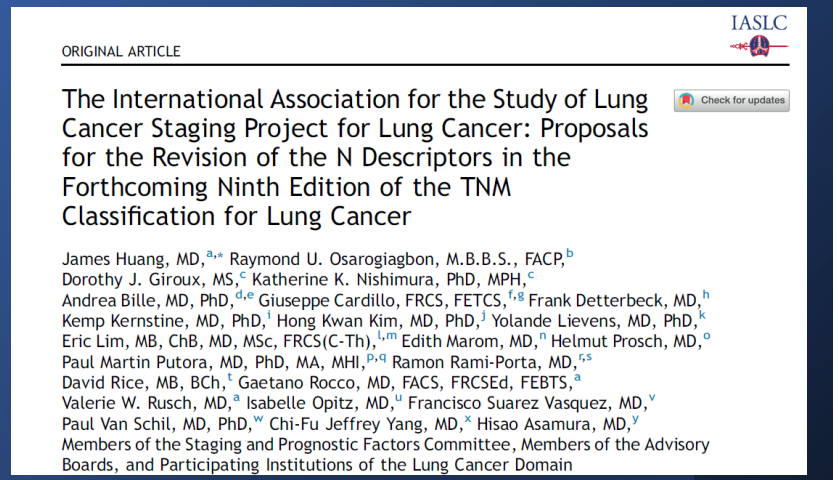
Standard 5.8: Still relevant and even more important than ever.

Nirmal Veeramachaneni MD
Chief of Thoracic Surgery, St. Louis University
Professor of Surgery

Matthew A Facktor MD FACS
System Chief, Thoracic Surgery, Geisinger Health System



ORIGINAL ARTICLE

IASLC

The International Association for the Study of Lung Cancer Staging Project for Lung Cancer: Proposals for the Revision of the N Descriptors in the Forthcoming Ninth Edition of the TNM Classification for Lung Cancer

Check for updates

James Huang, MD,[a,*] Raymond U. Osarogiagbon, M.B.B.S., FACP,[b] Dorothy J. Giroux, MS,[c] Katherine K. Nishimura, PhD, MPH,[c] Andrea Bille, MD, PhD,[d,e] Giuseppe Cardillo, FRCS, FETCS,[f,g] Frank Detterbeck, MD,[h] Kemp Kernstine, MD, PhD,[i] Hong Kwan Kim, MD, PhD,[j] Yolande Lievens, MD, PhD,[k] Eric Lim, MB, ChB, MD, MSc, FRCS(C-Th),[l,m] Edith Marom, MD,[n] Helmut Prosch, MD,[o] Paul Martin Putora, MD, PhD, MA, MHI,[p,q] Ramon Rami-Porta, MD,[r,s] David Rice, MB, BCh,[t] Gaetano Rocco, MD, FACS, FRCSEd, FEBTS,[a] Valerie W. Rusch, MD,[a] Isabelle Opitz, MD,[u] Francisco Suarez Vasquez, MD,[v] Paul Van Schil, MD, PhD,[w] Chi-Fu Jeffrey Yang, MD,[x] Hisao Asamura, MD,[y] Members of the Staging and Prognostic Factors Committee, Members of the Advisory Boards, and Participating Institutions of the Lung Cancer Domain

Nodal assessment is even more important in AJCC 9, effective Jan 2025

Table 5. Proposed N Categories and Descriptors

Eighth	Ninth	Descriptor
NX		Regional lymph nodes cannot be assessed
N0		No regional lymph node metastasis
N1		Metastasis in ipsilateral peribronchial and/or ipsilateral hilar lymph nodes and intrapulmonary nodes, including involvement by direct extension
N2		Metastasis in ipsilateral mediastinal and/or subcarinal lymph node(s)
	N2a	Single N2 station involvement
	N2b	Multiple N2 station involvement
N3		Metastasis in contralateral mediastinal, contralateral hilar, ipsilateral or contralateral scalene or supraclavicular lymph node(s)

N, node.

