

20th ANNUAL

ATLANTA

LUNG CANCER SYMPOSIUM

What is ‘Resectable’ Lung Cancer Today?

Onkar Khullar MD, MSc

November 7, 2026

Partners for Advancing Clinical Education

Bio Ascend™

What is NOT Resectable?

THIS SLIDE IS INTENTIONALLY BLANK

Agenda

- Physiologic Resectability
  - PFTs, high risk criteria
- Anatomic Resectability
  - Direct tumor extension
- Oncologic Resectability
  - Pneumonectomy
  - Multistation N2 disease
  - Local therapy for metastatic disease

Surgery is the standard recommended treatment for early stage NSCLC – But what surgery should we do?

Minimally invasive surgery

Thoracoscopic lung resections

Robotic Lung Resections

Anatomic Resections

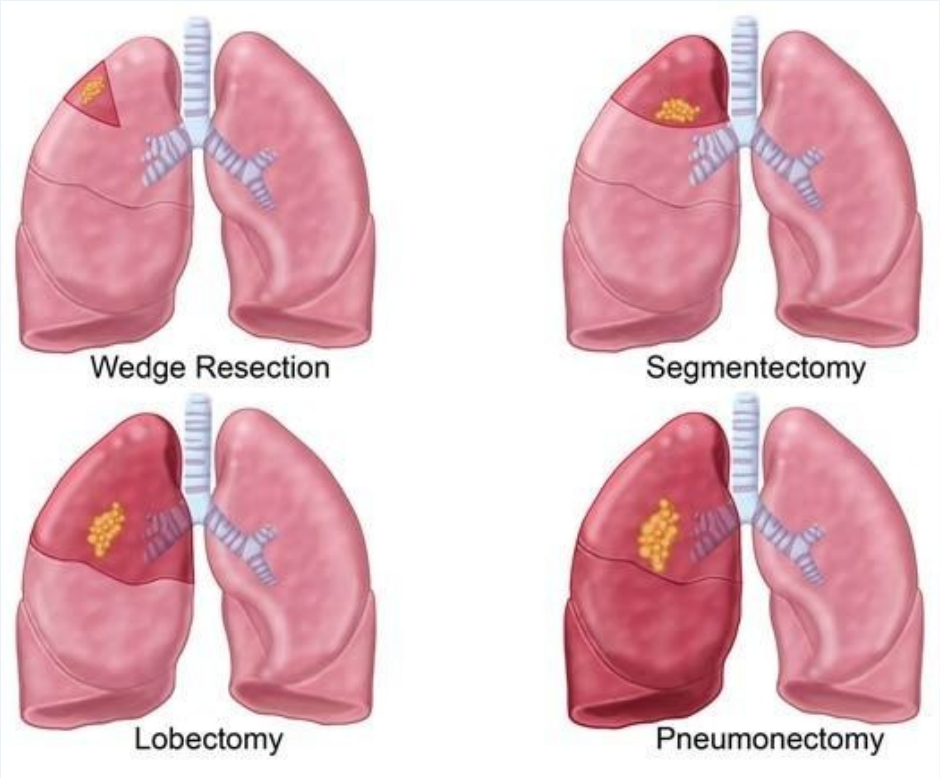
Segmentectomy

Lobectomy

Pneumonectomy

Non-anatomic resection

Wedge Resection



Who gets surgery and what surgery do they get?

Tumor characteristics
- Tumor size
- Tumor location – central versus peripheral
- N2 Nodal status - bulky vs non bulky, single vs multiple

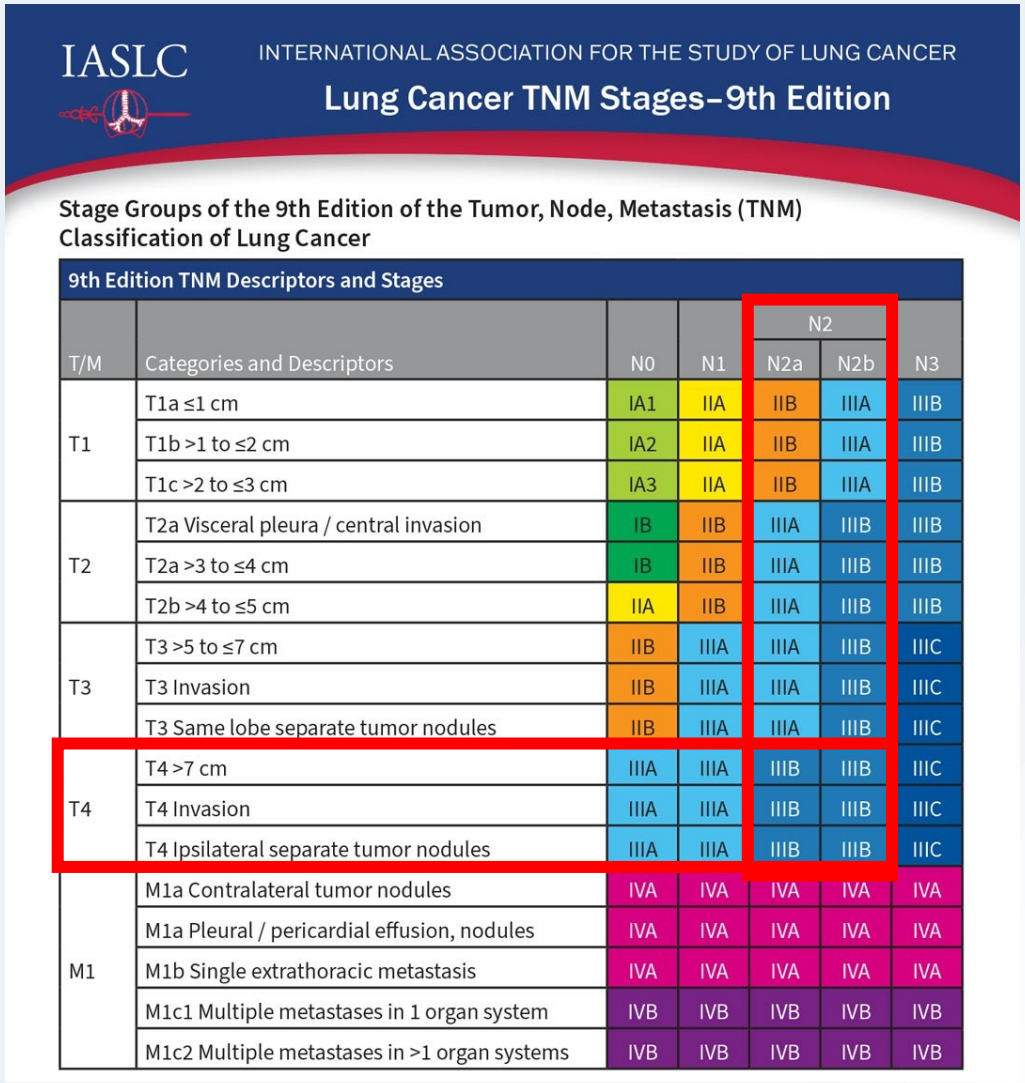
Patient characteristics
- Age
- Comorbidities
- Pulmonary function
- Smoking status

Surgical Approach
- Extent of resection required
- Minimally invasive or open, robotic or VATS

Patient preferences and Institutional capabilities

Neoadjuvant immunotherapy has blurred the lines

What is Early Stage Lung Cancer?



