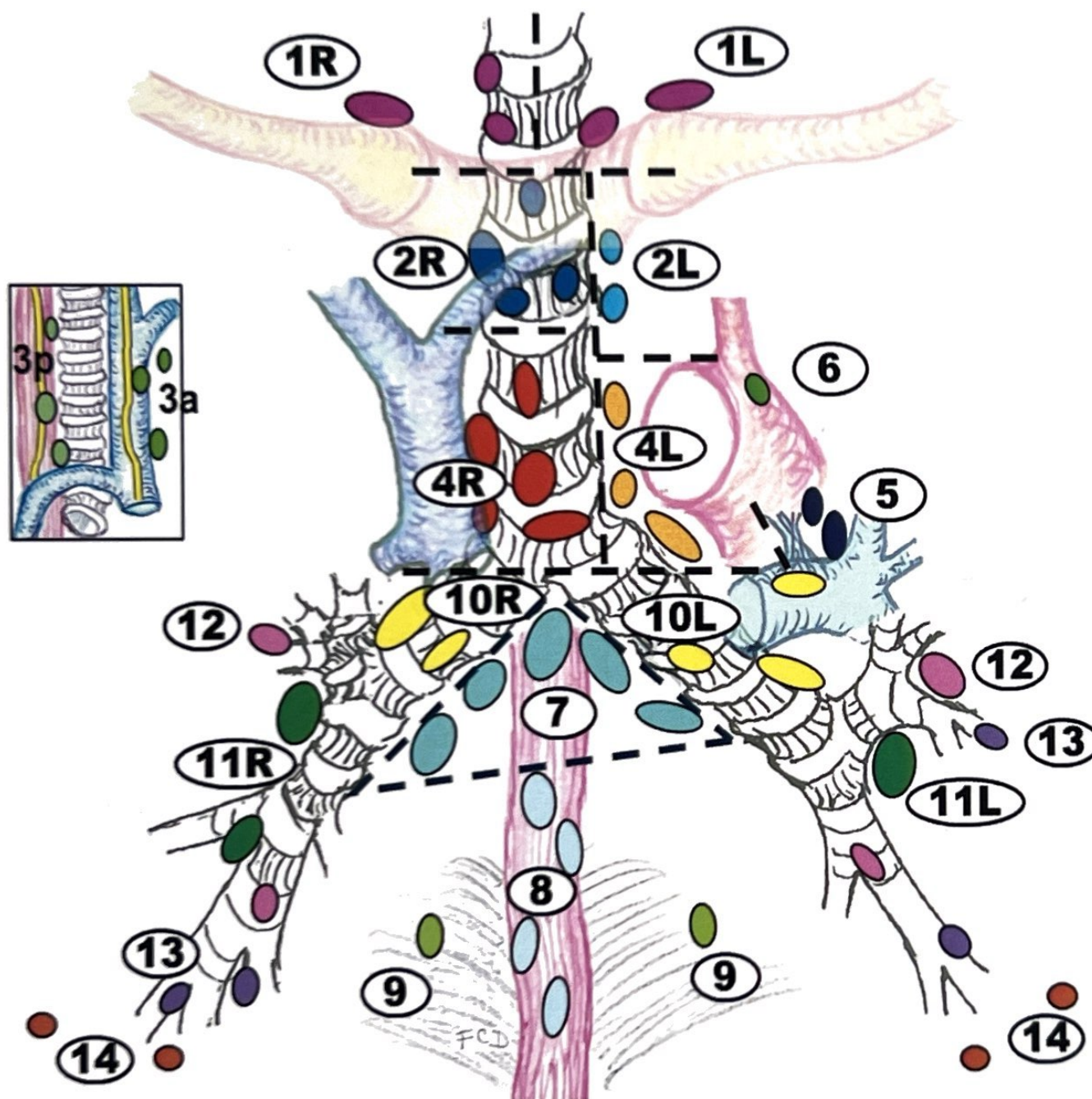


IASLC Lung Cancer Lymph Node Map

Yale Medicine

YaleNewHavenHealth

Smilow Cancer Hospital



Supraclavicular zone
 ● 1 Supraclavicular & low cervical

Superior mediastinal zone
 ● 2 Upper paratracheal (R & L)
 ● 3 a) Prevascular & p) retrotracheal
 ● 4 Lower paratracheal (R & L)