ORIGINAL ARTICLE

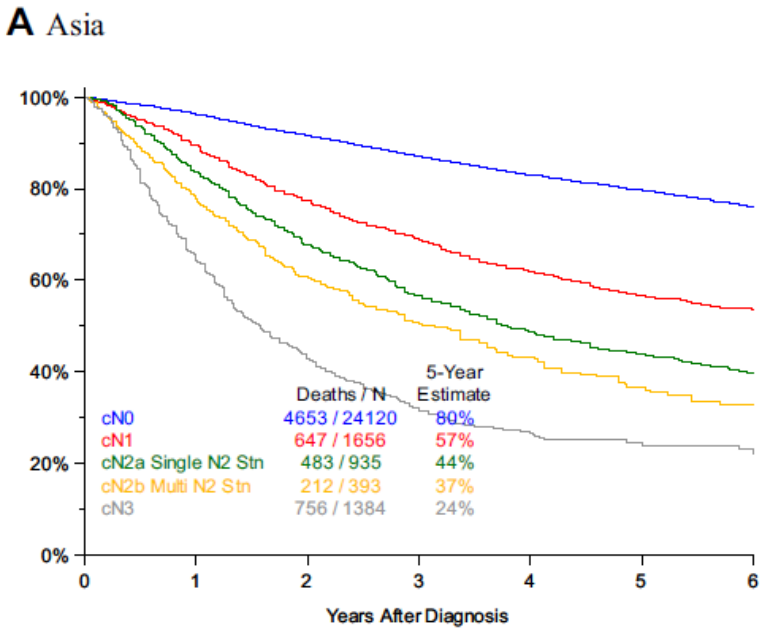
IASLC

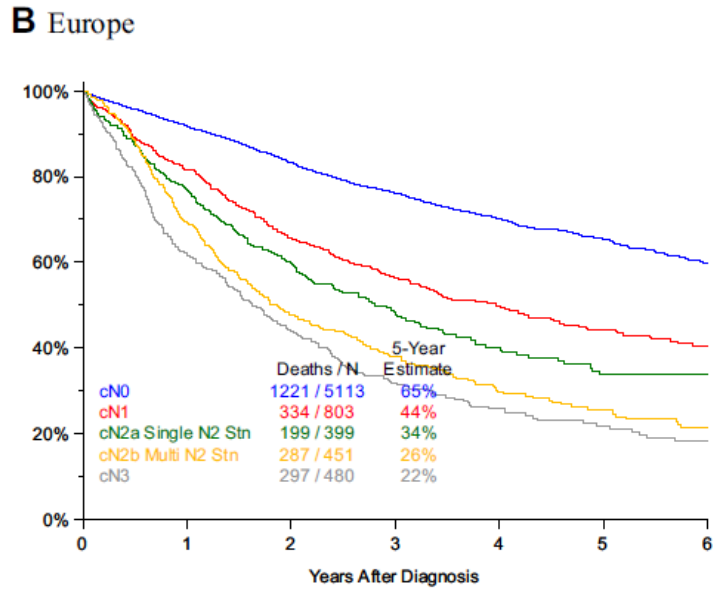
The International Association for the Study of Lung Cancer Staging Project for Lung Cancer: Proposals for the Revision of the N Descriptors in the Forthcoming Ninth Edition of the TNM Classification for Lung Cancer

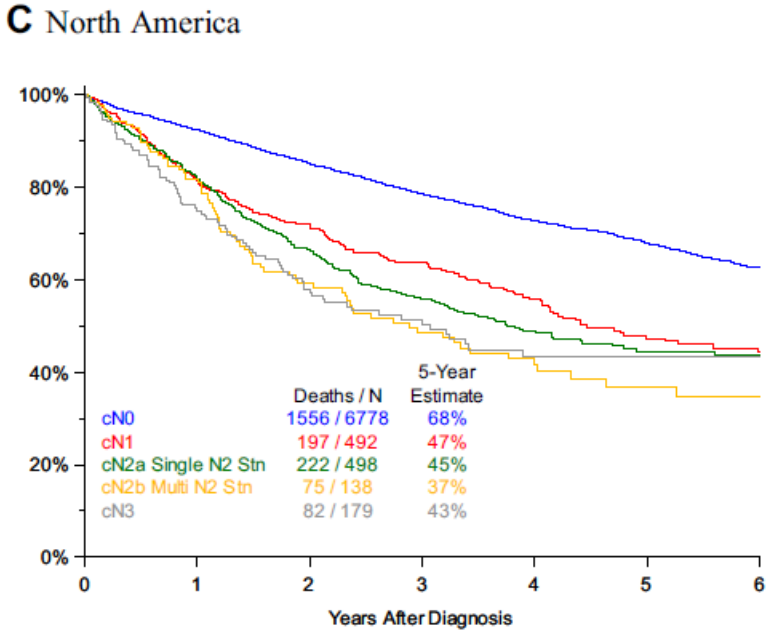
James Huang, MD,[a,*] Raymond U. Osarogiagbon, M.B.B.S., FACP,[b] Dorothy J. Giroux, MS,[c] Katherine K. Nishimura, PhD, MPH,[c] Andrea Bille, MD, PhD,[d,e] Giuseppe Cardillo, FRCS, FETCS,[f,g] Frank Detterbeck, MD,[h] Kemp Kernstine, MD, PhD,[i] Hong Kwan Kim, MD, PhD,[j] Yolande Lievens, MD, PhD,[k] Eric Lim, MB, ChB, MD, MSc, FRCS(C-Th),[l,m] Edith Marom, MD,[n] Helmut Prosch, MD,[o] Paul Martin Putora, MD, PhD, MA, MHI,[p,q] Ramon Rami-Porta, MD,[r,s] David Rice, MB, BCh,[t] Gaetano Rocco, MD, FACS, FRCSEd, FEBTS,[a] Valerie W. Rusch, MD,[a] Isabelle Opitz, MD,[u] Francisco Suarez Vasquez, MD,[v] Paul Van Schil, MD, PhD,[w] Chi-Fu Jeffrey Yang, MD,[x] Hisao Asamura, MD,[y] Members of the Staging and Prognostic Factors Committee, Members of the Advisory Boards, and Participating Institutions of the Lung Cancer Domain

The US can't differentiate patients with N2a, N2b for N3

This is bad for patients!







Simple interventions to improve outcomes.

J Thorac Oncol. 2021 April ; 16(4): 630–642. doi:10.1016/j.jtho.2020.12.025.

Outcomes Following Use of a Lymph Node Collection Kit for Lung Cancer Surgery: A Pragmatic, Population-Based, Multi-Institutional, Staggered Implementation Study.