IASLC

INTERNATIONAL ASSOCIATION FOR THE STUDY OF LUNG CANCER

Lung Cancer TNM Stages–9th Edition

Stage Groups of the 9th Edition of the Tumor, Node, Metastasis (TNM) Classification of Lung Cancer

9th Edition TNM Descriptors and Stages

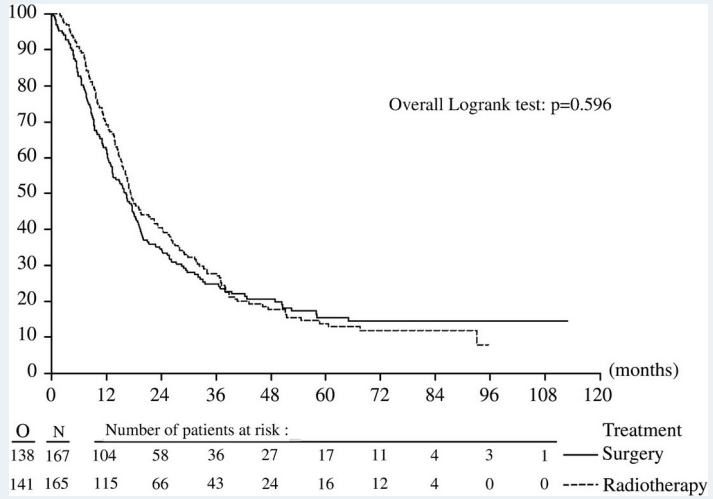
T/M	Categories and Descriptors	N0	N1	N2		N3
				N2a	N2b	
T1	T1a ≤1 cm	IA1	IIA	IIB	IIIA	IIIB
	T1b >1 to ≤2 cm	IA2	IIA	IIB	IIIA	IIIB
	T1c >2 to ≤3 cm	IA3	IIA	IIB	IIIA	IIIB
T2	T2a Visceral pleura / central invasion	IB	IIB	IIIA	IIIB	IIIB
	T2a >3 to ≤4 cm	IB	IIB	IIIA	IIIB	IIIB
	T2b >4 to ≤5 cm	IIA	IIB	IIIA	IIIB	IIIB
T3	T3 >5 to ≤7 cm	IIB	IIIA	IIIA	IIIB	IIIC
	T3 Invasion	IIB	IIIA	IIIA	IIIB	IIIC
	T3 Same lobe separate tumor nodules	IIB	IIIA	IIIA	IIIB	IIIC
T4	T4 >7 cm	IIIA	IIIA	IIIB	IIIB	IIIC
	T4 Invasion	IIIA	IIIA	IIIB	IIIB	IIIC
	T4 Ipsilateral separate tumor nodules	IIIA	IIIA	IIIB	IIIB	IIIC
M1	M1a Contralateral tumor nodules	IVA	IVA	IVA	IVA	IVA
	M1a Pleural / pericardial effusion, nodules	IVA	IVA	IVA	IVA	IVA
	M1b Single extrathoracic metastasis	IVA	IVA	IVA	IVA	IVA
	M1c1 Multiple metastases in 1 organ system	IVB	IVB	IVB	IVB	IVB
	M1c2 Multiple metastases in >1 organ systems	IVB	IVB	IVB	IVB	IVB

What About Multistation N2 Disease and Pneumonectomy

EORTC 08941, JNCI, 2007

Phase III RCT, unresectable stage IIIA-N2 NSCLC
Local therapy after induction chemo

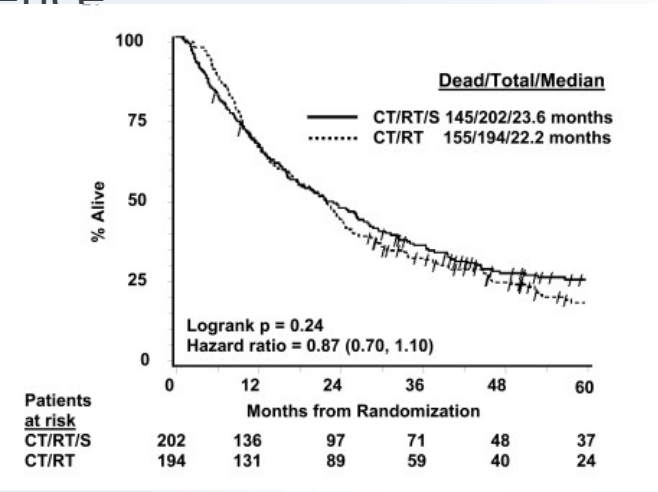
5-year survival ~ 15 % in both arms



Intergroup 0139, Lancet, 2009

Phase III RCT, stage IIIA-N2 NSCLC
CRT with or without surgical resection

PFS HR 0.77, p=0.017 favoring surgery
Median OS 23.6 vs 22.2 months, p=0.24, no difference