Aortic zone
 ● 5 Subaortic station
 ● 6 Paraaortic station

Inferior mediastinal zone
 ● 7 Subcarinal station
 ● 8 Para-esophageal station
 ● 9 Inferior pulmonary ligament

N1 zones
 ● 10 Hilar stations
 ● 11 Interlobar stations
 ● 12 Lobar stations
 ● 13 Segmental stations
 ● 14 Subsegmental stations

Reference: Detterbeck F, Woodard G, Bader A, Dacic S, Grant M, Park H, Tanoue L. Chest 2024

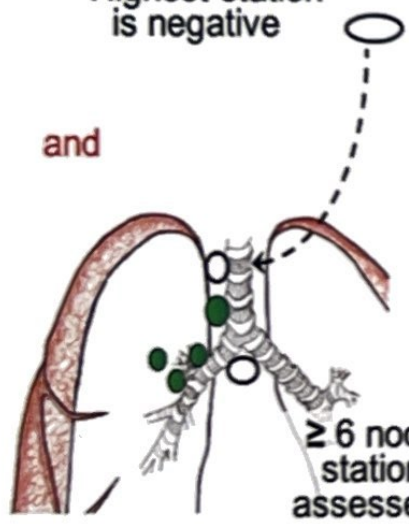
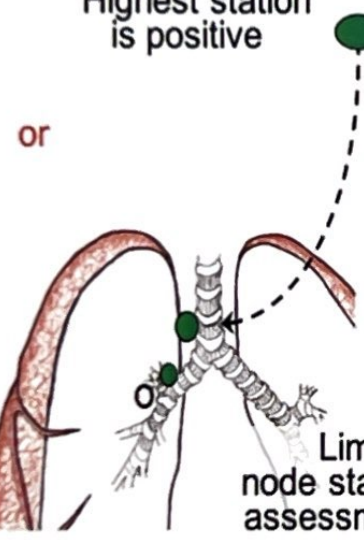
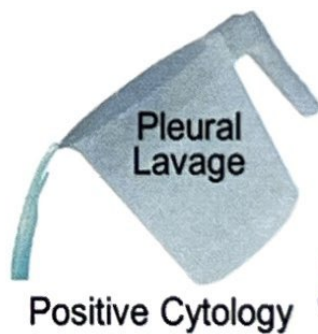
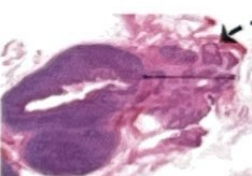
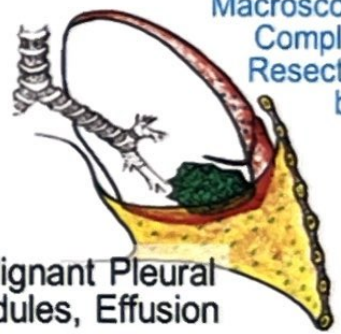
Courtesy of Yale Cancer Center
 Thoracic Oncology Program
 203-200 LUNG (5864)

R-Classification (Residual Tumor after Resection) 9th Ed TNM

Complete

Uncertain

Incomplete

R0	R0(un)	R1(un)	R1
Adequate tissue margin  and Highest station is negative  and ≥ 6 node stations assessed	Adequate tissue margin  But: Highest station is positive  or Limited node station assessment	Meeting criteria for R0 but: Carcinoma-in-situ at bronchial margin  or Pleural Lavage  Positive Cytology 	Microscopic Tumor at surgical margin  or Extra-nodal extension  or Macroscopic Complete Resection but:  Malignant Pleural Nodules, Effusion

R(un) – uncertain residual status; correlates with Overall Survival between R0 and R1,2

R applies to surgery only, any site of resection (primary tumor, nodes, metastasis), a specific episode (may be >1 for multifocal, oligometastatic tumors), should indicate site: R0 (thorax), R0 (brain)

Node assessment counts pre- & intraoperative evaluation, also negative station exploration