Raymond U. Osarogiagbon, MBBS[1,2], Matthew P. Smeltzer, PhD[1,3], Nicholas R. Faris, M. Div.[1,2], Meredith A. Ray, PhD[1,3], Carrie Fehnel, BBA[1], Phillip Ojeabulu, MBBS[1], Olawale Akinbobola, MPH[1], Meghan Meadows-Taylor, MPH[1,3], Laura M. McHugh, RN[2], Ahmed M. Halal, MD[4], Paul Levy, MD[5], Vishal Sachdev, MD[7], Robert Talton, MD[7], Lynn Wiggins, MD[6], Xiao-Ou Shu, PhD[8], Yu Shyr, PhD[9], Edward T. Robbins, MD[2], Lisa M. Klesges, PhD[10]

J Thorac Oncol. 2021 April ; 16(4): 630–642. doi:10.1016/j.jtho.2020.12.025.

Outcomes Following Use of a Lymph Node Collection Kit for Lung Cancer Surgery: A Pragmatic, Population-Based, Multi-Institutional, Staggered Implementation Study.

Raymond U. Osarogiagbon, MBBS[1,2], Matthew P. Smeltzer, PhD[1,3], Nicholas R. Faris, M. Div.[1,2], Meredith A. Ray, PhD[1,3], Carrie Fehnel, BBA[1], Phillip Ojeabulu, MBBS[1], Olawale Akinbobola, MPH[1], Meghan Meadows-Taylor, MPH[1,3], Laura M. McHugh, RN[2], Ahmed M. Halal, MD[4], Paul Levy, MD[5], Vishal Sachdev, MD[7], Robert Talton, MD[7], Lynn Wiggins, MD[6], Xiao-Ou Shu, PhD[8], Yu Shyr, PhD[9], Edward T. Robbins, MD[2], Lisa M. Klesges, PhD[10]

Results: Of 1492 participants, 56% had resection with the kit, 44% without. Pathologic nodal staging quality was significantly higher in the kit cases: 0.2% of kit cases versus 9.8% of non-kit cases had no lymph nodes examined; 3.2% versus 25.3% had no mediastinal lymph nodes; 75% versus 26% attained NCCN criteria ($p<0.0001$ for all comparisons). Kit cases showed no difference in perioperative complications or healthcare utilization except for significantly shorter duration of surgery, lower proportions with atelectasis, and slightly higher use of blood transfusion. Resection with the kit was associated with a lower hazard of death (crude, 0.78 [95% CI 0.61–0.99]; adjusted 0.85 [0.71 to 1.02]).

Intervention

The lymph node collection kit contains the IASLC lymph node map and specimen jars labeled for each of the hilar and mediastinal stations.[13] Specific containers are marked to indicate stations mandated for examination: stations 2R,4R,7,8,9 and 10R for right-sided tumors; 4L,5,6,7,8,9 and 10L for left-sided tumors (see Supplementary Table 1 for anatomic nomenclature).[14] The kit includes a checklist to explain why specimens were not collected from mandatory stations.[12]

Two Interventions on Pathologic Nodal Staging in a Population-Based Lung Cancer Resection Cohort

Raymond U. Osarogiagbon, MBBS,[1] Meredith A. Ray, PhD,[2] Carrie Fehnel, BBA,[1] Olawale Akinbobola, MPH,[1] Andrea Saulsberry, MBA,[1] Kourtney Dortch, BS,[1] Nicholas R. Faris, MDiv,[1] Anberitha T. Matthews, PhD,[1] Matthew P. Smeltzer, PhD,[2] and David Spencer, MD,[3] on behalf of the MS-QSR Consortium*

ABSTRACT

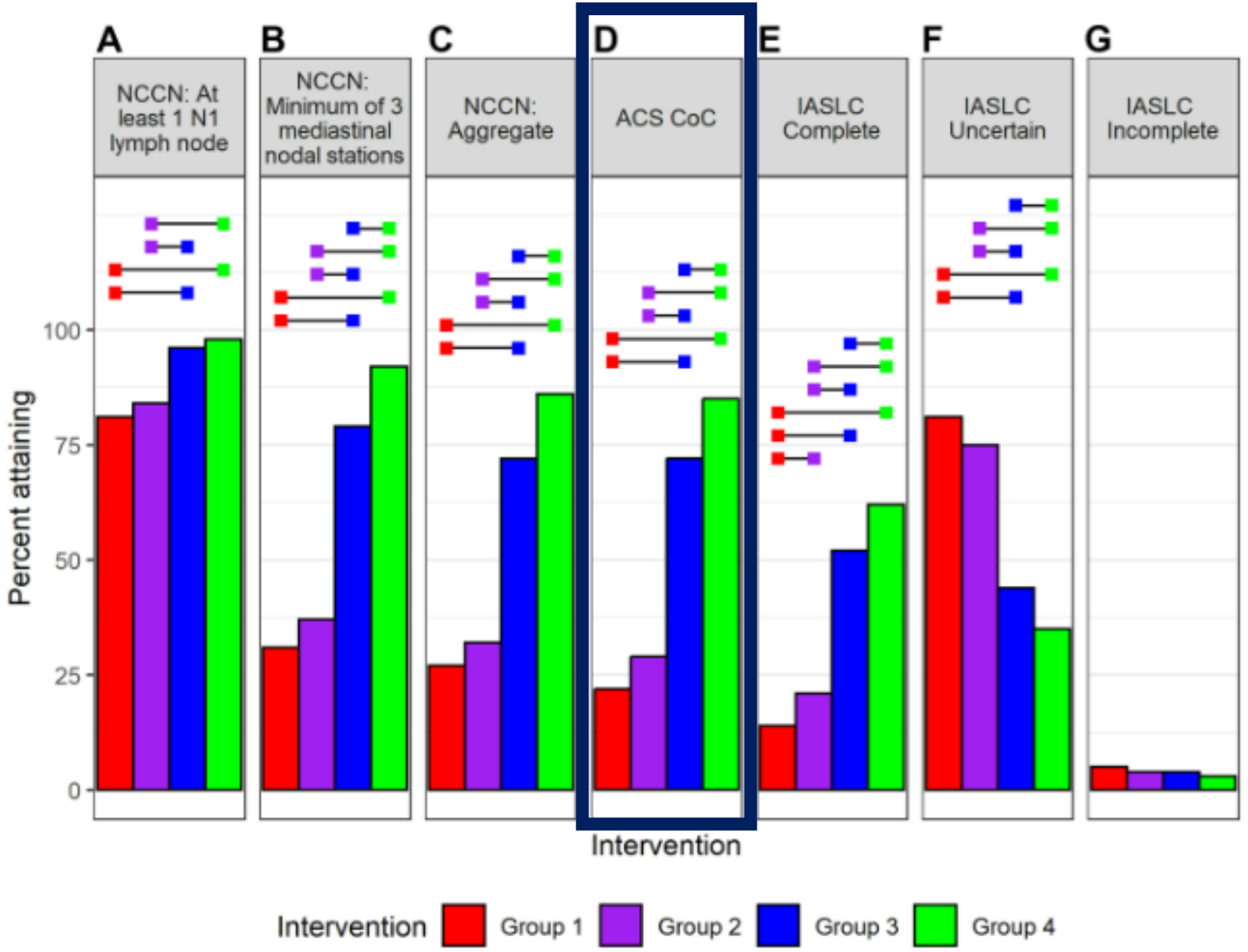
BACKGROUND Despite its prognostic importance, poor pathologic nodal staging of lung cancer prevails. We evaluated the impact of 2 interventions to improve pathologic nodal staging.