Select Neoadjuvant/Periop IO Trials

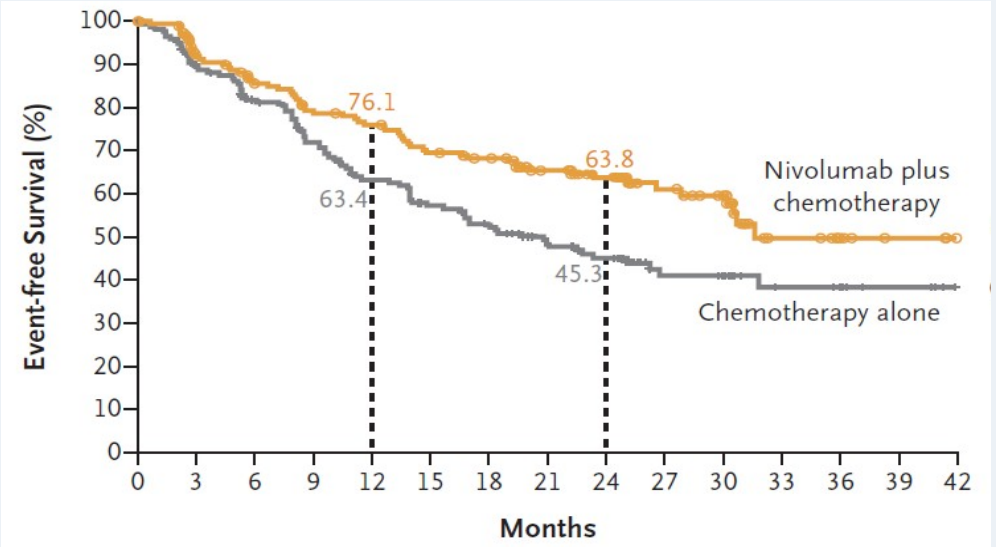
Trial Name	Phase	Population	Treatment Regimen	Key Outcomes
NADIM	Phase 2	Stage IIIA NSCLC	Neoadjuvant paclitaxel, carboplatin, nivolumab; adjuvant nivolumab	5-year OS: 69.3%, PFS: 65.0%
NADIM II	Phase 2	Stage IIIA/IIIB NSCLC	Neoadjuvant nivolumab + chemotherapy; adjuvant nivolumab	Improved pCR, PFS, OS vs. chemotherapy alone
CheckMate 816	Phase 3	Stage IB-IIIA NSCLC	Neoadjuvant nivolumab + chemotherapy	Improved pCR, EFS
AEGEAN	Phase 3	Stage II-III NSCLC	Perioperative durvalumab + chemotherapy	Improved EFS, pCR
KEYNOTE-671	Phase 3	Stage IIA-IIIB NSCLC	Perioperative pembrolizumab + chemotherapy	Improved OS, EFS
CheckMate 77T	Phase 3	Stage IIA-IIIB NSCLC	Perioperative nivolumab + chemotherapy; adjuvant nivolumab	Improved EFS, pCR, OS

Neoadjuvant Nivolumab + CT in Resectable Stage IB-IIIA NSCLC (CheckMate 816): Efficacy

Event-Free Survival

	Nivo + Chemo (n=179)	Chemo (n=179)
Median EFS, mo (95% CI)	31.6 (30.2-NR)	20.8 (14.0-26.7)
Minimum follow-up, mo	21	

HR for disease progression, disease recurrence, or death (97.38% CI):

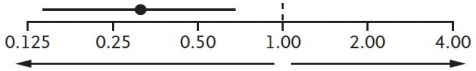


No. at Risk

Nivo + Chemo	179	151	136	124	118	107	102	87	74	41	34	13	6	3	0
Chemo alone	179	144	126	109	94	83	75	61	52	26	24	13	11	4	0

EFS Subgroup Analysis

Subgroup	No. of Patients	Median EFS (95% CI) Nivo + Chemo	Median EFS (95% CI) Chemo (n=179)	Unstratified HR for Disease Progression, Disease Recurrence, or Death (95% CI)
Overall	358	31.6 (30.2–NR)	20.8 (14.0–26.7)	0.63 (0.45–0.87)
Age				
<65 yr	176	NR (31.6–NR)	20.8 (14.0–NR)	0.57 (0.35–0.93)
≥65 yr	182	30.2 (23.4–NR)	18.4 (10.6–31.8)	0.70 (0.45–1.08)
Sex				
Male	255	30.6 (20.0–NR)	16.9 (13.8–24.9)	0.68 (0.47–0.98)
Female	103	NR (30.5–NR)	31.8 (13.9–NR)	0.46 (0.22–0.96)
Geographic region				
North America	91	NR (25.1–NR)	NR (12.8–NR)	0.78 (0.38–1.62)
Europe	66	31.6 (13.4–NR)	21.1 (10.2–NR)	0.80 (0.36–1.77)
Asia	177	NR (30.2–NR)	16.5 (10.8–22.7)	0.45 (0.29–0.71)
ECOG performance-status score				
0	241	NR (30.2–NR)	22.7 (16.6–NR)	0.61 (0.41–0.91)
1	117	30.5 (14.6–NR)	14.0 (9.8–26.2)	0.71 (0.41–1.21)
Disease stage at baseline				
IB or II	127	NR (27.8–NR)	NR (16.8–NR)	0.87 (0.48–1.56)
IIIA	228	31.6 (26.6–NR)	15.7 (10.8–22.7)	0.54 (0.37–0.80)
Histologic type of tumor				
Squamous	182	30.6 (20.0–NR)	22.7 (11.5–NR)	0.77 (0.49–1.22)
Nonsquamous	176	NR (27.8–NR)	19.6 (13.8–26.2)	0.50 (0.32–0.79)
Smoking status				
Current or former smoker	318	31.6 (30.2–NR)	22.4 (15.7–NR)	0.68 (0.48–0.96)
Never smoked	39	NR (5.6–NR)	10.4 (7.7–20.8)	0.33 (0.13–0.87)
PD-L1 expression level				
<1%	155	25.1 (14.6–NR)	18.4 (13.9–26.2)	0.85 (0.54–1.32)
≥1%	178	NR (NR–NR)	21.1 (11.5–NR)	0.41 (0.24–0.70)
1–49%	98	NR (27.8–NR)	26.7 (11.5–NR)	0.58 (0.30–1.12)
≥50%	80	NR (NR–NR)	19.6 (8.2–NR)	0.24 (0.10–0.61)
TMB				
<12.3 mutations/megabase	102	30.5 (19.4–NR)	26.7 (16.6–NR)	0.86 (0.47–1.57)
≥12.3 mutations/megabase	76	NR (14.8–NR)	22.4 (13.4–NR)	0.69 (0.33–1.46)
Type of platinum therapy				
Cisplatin	258	NR (25.1–NR)	20.9 (15.7–NR)	0.71 (0.49–1.03)
Carboplatin	72	NR (30.5–NR)	10.6 (7.6–26.7)	0.31 (0.14–0.67)

