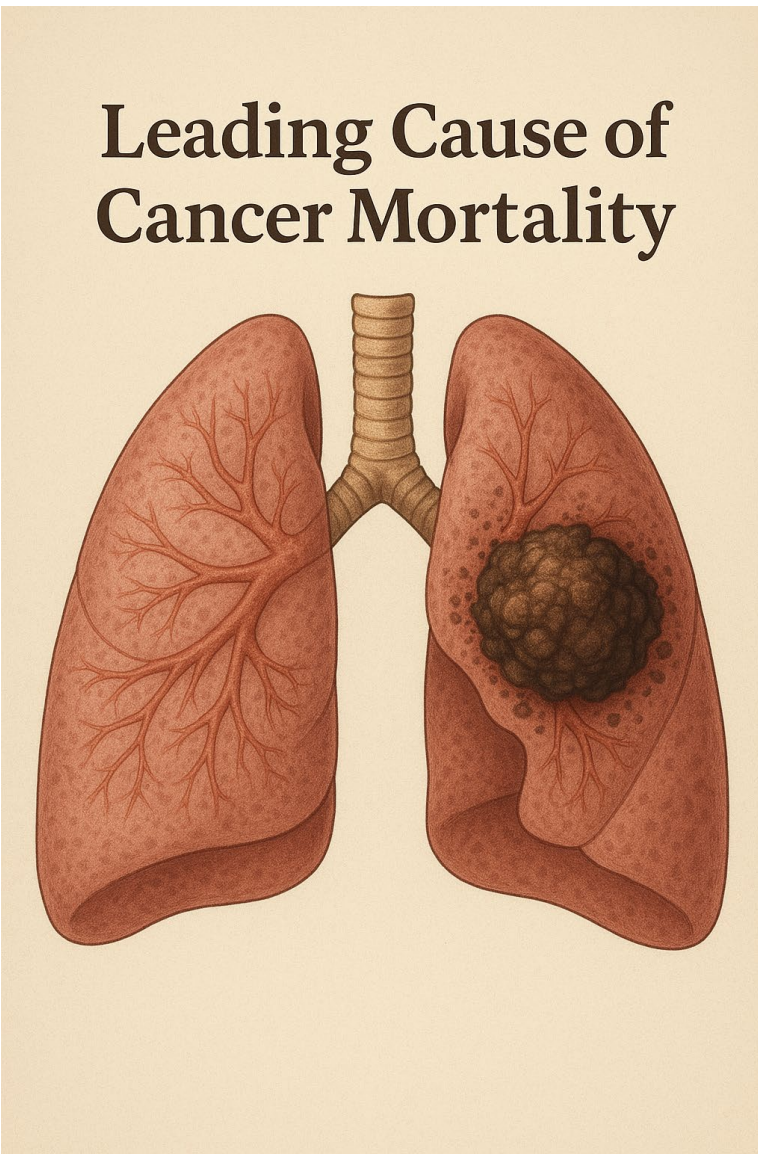
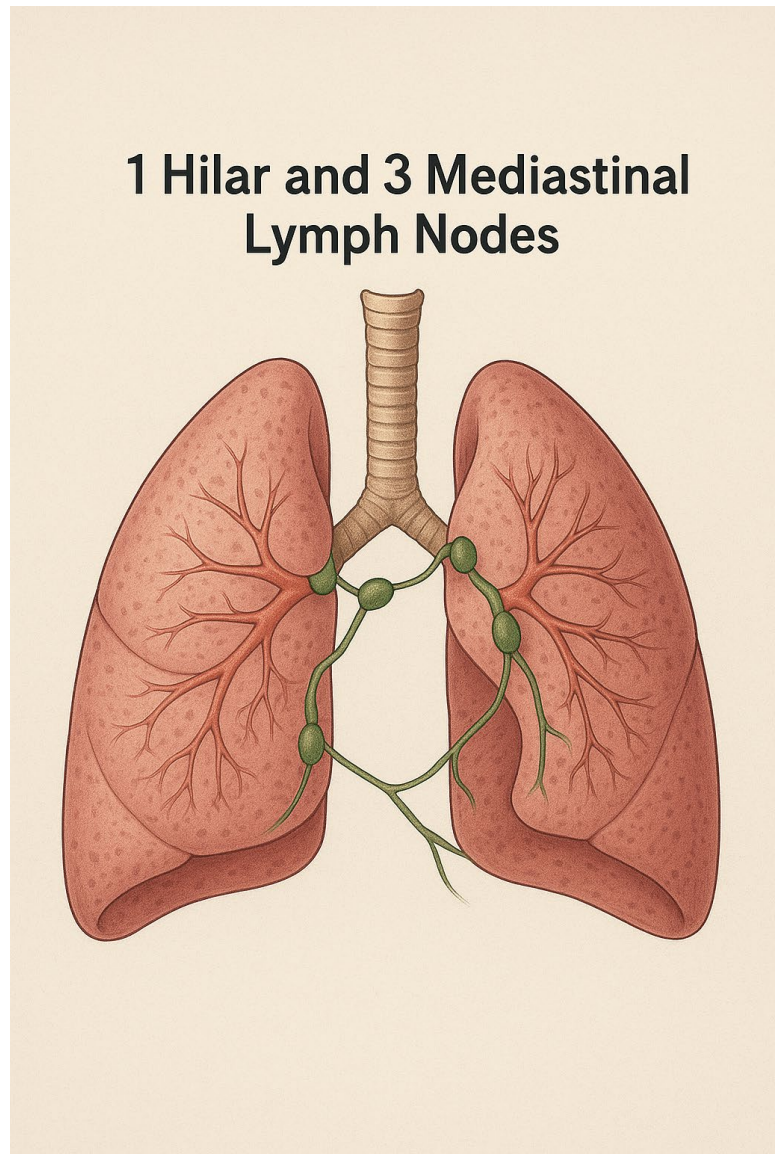