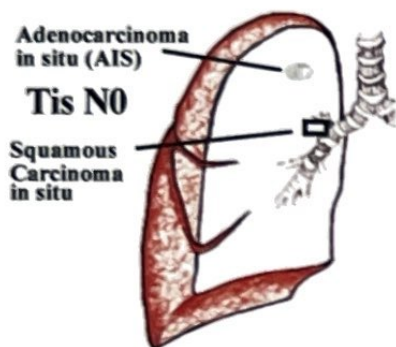
The resection is designated by the highest applicable category if multiple descriptors apply

R2 Macroscopic tumor remaining at any site of resection

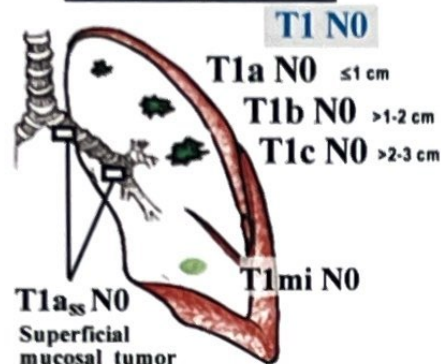
Reference: Detterbeck, Ostrowski, Hoffman et al. J Thorac Oncol 2024
PMID 38569931

Lung Cancer Stage Groups – What is included in Each (9th Edition Classification)

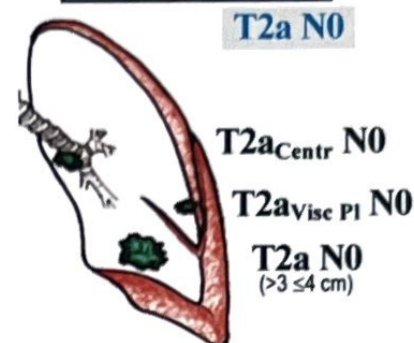
Stage 0



Stage IA



Stage IB



General Notes:

All Stage 1-III tumors are M0

MX is not allowed (symptom/exam information is always available)

When uncertainty exists the lower of 2 possible (sub)categories or stage groups is used

Stage IIA

T2b N0

T2bN0
>4 ≤5cm



T1 N1

T1a,b,c N1



Multiple Pulmonary Sites:

2nd primary tumors (i.e. different histotype or based on clinical features) require a T, N, M for each.

Separate tumor nodule (solid cancer & additional nodule with same clinical or histologic features): T3 if same lobe, T4 if different ipsilateral lobe, M1a contralateral and single N, M for all.

Multifocal Ground Glass/Lepidic (GG/L): T determined by highest T lesion + (#/m), single collective N, M for all.

Pneumonic-type adenocarcinoma (patchy / diffuse infiltrate): T by size or lobes involved (same/diff ipsi-/contralat), single N, M for all

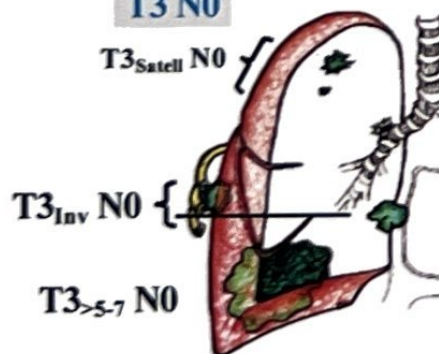
Stage IIB

T3 N0

T3_{Satell} N0

T3_{Inv} N0

T3_{>5-7} N0



T2 N1

T2b_{>4-5} N1

T2a N1



T1 N2a

T1 N2a



Specific Notes:

Tumor size = largest dimension of the solid (c-stage, imaging) or invasive (p-stage) component