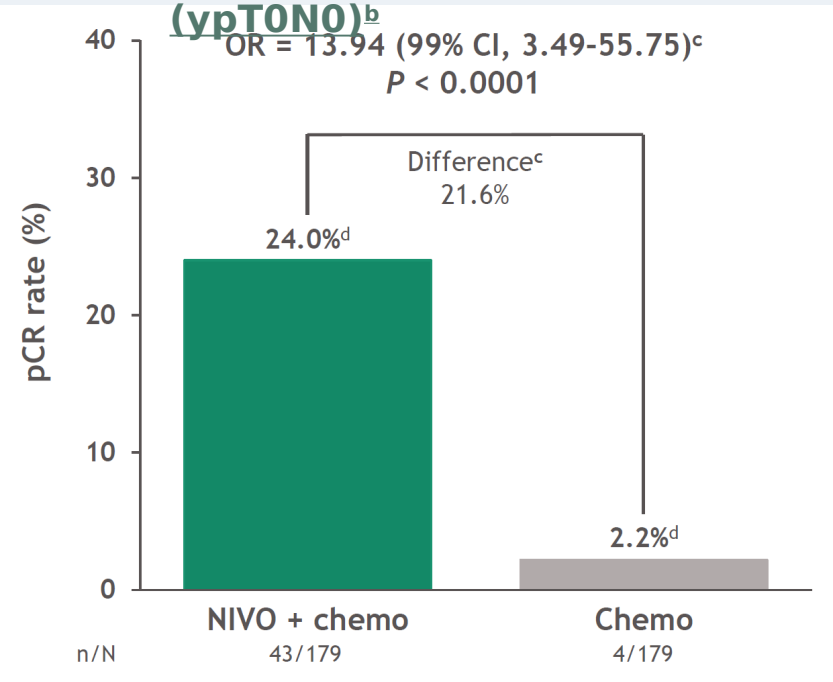


Forde PM, et al. *N Engl J Med*. 2022;386(21):1973-1985.

Neoadjuvant Nivolumab + CT in Resectable Stage IB-IIIA NSCLC (CheckMate 816): Efficacy[1,2] (cont'd)

Pathological CR[a] Rate

Primary Endpoint: ITT (ypT0N0)[b]



- **pCR rate in the exploratory Nivo + Ipi arm (ITT) was 20.4% (95% CI, 13.4 -29)**

pCR Subgroup Analysis

	pCR[e] rate, %		Unweighted pCR difference, % (95% CI)	Unweighted pCR difference, %
	NIVO + chemo (n = 179)	Chemo (n = 179)		
Overall (N = 358)	24	2		22
< 65 years (n = 176)	27	0		27
≥ 65 years (n = 182)	21	4		17
Male (n = 255)	23	2		20
Female (n = 103)	28	2		26
North America (n = 91)	22	2		20
Europe (n = 66)	24	0		24
Asia (n = 177)	28	3		25
Stage IB-II (n = 128)	**26**	**5**		**21**
Stage IIIA (n = 228)	**23**	**1**		**22**
Squamous (n = 182)	**25**	**4**		**21**
Non-squamous (n = 176)	**23**	**0**		**23**
Current/former smoker (n = 318)	26	2		23
Never smoker (n = 39)	10	0		10
PD-L1 < 1% (n = 155)	**17**	**3**		**14**
PD-L1 ≥ 1% (n = 178)	**33**	**2**		**30**
PD-L1 1-49% (n = 98)	24	0		24
PD-L1 ≥ 50% (n = 80)	45	5		40
TMB < 12.3 mut/Mb (n = 102)	22	2		21
TMB ≥ 12.3 mut/Mb (n = 76)	31	3		28
Cisplatin (n = 258)	22	2		20
Carboplatin (n = 72)	31	0		31



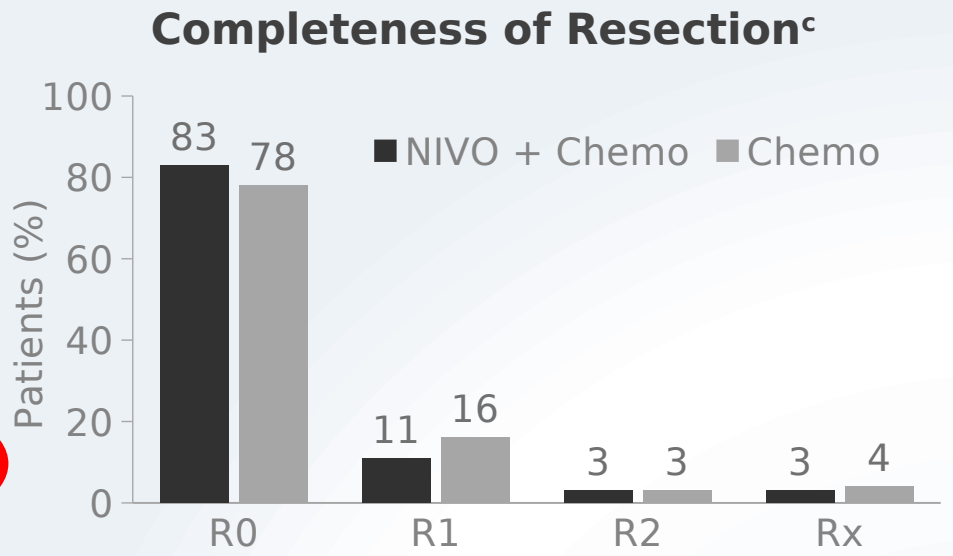
Per BIPR in ITT.

Neoadjuvant Nivolumab + CT in Resectable Stage IB-IIIA NSCLC (CheckMate 816): Surgical Outcomes

Surgical Approach by Baseline Disease Stage, %	All		Stage IB-II		Stage IIIA	
	Nivo + Chemo (n=149)	Chemo (n=135)	Nivo + Chemo (n=55)	Chemo (n=52)	Nivo + Chemo (n=94)	Chemo (n=83)
Thoracotomy	59.1	63.0	58.2	67.3	59.6	60.2
Minimally invasive[a]	29.5	21.5	29.1	25.0	29.8	19.3
Minimally invasive open[b]	11.4	15.6	12.7	7.7	10.6	20.5
Lobectomy	77.2	60.7	74.5	63.5	78.7	59.0
Pneumonectomy	16.8	25.2	16.4	17.3	17.0	30.1

[a] Thoracoscopic/robotic. [b] Minimally invasive to thoracotomy. [c] R0 (no residual tumor), R1 (microscopic residual tumor), R2 (macroscopic residual tumor), Rx (unknown).