METHODS We implemented a lymph node specimen collection kit to improve intraoperative lymph node collection (surgical intervention) and a novel gross dissection method for intrapulmonary node retrieval (pathology intervention) in nonrandomized stepped-wedge fashion, involving 12 hospitals and 7 pathology groups. We used standard statistical methods to compare surgical quality and survival of patients who had neither intervention (group 1), pathology intervention only (group 2), surgical intervention only (group 3), and both interventions (group 4).

RESULTS Of 4019 patients from 2009 to 2021, 50%, 5%, 21%, and 24%, respectively, were in groups 1 to 4. Rates of nonexamination of lymph nodes were 11%, 9%, 0%, and 0% and rates of nonexamination of mediastinal lymph nodes were 29%, 35%, 2%, and 2%, respectively, in groups 1 to 4 ($P < .0001$). Rates of attainment of American College of Surgeons Operative Standard 5.8 were 22%, 29%, 72%, and 85%; and rates of International Association for the Study of Lung Cancer complete resection were 14%, 21%, 53%, and 61% ($P < .0001$).
Compared with group 1, adjusted hazard ratios for death were as follows: group 2, 0.93 (95% CI, 0.76-1.15); group 3, 0.91 (0.78-1.03); and group 4, 0.75 (0.64-0.87). Compared with group 2, group 4 adjusted hazard ratio was 0.72 (0.57-0.91); compared with group 3, it was 0.83 (0.69-0.99). These relationships remained after exclusion of wedge resections.

CONCLUSIONS Combining a lymph node collection kit with a novel gross dissection method significantly improved pathologic nodal evaluation and survival.

(Ann Thorac Surg 2024;117:576-85)