When multiple T descriptors apply the highest T category is used

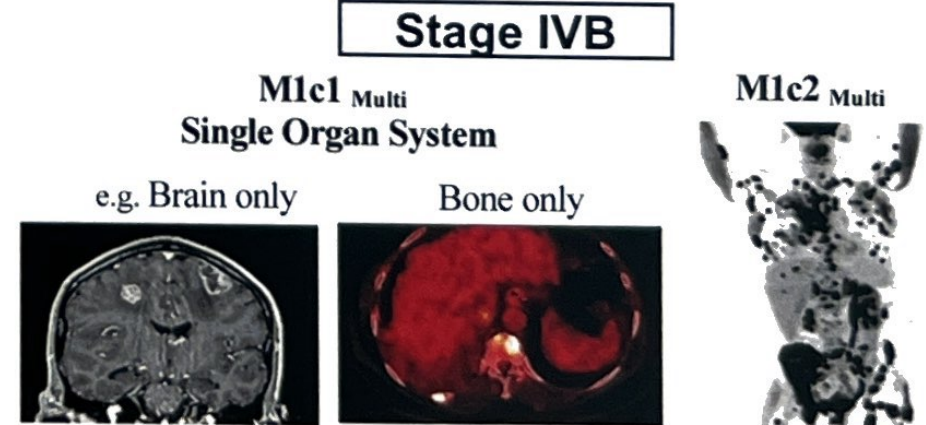
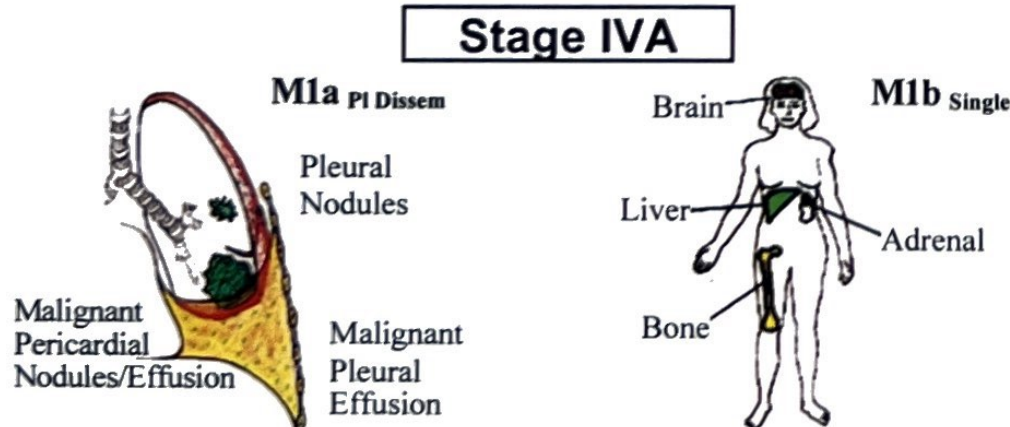
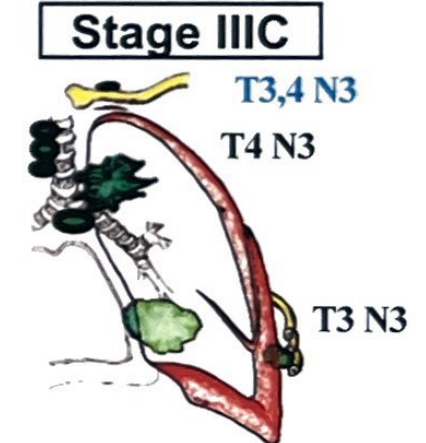
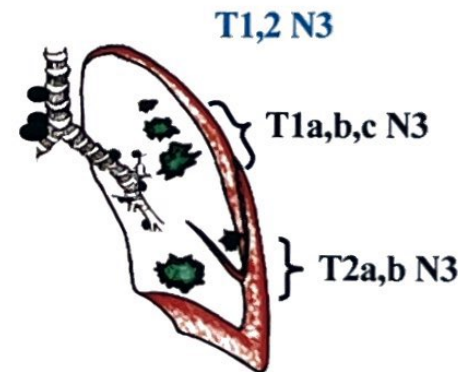
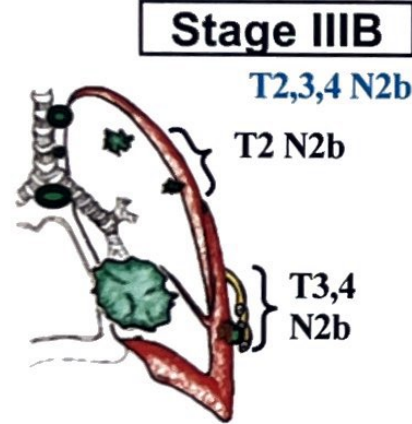
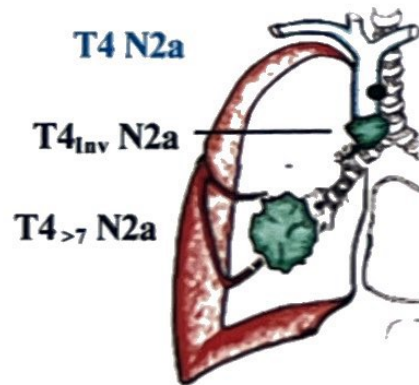
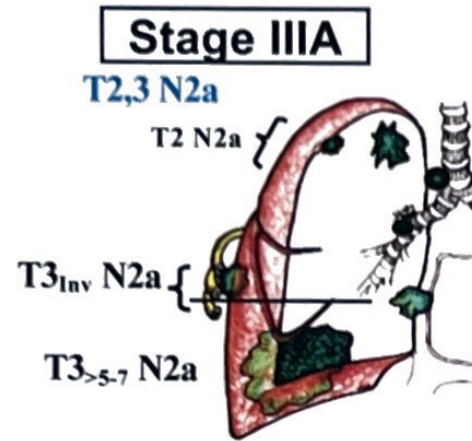
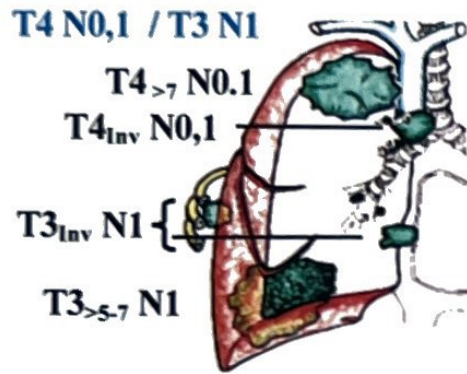
Direct extension of the primary tumor into an adjacent node counts as nodal involvement