## Introduction



- Lung cancer remains the ***most diagnosed cancer worldwide and the leading cause of cancer mortality***.<sup>1</sup>
- The ***American College of Surgeons (ACS) Commission on Cancer (CoC)*** set ***quality standard 5.8***, requiring lymph nodes from ***at least one hilar station*** (stations 10-14) and ***at least three distinct mediastinal stations*** (stations 2-9).<sup>2-4</sup>
- The ACS CoC conducted site visits in 2022 and 2023. Only ***54% of eligible sites were compliant with the new standard***, demonstrating the need for improvement in lymph node harvesting.<sup>5</sup>



## METHOD

- We performed a cohort study of patients who underwent pulmonary resection for primary lung cancer at a single tertiary referral center from 2022 to 2023, following implementation of ACS CoC quality standard 5.8 in 2021
- We created a conceptual model to identify all potential factors that could reasonably be expected to affect compliance. All data were extracted from the electronic medical record and confirmed through manual review.
- We assessed compliance with ACS CoC quality standard 5.8 and compared tumor characteristics, patient specific factors, intra-operative factors, and surgeon factors between patients who were and were not compliant

## RESULTS

| Characteristics                                 | Compliant: N=169 | Non-Compliant: N=41 | P-Value |
|-------------------------------------------------|------------------|---------------------|---------|
| Age, Years, Mean ± SD <sup>a</sup>              | 68.24 ± 7.78     | 65.66 ± 11.93       | 0.09    |
| BMI <sup>b</sup> , Mean ± SD                    | 27.09 ± 5.95     | 27.09 ± 6.54        | 0.99    |
| Number of Nodes Sampled, Mean ± SD              | 17.49 ± 9.64     | 13.02 ± 6.60        | <0.001  |
| Gender, Female, N, (%)                          | 98 (79.7)        | 25 (20.3)           | 0.727   |
| Surgeon <sup>c</sup> , N, (%)                   |                  |                     | 0.002   |
| Surgeon B                                       | 56 (87.5)        | 8 (12.5)            |         |
| Surgeon C                                       | 73 (70.9)        | 30 (29.1)           |         |
| Insurance <sup>2</sup> , N, (%)                 |                  |                     | 0.024   |
| Medicare                                        | 126 (84.0)       | 24 (16.0)           |         |
| Private                                         | 37 (77.1)        | 11 (22.9)           |         |
| Uninsured/Other                                 | 1 (33.3)         | 2 (66.7)            |         |
| Autoimmune Disorders, N, (%) *                  | 154 (80.6)       | 37 (19.4)           | 0.86    |
| Fungus/Environmental Exposure, N, (%) *         | 159 (79.9)       | 40 (20.1)           | 0.70    |
| History of Other Cancers, N, (%) *              | 128 (80)         | 32 (20)             | 0.76    |
| Histology <sup>3</sup> , N, (%)                 |                  |                     | 0.02    |
| Squamous                                        | 39 (75.0)        | 13 (25.0)           |         |
| Carcinoid                                       | 14 (77.8)        | 4 (22.2)            |         |
| Other                                           | 4 (44.4)         | 5 (55.6)            |         |
| Tumor Size <sup>4</sup> , N, (%)                |                  |                     | 0.62    |
| T1b                                             | 66 (79.5)        | 17 (20.5)           |         |
| T1c                                             | 49 (80.3)        | 12 (19.7)           |         |
| T2a                                             | 22 (88.0)        | 3 (12.0)            |         |
| T2b                                             | 11 (84.6)        | 2 (15.4)            |         |
| T3                                              | 8 (88.9)         | 1 (11.1)            |         |
| T4                                              | 3 (75.0)         | 1 (25.0)            |         |
| Clinical Node Status <sup>5</sup> , N, (%)      |                  |                     | 0.47    |