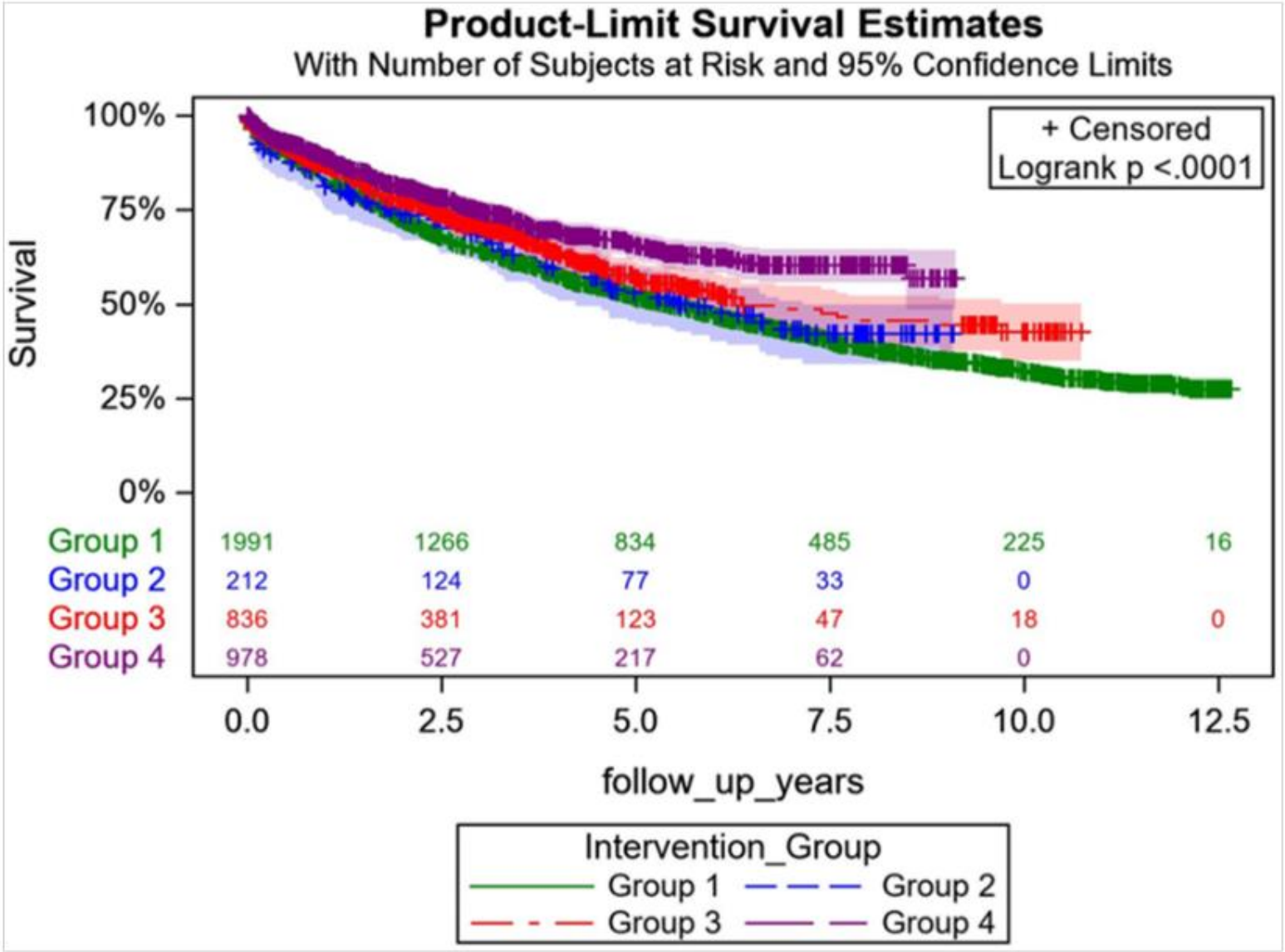
GROUPS

1 = no intervention

2 = pathology intervention only

3 = surgical intervention (kit) only

4 = both interventions



GROUPS

1 = no intervention

2 = pathology intervention only

3 = surgical intervention (kit) only

4 = both interventions

RESEARCH SUMMARY

Lobar or Sublobar Resection for Peripheral Stage IA Non–Small-Cell Lung Cancer

Altorki N et al. DOI: 10.1056/NEJMoa2212083

CLINICAL PROBLEM

Among patients with non–small-cell lung cancer (NSCLC) whose tumors are small and have not spread to lymph nodes, lobectomy has been the surgical standard of care for decades, but recent advances in lung cancer screening and staging methods have allowed the earlier detection of smaller tumors. Whether lobectomy remains a better option than sublobar resection in patients with early disease is unknown.

CLINICAL TRIAL

Design: A phase 3 multicenter, international, randomized, noninferiority trial compared resection strategies among patients with peripheral NSCLC clinically staged as T1aN0 (tumor size, ≤2 cm). Patients were recruited from 83 academic and community-based institutions in the United States, Canada, and Australia.

Intervention: 697 patients were assigned to undergo either lobar resection or sublobar resection (anatomical segmentectomy or wedge resection) from June 2007 through March 2017. The primary end point was disease-free survival. Overall survival, locoregional and systemic recurrence, and pulmonary functions were also assessed.

RESULTS

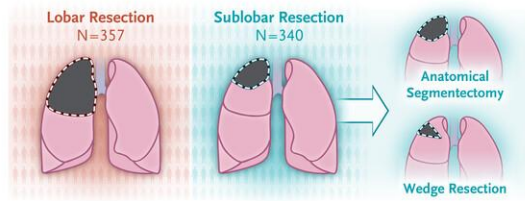
Efficacy: At a median follow-up of 7 years, sublobar resection was noninferior to lobar resection for disease-free survival. In addition, overall survival after sublobar resection was similar to that after lobar resection.

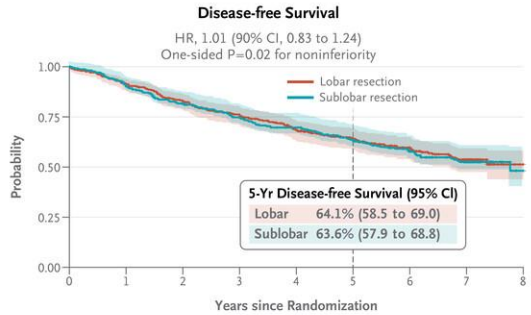
Pulmonary Function: At 2 months after surgery, the sublobar-resection group had slightly less decline in pulmonary function than the lobar-resection group.

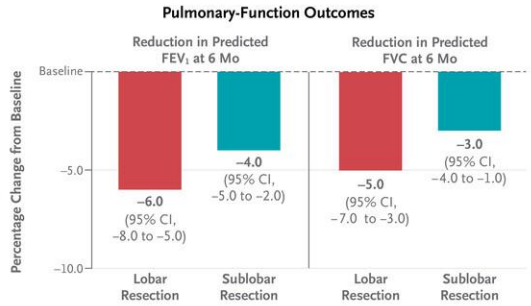
LIMITATIONS AND REMAINING QUESTIONS

- The small sample size and few events mean that the results should be interpreted with caution.
- The results may not be applicable to patients with more extensive disease.

Links: Full Article | NEJM Quick Take | Editorial







CONCLUSIONS

Among patients with clinical stage T1aN0 NSCLC, sublobar resection was noninferior to lobectomy with respect to disease-free survival.