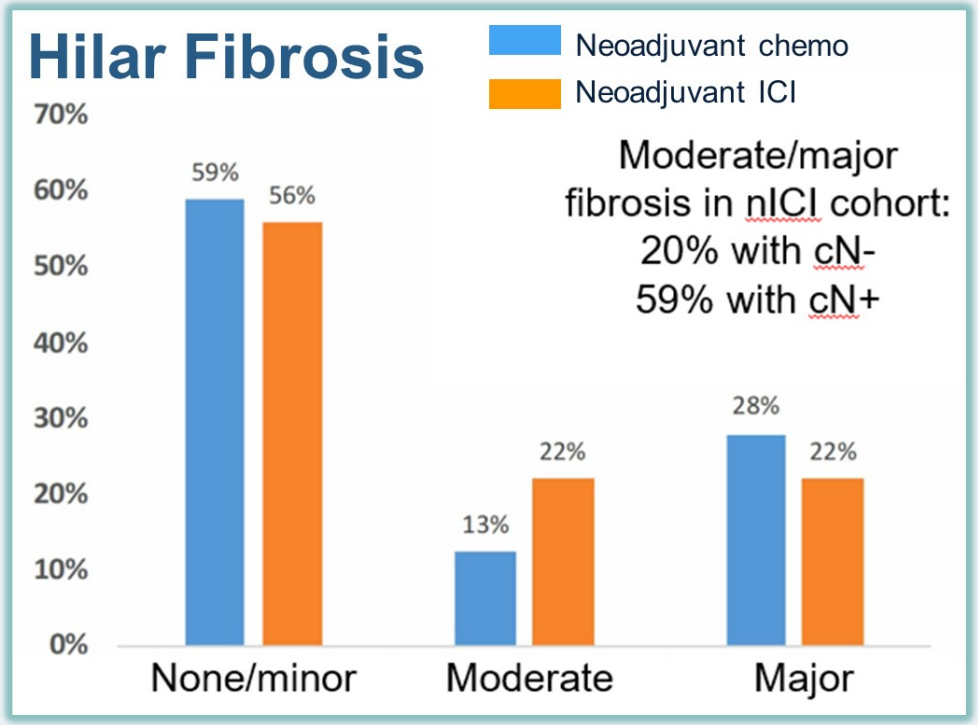
Forde PM, et al. *N Engl J Med*. 2022;386(21):1973-1985.



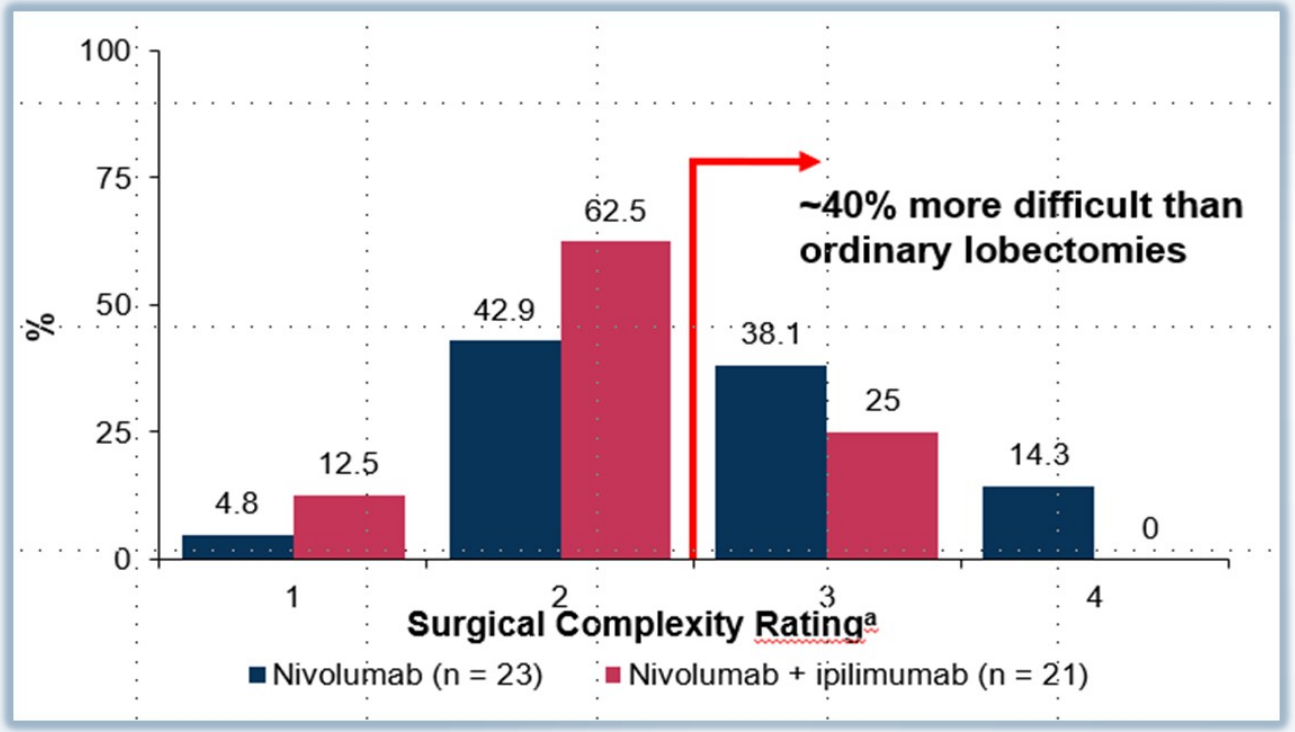
A greater percentage of patients treated with Nivo + Chemo vs Chemo alone had definitive surgery and complete resection while fewer patients underwent pneumonectomy

