0.08-0.51) |
| P for Interaction | | .28 | | .01 | | .002 |

* Adjusting for age at diagnosis, sex, race/ethnicity, educational level, annual income, insurance status, coexisting medical conditions, distance to treatment center, facility type, histology, grade, tumor size, other cancer treatment, year of cancer diagnosis, time since diagnosis to surgery, and case volume of surgery (VATS-L and RATS-L) performed.