Lobar or Sublobar Resection for Peripheral Stage IA Non–Small-Cell Lung Cancer

Altorki N et al. DOI: 10.1056/NEJMoa2212083

Intraoperative eligibility criteria included histologic confirmation of NSCLC (if not already obtained) and confirmation of N0 status by means of frozen-section examination (for tumors on the right side, node levels 4, 7, and 10; for tumors on the left side, node levels 5 or 6, 7, and 10).

Nodes that were previously sampled by means of mediastinoscopy, endobronchial ultrasonography, or endoscopic ultrasonography within 6 weeks before the definitive surgical procedure did not need to be resampled.

Biopsy first: Lessons learned from Cancer and Leukemia Group B (CALGB) 140503

Leslie J. Kohman, MD,[a] Lin Gu, MS,[b] Nasser Altorki, MD,[c] Ernest Scalzetti, MD,[d] Linda J. Veit, MPH,[a] Jason M. Wallen, MD,[a] and Xiaofei Wang, PhD[b]

We had previously reported that among patients with clinically node-negative disease who were registered for the trial, 6.4% had positive major hilar or mediastinal nodes precluding randomization.[14]

This means that nodes matter even for early stage lung cancer.

During trial design, we estimated that 30% of patients would be ineligible for randomization due to understaging or misdiagnosis. The actual percentage of registered patients who were unable to go on to randomization was about 40%.

Kohman LJ, Gu L, Altorki N, et al. Biopsy first: lessons learned from cancer and leukemia group B (CALGB) 140503. *J Thorac Cardiovasc Surg* 2017;153:1592-1597.

Of the 208 patients not eligible for randomization in the Altorki trial…

NSCLC but ineligible (more advanced)	47 (22.6% of unrandomized, 10.7% of all registered NSCLC)	
	Stage IA (T1b)	6
	Stage IIA	6
	Stage IIB	6
	Stage IIIA	25
	Stage IV (M1a)	2
	Unknown	2
Positive nodes - ([4])	28 (13.5% of unrandomized, 6.4% of all registered NSCLC)	
	N2 20	
	N1 6	
	Not specified 2	

Is there any form of lung cancer that is NOT at risk of nodal spread?

Predictors of lymph node metastasis and possible selective lymph node dissection in clinical stage IA non-small cell lung cancer

Ningning Ding, Yousheng Mao, Shugeng Gao, Qi Xue, Dali Wang, Jun Zhao, Yushun Gao, Jinfeng Huang, Kang Shao, Feiyue Feng, Yue Zhao, Ligong Yuan

All patients diagnosed as clinical stage IA NSCLC from July 2013 to June 2017 in our center were retrospectively reviewed, and a total number of 1,543 patients who underwent anatomical lobectomy with systematic lymph node dissection were enrolled in this study

J Thorac Dis 2018;10(7):4061-4068

Table 1 General characteristics and association between patients' characteristics and lymph node metastasis

Variables	Total (1,543)	pN0 (n=1,412)	pN1 + pN2 (n=131)	t/χ^2	P value
Age (years)	57.96±8.59	57.86±8.62	59.03±8.33	−1.488	0.137
≤40	42	39	3	3.241	0.514
41–50	259	242	17		
51–60	586	533	53		
61–70	557	511	46		
≥71	99	87	12		
Sex				10.546	0.001
Male	710	632	78		
Female	833	780	53		
Smoking history				274.504	<0.001
Never	1,374	1,314	60		
Current/former	169	98	71		
Tumor location				2.913	0.580
RUL	532	494	38		
RML	100	93	7		
RLL	311	283	28		
LUL	367	330	37		
LLL	233	212	21		
CT characters				62.593	<0.001
GGO	406	406	0		
P-GS	252	238	14		
Solid	885	769	116		
Tumor size (cm)				67.161	<0.001
≤0.5	20	20	0		
0.5–1	264	260	4		
1.1–1.5	429	409	20		
1.6–2.0	336	307	29		
2.1–2.5	290	252	38		
2.6–3.0	204	164	40		
Histologic type				1.322	0.531
Adenocarcinoma	1,321	1,213	108		
SCC	189	170	19		
Others	33	29	4		
Differentiation				107.344	<0.001
Well	477	471	6		
Moderate	760	703	57		
Poor	306	238	68		
VPI				161.879	<0.001
Yes	180	120	60		
No	1,363	1,292	71		
LVI				331.739	<0.001
Yes	95	39	56		
No	1,448	1,373	75		

GGO, ground-glass opacity; VPI, visceral pleural invasion; LVI, lymphovascular invasion; P-GS, partially GGO-solid tumors; RUL, right upper lobe; RML, right middle lobe; RLL, right lower lobe; LUL, left upper lobe; LLL, left lower lobe; SCC, squamous cell carcinoma.

Distinct Clinicopathologic Characteristics and Prognosis Based on the Presence of Ground Glass Opacity Component in Clinical Stage IA Lung Adenocarcinoma

Aritoshi Hattori, MD,[a,*] Shunki Hirayama, MD,[a] Takeshi Matsunaga, MD,[a] Takuo Hayashi, MD,[b] Kazuya Takamochi, MD,[a] Shiaki Oh, MD,[a] Kenji Suzuki, MD[a]

[a]*Department of General Thoracic Surgery, Juntendo University School of Medicine, Tokyo, Japan*
[b]*Department of Human Pathology, Juntendo University School of Medicine, Tokyo, Japan*

Received 22 March 2018; revised 24 September 2018; accepted 27 September 2018
Available online - 24 October 2018