Technical Challenge Reported by Surgeons

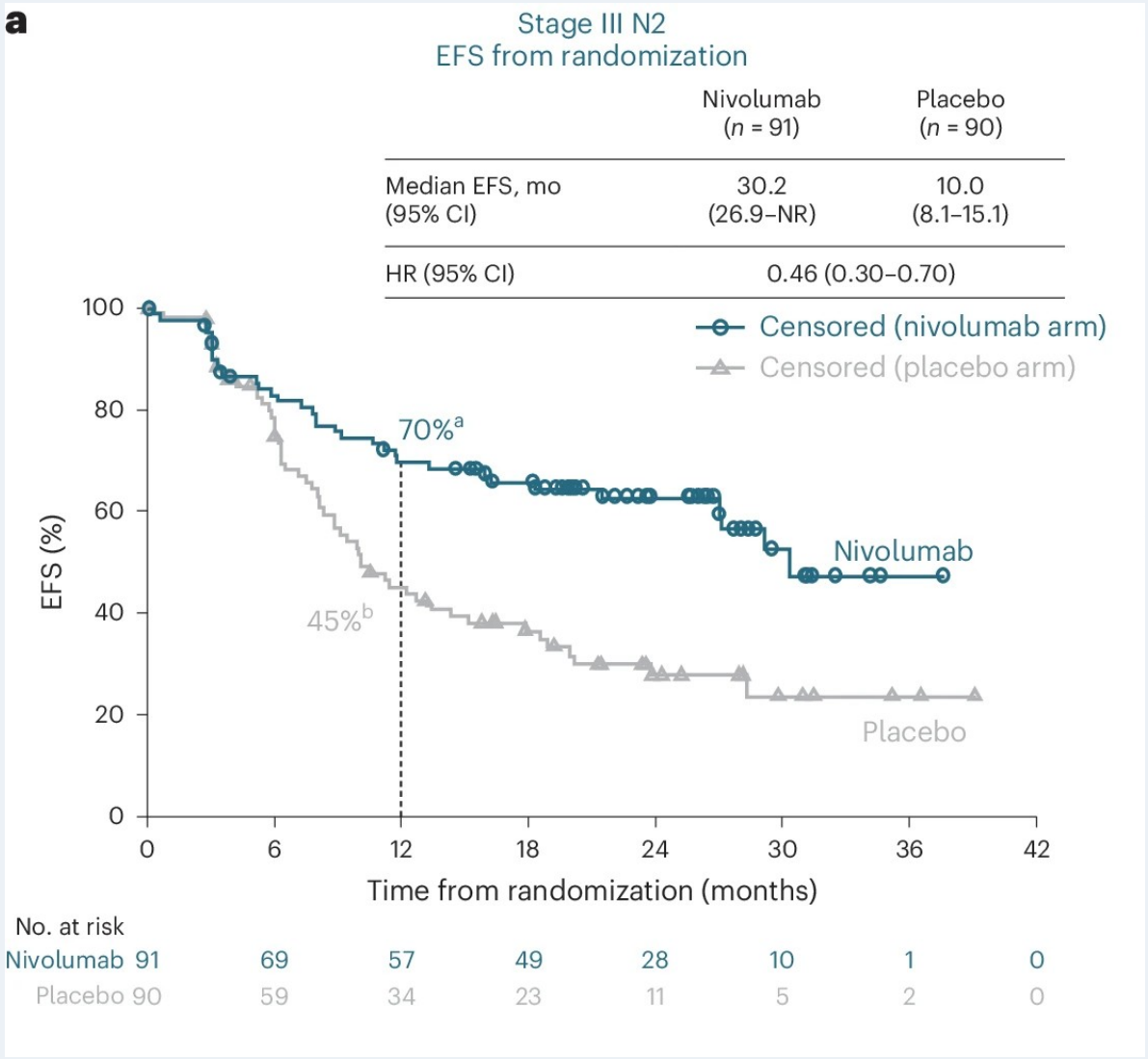
Weill Cornell: 40% moderate-major fibrosis



MD Anderson: 40% more difficult than normal



What about Multistation N2 Disease?



EFS from Checkmate 77T

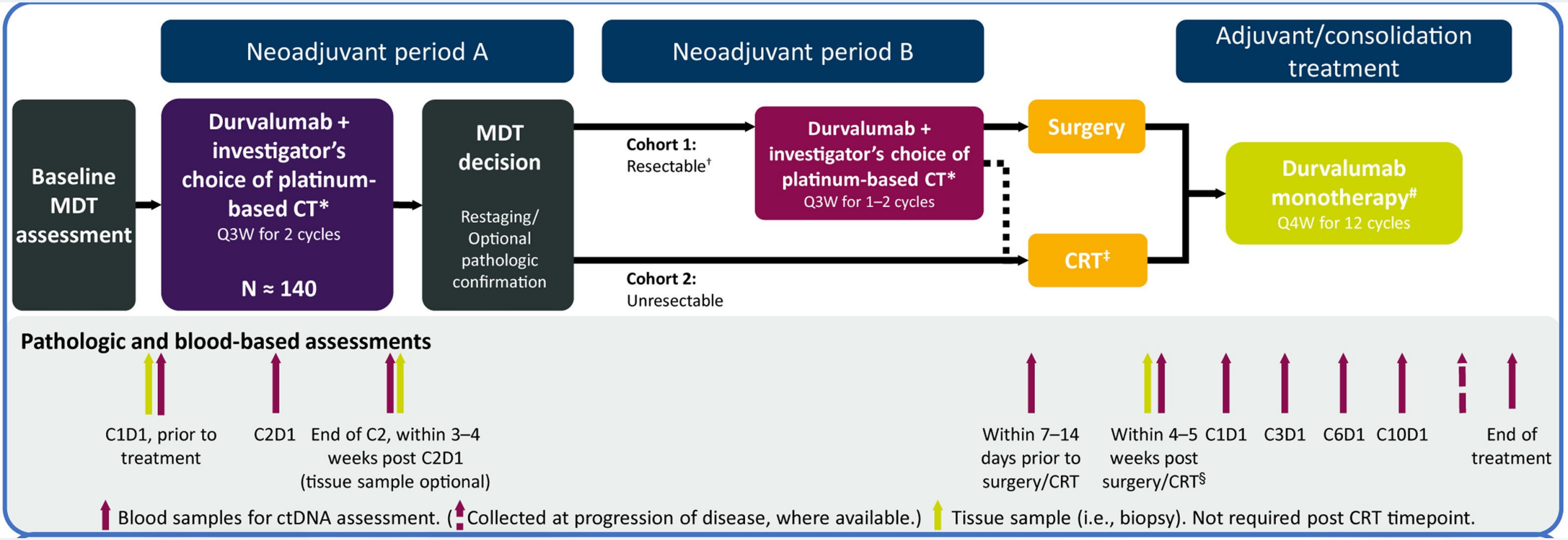
Nivolumab improved outcomes versus placebo in patients with multistation N2 NSCLC

1-year event-free survival rate: 71% versus 46% HR 0.43 (0.21–0.88)
PCR 29.0% versus 2.7%