| N1                                              | 7 (87.5)         | 1 (12.5)            |         |
| N2                                              | 8 (66.7)         | 4 (33.3)            |         |
| Calcified Nodes on Imaging, N, (%) *            | 156 (80.0)       | 39 (20.0)           | 0.60    |
| Path Nodal Status <sup>6</sup> , N, (%)         |                  |                     | 0.39    |
| N1                                              | 15 (71.4)        | 6 (28.6)            |         |
| N2                                              | 21 (87.5)        | 3 (12.5)            |         |
| Surgical Resection <sup>7</sup> , N, (%)        |                  |                     | 0.60    |
| Sublobar                                        | 56 (76.7)        | 17 (23.3)           |         |
| Other                                           | 8 (88.9)         | 1 (11.1)            |         |
| Laterality <sup>8</sup> , N, (%)                | 75 (83.3)        | 15 (16.7)           | 0.37    |
| First Surgery in the Chest, N, (%) *            | 5 (83.3)         | 1 (16.7)            | 1.00    |
| Operative Approach <sup>9</sup> , N (%)         | 144 (80.4)       | 35 (19.6)           | 1.00    |
| Pre-Op Radiation to Chest/Mediastinal, N, (%) * | 167 (80.3)       | 41 (19.7)           | 0.49    |
| Pre-Op Chemotherapy, N, (%) *                   | 142 (80.2)       | 35 (19.8)           | 0.83    |
| Pre-Op Immunotherapy, N, (%) *                  | 146 (80.2)       | 36 (19.8)           | 0.87    |
| Pre-Op EBUS <sup>c</sup> N, (%) *               | 99 (80.5)        | 24 (19.5)           | 0.996   |
| Pre-Op Mediastinoscopy/Chamberlain, N, (%) *    | 166 (80.2)       | 41 (19.8)           | 1.00    |
| Case Order <sup>10</sup> , N, (%)               | 41 (82.0)        | 9 (18.0)            | 0.76    |

<sup>a</sup>SD=Standard Deviation, <sup>b</sup>BMI=Body Mass Index, <sup>c</sup>EBUS=Endobronchial Ultrasound, <sup>\*\*</sup>“Yes” is the reference category for binary variables, Surgeon A is the reference category for Surgeon<sup>c</sup>, Medicaid is the reference category for Insurance<sup>2</sup>, Adenocarcinoma is the reference category for Histology<sup>3</sup>, T1a is the reference category for T stage Tumor size<sup>4</sup>, N0 is the reference category for Clinical Node Status<sup>5</sup>, N0 is the reference category for Path Nodal Status<sup>6</sup>, Lobar is the reference category for Surgical Resection<sup>7</sup>, Right is the reference category for Laterality<sup>8</sup>, Open approach (compared to minimally invasive approach) is the reference category for Operative Approach<sup>9</sup>, Before 3pm is the reference category for Case Order<sup>10</sup>.

Patient characteristics comparing those who had lymph node harvests compliant with the American College of Surgeons Commission on Cancer Quality Standard 5.8 versus those who did not have a compliant lymph node harvest at a single academic institution in 2022 and 2023

## CONCLUSIONS

- Previous studies of this standard have shown that left-sided disease, open technique, and sublobar resections were associated with non-compliance in contrast to the findings of this present study.<sup>6</sup>
- An increasing number of nodes sampled increased the likelihood of achieving compliance with quality standard 5.8.
- Surgeon variability plays a large role in compliance, suggesting that education and familiarity with can help improve compliance.
- Having a histology other than adenocarcinoma, squamous cell carcinoma, or carcinoid was associated with non-compliance, which could also be due to unfamiliarity with the quality standard.
- A large retrospective or prospective, multi-center study should be performed, including both academic and community centers as well as surgeons with varying training backgrounds to better understand factors affecting compliance.

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Comparison of patients with compliant versus non-compliant lymph node harvest according to the American College of Surgeons Commission on Cancer Quality Standard 5.8 by surgeon