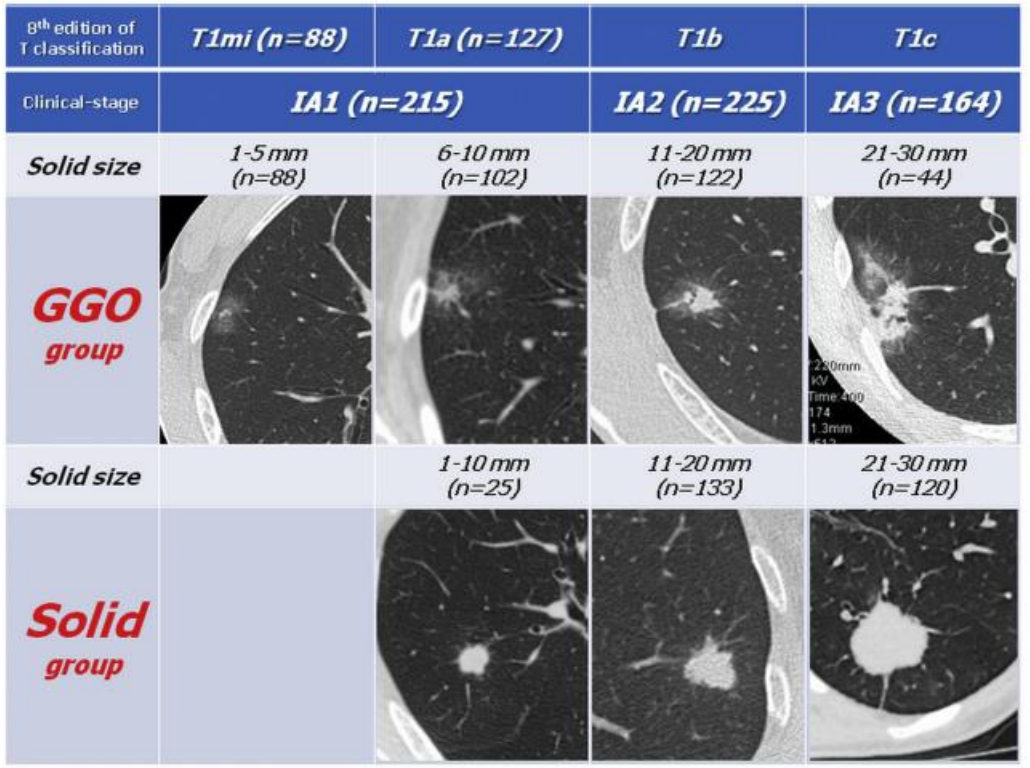


Figure 1. Typical radiological images based on the eighth edition of the clinical T classification. Tumors were divided into ground glass opacity (GGO) and solid groups according to the presence of GGO components.

Table 2. Pathological Characteristics Based on Ground Glass Opacity Presence in c-Stage IA1-3 Adenocarcinoma

	c-Stage IA1 (cT1mi + cT1a) (n = 215)				c-Stage IA2 (cT1b) (n = 255)			c-Stage IA3 (cT1c) (n = 164)		
	T1mi (n = 88)	T1a-GGO (n = 102)	T1a-Solid (n = 25)	*p* Value[a]	T1b-GGO (n = 122)	T1b-Solid (n = 133)	*p* Value[a]	T1c-GGO (n = 44)	T1c-Solid (n = 120)	*p* Value[a]
AIS	22 (25)	12 (12)	4 (16)	<0.001	5 (4)	3 (2)	<0.001	0 (0)	0 (0)	<0.001
MIA	21 (24)	17 (17)	1 (4)		7 (6)	1 (1)		0 (0)	0 (0)	
LPA	27 (31)	44 (43)	6 (24)		60 (49)	26 (19)		18 (41)	16 (13)	
Invasive adenocarcinoma										
Acinar predominant	14 (16)	21 (20)	9 (36)		36 (30)	53 (40)		16 (36)	40 (33)	
Papillary predominant	4 (4)	5 (5)	3 (12)		8 (6)	22 (17)		6 (14)	36 (30)	
Solid predominant	0 (0)	3 (3)	2 (8)		6 (5)	28 (21)		4 (9)	28 (23)	
Ly (present)	0 (0)	7 (7)	4 (16)	<0.001	21 (17)	62 (47)	<0.001	7 (16)	65 (54)	<0.001
V (present)	0 (0)	4 (4)	5 (20)	<0.001	15 (13)	54 (41)	<0.001	9 (20)	78 (65)	<0.001
P (present)	0 (0)	3 (3)	3 (12)	0.003	8 (7)	26 (20)	0.002	9 (20)	46 (38)	0.032
Nodal metastasis (present)	0 (0)	0 (0)	2 (8)	<0.001	4 (3)	26 (20)	<0.001	6 (14)	43 (36)	0.006
EGFR mutant (present)	40 (39)	47 (46)	10 (40)	0.306	70 (57)	32 (24)	<0.001	24 (55)	37 (31)	0.005
p-Stage				<0.001[b]			<0.001[b]			0.003[b]
IA	88 (100)	99 (97)	20 (80)		112 (92)	89 (67)		28 (64)	45 (38)	
IB	0 (0)	3 (3)	3 (12)		6 (5)	14 (10)		7 (16)	24 (20)	
IIA	0 (0)	0 (0)	1 (4)		2 (1.5)	11 (8)		4 (9)	18 (15)	
IIB	0 (0)	0 (0)	0 (0)		0 (0)	2 (2)		2 (4)	6 (5)	
IIIA	0 (0)	0 (0)	1 (4)		2 (1.5)	15 (11)		3 (7)	22 (18)	
IIIB	0 (0)	0 (0)	0 (0)		0 (0)	2 (2)		0 (0)	2 (2)	
IV	0 (0)	0 (0)	0 (0)		0 (0)	0 (0)		0 (0)	3 (2)	

[a] *p* value in chi-square test, Student *t* test, or Wilcoxon rank sum test.
[b] *p* value for the comparison between p-stage IA or not.
Categorical data are shown as numbers (%) and continuous data as mean ± SD if normally distributed, and median ± interquartile range if not normally distributed (range). GGO, ground glass opacity; AIS, adenocarcinoma in situ; MIA, minimally invasive adenocarcinoma; LPA, lepidic predominant adenocarcinoma; Ly, lymphatic invasion; V, vascular invasion; P, pleural invasion.