Multistation N2 disease included in Checkmate 77T, AEGEAN, Checkmate 816

N2 disease, unspecified, included in Keynote-671 and Neotorch

What About Borderline Resectable? MDT-Bridge

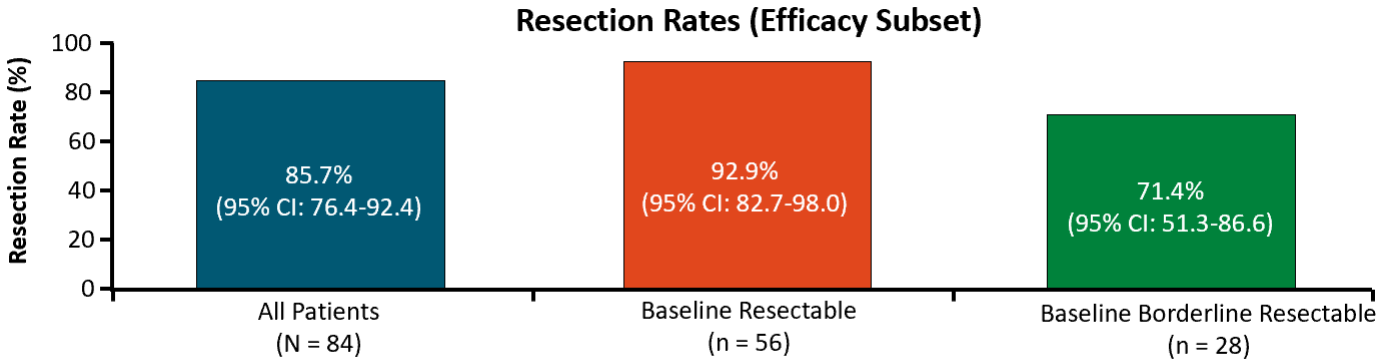


MDT-Bridge Interim Analysis – ESMO 2025

Table: LBA65

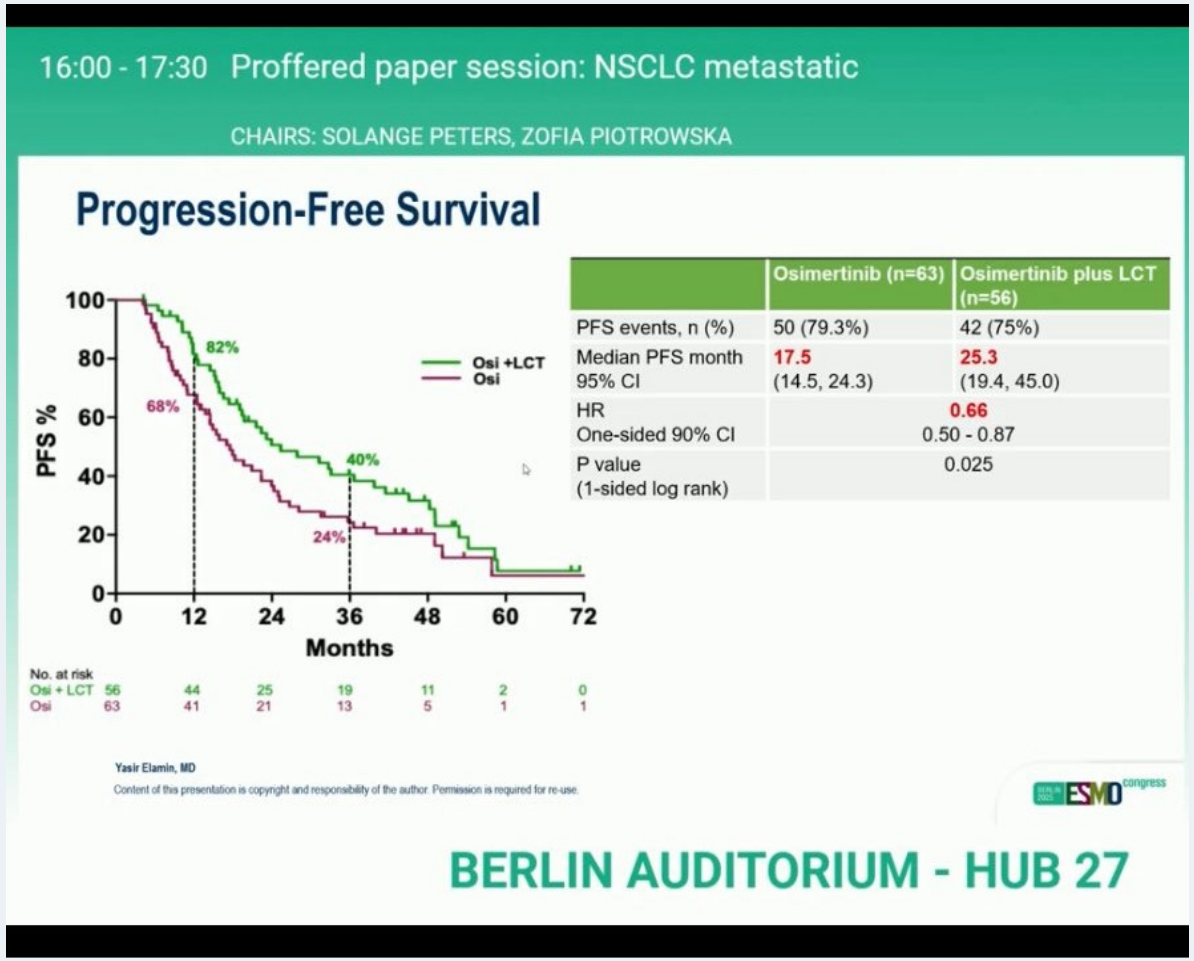
	Resectable at baseline (n=56)	Borderline resectable at baseline (n=28)
Reassessment,* n Resectable Unresectable	53 3	23 5
Resection rate % (95% CI)† n	92.9 (82.7–98.0) 52	71.4 (51.3–86.8) 20
	Resectable at reassessment* n=76	Unresectable at reassessment* n=8
pCR, % (95% CI)†	27.6 (18.0–39.1)	-
Objective response rate pre-Sx/CRT, % (95% CI)†	60.5 (48.6–71.6)	12.5 (0.3–52.7)
Did not have Sx, n	4	8
Sx n=72	No Sx n=12	
Resection outcomes, % (95% CI)†	Had CRT, n Discontinued without Sx or CRT,	8
R0 94.4 (86.4–98.5)	n Pt decision Adverse event Other	4
R1 1.4 (0.0–7.5)		2
R2 1.4 (0.0–7.5)		1
Not applicable 2.8 (0.3–9.7)		1

CRT, chemoradiotherapy; pCR, pathologic complete response. *By MDT, after cycle 2. †Clopper Pearson.



Reck. ESMO 2025. Abstr LBA65.

What about metastatic disease?