Extension of a nodal metastasis into a T structure does not count for the T category

Courtesy of Yale Cancer Center
 Thoracic Oncology Program

203-200 LUNG (5864)

Ref: Detterbeck, Woodard, Bader,
 Dacic, Grant, Park, Tanoue. Chest 2024



Lung Cancer TNM Descriptors (9th edition)

T: Primary tumor	
T0	No evidence of primary tumor
Tis	Carcinoma in situ (Squamous or Adenocarcinoma)
T1	Tumor surrounded by lung/visceral pleura, or in lobar/more distal bronchus
T1mi	Minimally invasive adenocarcinoma
T1a	Tumor ≤1 cm in greatest dimension
T1b	Tumor >1 cm but ≤2 cm in greatest dimension
T1c	Tumor >2 cm but ≤3 cm in greatest dimension
T2	Tumor with any of the following features:
T2a	- Tumor >3 cm but ≤4 cm in greatest dimension - invades visceral pleura or invades an adjacent lobe; - involves main bronchus (not carina) or atelectasis to hilum
T2b	Tumor >4 cm but ≤5 cm in greatest dimension
T3	Tumor with any of the following features:
	- tumor >5 cm but ≤7 cm in greatest dimension; - invades parietal pleura, chest wall, T1, T2 nerve roots, stellate ganglion; - invades pericardium, phrenic nerve or azygous vein; - separate tumor nodule(s) in the same lobe as the primary
T4	Tumor with any of the following features:
	- tumor >7 cm in greatest dimension; - invades vertebra, subclavian vessels, brachial plexus, or cervical roots; - invades thymus, trachea, carina, recurrent nerve, esophagus, diaphragm; - invades heart or great vessels (aorta, SVC/IVC, intrapericardial vessels); - separate tumor nodule(s) in a different ipsilateral lobe
N: Regional lymph node involvement	
N0	No regional lymph node involvement
N1	Involvement of ipsilateral pulmonary or hilar lymph node(s)
N2	Involvement of ipsilateral mediastinal and/or subcarinal node(s)
N2a	...in a single ipsilateral mediastinal / subcarinal nodal station
N2b	...in multiple ipsilateral / subcarinal mediastinal nodal stations
N3	Involvement of supraclavicular or contralateral mediastinal/hilar node(s)
M: Distant metastasis	
M0	No distant metastasis
M1	Distant metastasis
M1a	- Tumor with malignant pleural or pericardial effusion/nodules - separate tumor nodule(s) in a contralateral lobe
M1b	Single extrathoracic metastasis
M1c	Multiple extrathoracic metastases
M1c1	...involving a single organ system ^a
M1c2	...involving multiple organ systems