Lymph node dissection in small peripheral lung cancer: Supplemental analysis of JCOG0802/WJOG4607L

Tomohiro Maniwa, MD,[a] Jiro Okami, MD,[a] Tomohiro Miyoshi, MD,[b] Masashi Wakabayashi, MSC,[c] Hiroshige Yoshioka, MD,[d] Takahiro Mimae, MD,[e] Makoto Endo, MD,[f] Aritoshi Hattori, MD,[g] Kazuo Nakagawa, MD,[h] Tetsuya Isaka, MD,[i] Mitsuhiro Isaka, MD,[j] Ryosuke Kita, MD,[c] Yuta Sekino, MD,[c] Noriko Mitome, MD,[c] Keiju Aokage, MD,[b] Hisashi Saji, MD,[k] Ryu Nakajima, MD,[l] Morihito Okada, MD,[f] Masahiro Tsuboi, MD,[b] Hisao Asamura, MD,[m] Haruhiko Fukuda, MD,[c] Shun-ichi Watanabe, MD,[h] and on behalf of the West Japan Oncology Group and Japan Clinical Oncology Group

The Journal of Thoracic and Cardiovascular Surgery • September 2024

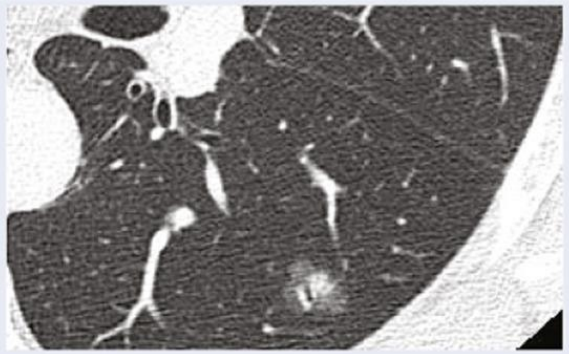
All less than 2 cm (T1a or T1b)
50% pure solid tumors

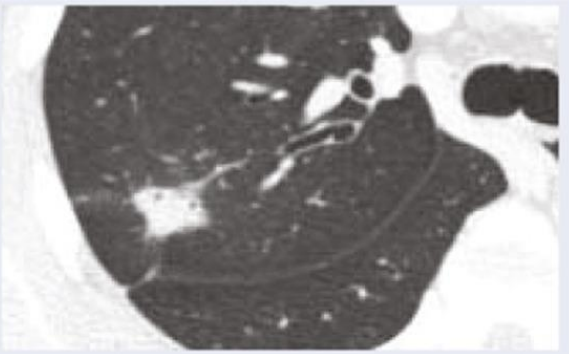
JTCVS @AATSJournals

Lymph node dissection (LND): supplemental analysis of JCOG0802/WJOG4607L

August 2009-October 2015, NSCLC, ≤ 2.0 cm, peripheral, C/T > 0.5

533 patients with part-solid (with GGO)		522 patients with pure-solid (without GGO)	
pN (+)	8 (1.5%)	pN (+)	55 (10.4%)
pN1	5 (1.0%)	pN1	27 (5.1%)
non-aiLN (+)	0 (0%)	non-aiLN (+)	5 (1.0%)
pN2	3 (0.5%)	pN2	28 (5.4%)





Non-adjacent interlobar and mediastinal LND have little impact on pathological nodal staging in patients with part-solid tumors. In contrast, selective LND is recommended at least for patients with pure-solid tumors.

NSCLC: non-small cell lung cancer C/T: consolidation/tumor, GGO: ground glass opacity, LNs: lymph nodes, LND: lymph node dissection

Confirmatory Mediastinoscopy after Negative Endobronchial Ultrasound-guided Transbronchial Needle Aspiration for Mediastinal Staging of Lung Cancer

Systematic Review and Meta-analysis

José Sanz-Santos[1,2], Pere Almagro[2,3], Komal Malik[3], Pablo Martinez-Camblor[4,5], Conxi Caro[6], and Ramón Rami-Porta[7,8]

AnnalsATS Volume 19 Number 9 | September 2022

Current guidelines for non–small cell lung cancer(NSCLC) mediastinal staging recommend starting invasive staging with endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA). However, the indication to confirm a negative result of EBUS-TBNA by means of video-assisted mediastinoscopy (VAM) before resection differs in every guideline.

The proportion of unforeseen N2/3 disease after a negative EBUS-TBNA was 13.7%, and it was 8.2% in those studies in which EBUS-TBNA was followed by confirmatory video assisted mediastinoscopy.

COC audit

One source document for reviewers.

We selected the path report.

How many charts do we need to check?

The expectation is for 80% adherence.

Current State

Very small tumors with GGO are the only ones at minimal risk of nodal spread.

Radiographic solid lung cancers need nodal assessment.

A negative EBUS study may still benefit from surgical nodal assessment.