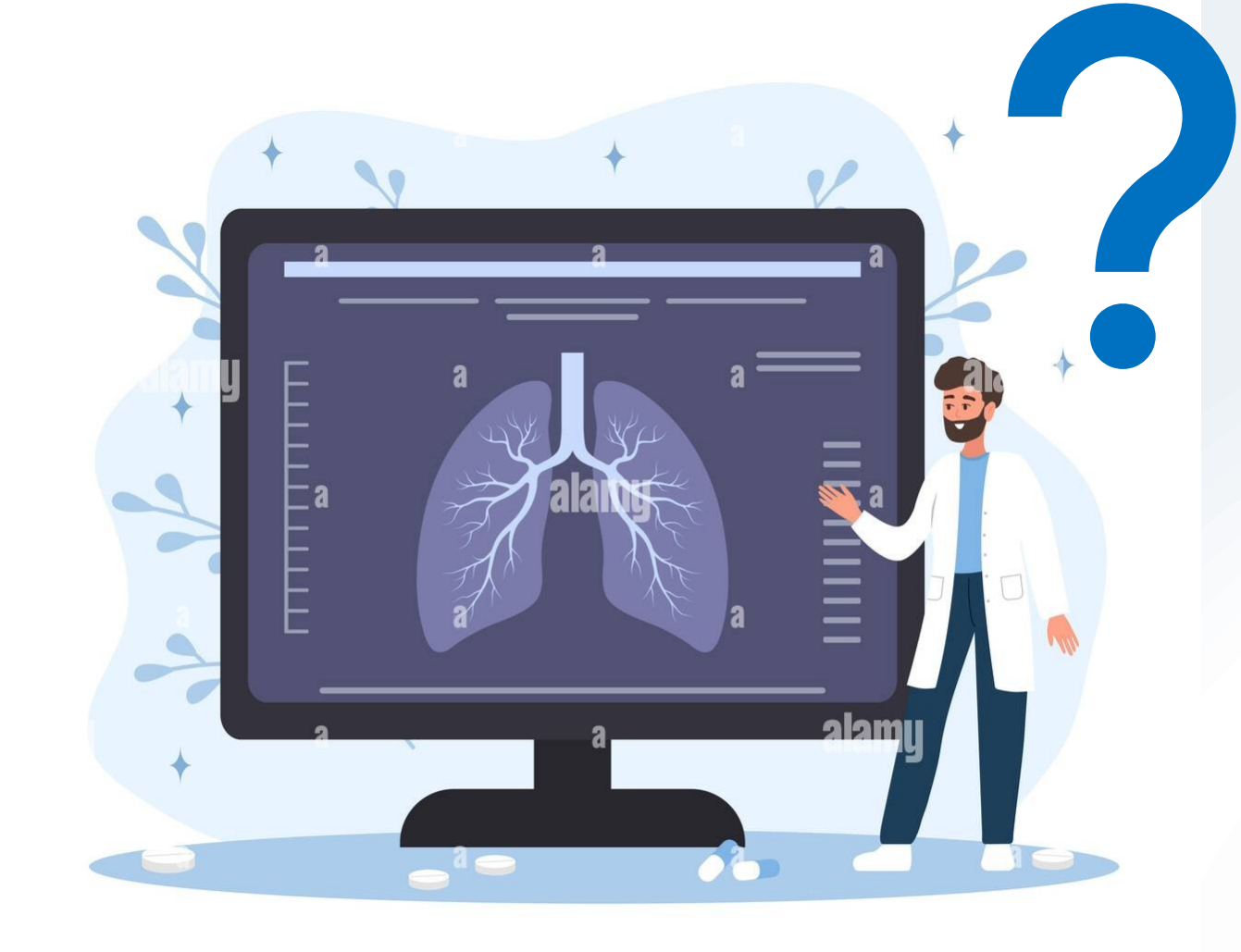
NORTHSTAR: ESMO LB72

Improved PFS: 25.3 vs. 17.5 months (HR 0.66, p=0.025)

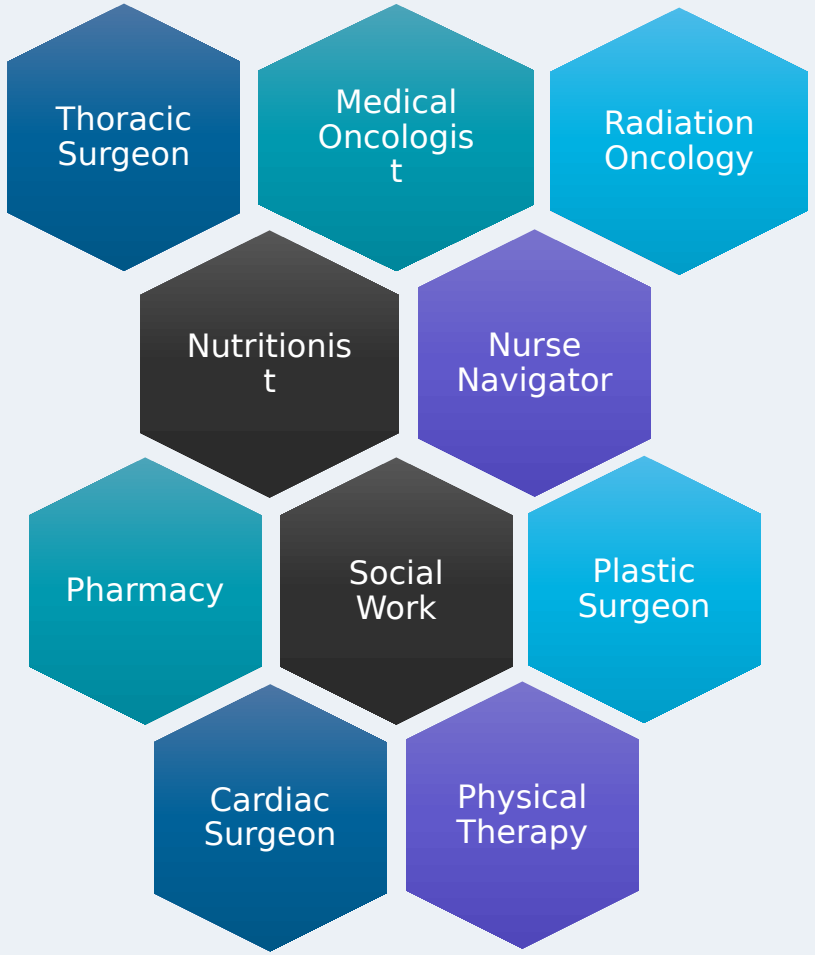
Benefit observed across disease burdens

No excess toxicity

What is Resectable



Multidisciplinary Care in Lung Cancer



Lung Cancer patients require multidisciplinary care

Regardless of stage

Take Home Points

- Lung cancer care is complex and evolving
- Frequent discussions with multidisciplinary teams are needed
- Neoadjuvant chemoIO appears safe from a surgery perspective, especially when compared with neoadjuvant chemo only, and may in fact improve surgical outcomes
- Patients previously felt to be unresectable or borderline resectable, may benefit from local therapy after perioperative therapy