^a A diffuse organ system (e.g. skeleton) is considered one organ – metastases limited to several bones are classified as M1c1

TNM Categories and Group Assignment (9th edition)

T/M	Description	N0	N1	N2		N3
				N2a 1 Station	N2b >1 Station	
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 Visc 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 sep tumor nodule	IIB	IIIA	IIIA	IIIB	IIIC
T4	T4 >7 cm	IIIA	IIIA	IIIB	IIIB	IIIC
	T4 Invasion	IIIA	IIIA	IIIB	IIIB	IIIC
	T4 Ipsilateral sep tumor nodule	IIIA	IIIA	IIIB	IIIB	IIIC
M1	M1a Pleural dissemination	IVA	IVA	IVA	IVA	IVA
	M1a Contralat sep tumor nodule	IVA	IVA	IVA	IVA	IVA
	M1b Single extrathoracic met	IVA	IVA	IVA	IVA	IVA
	M1c1 Multiple mets, 1 organ sys	IVB	IVB	IVB	IVB	IVB
	M1c2 Multiple mets, >1 organ sys	IVB	IVB	IVB	IVB	IVB

% 5-year Overall Survival by Stage Group and Region

IASLC 9th edition database, patients diagnosed 2011-19

Region / Staging Context	IA1	IA2	IA3	IB	IIA	IIB	IIIA	IIIB	IIIC	IVA	IVB
Global											
Clinical, 9 th ed TNM	92	84	76	69	62	54	44	31	21	18	7
Pathologic, 9 th ed TNM	94	89	83	77	67	59	50	35	19	-	-
North America											
Clinical, 9 th ed TNM	73			64	62	54	42	37	34	28	21
Pathologic, 9 th ed TNM	79			70	61	56	45	29	-	-	-

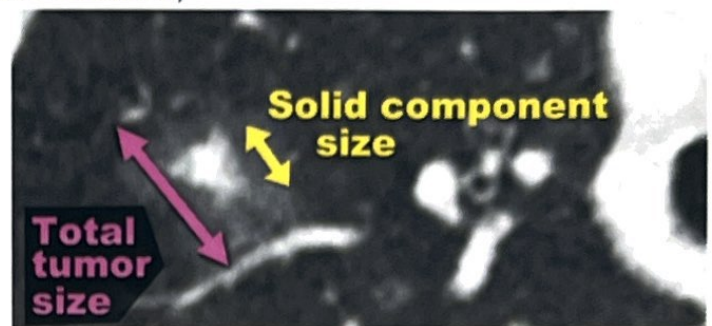
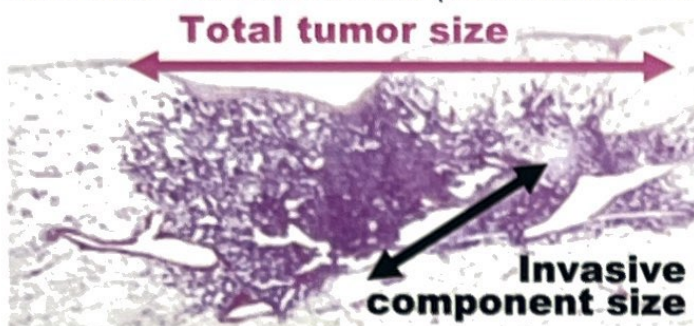
Courtesy of: Yale Cancer Center
Thoracic Oncology Program 203-200-5864

Tumor Size Measurement

Tumor size is determined by the largest dimension of ...

- Clinical T – solid component on imaging (lung windows, $\leq 1.5\text{mm}$ thickness)
- Pathologic T: invasive component

Total tumor size is not counted (but recommended to be recorded)



Multiple Pulmonary Sites of Lung Cancer

Determine which of four different entities applies:...

- Multifocal Ground Glass/Lepidic Adeno – defined by partial GG/L nature regardless of subtype/genetic comparison (analysis not recommended). These exhibit indolent behavior, low probability of node/distant mets
- Synchronous primary lung cancers – classic lung cancer appearance (solid, spiculated) and growth kinetics, may be same or different histologic type/subtype(s)
- Separate tumor nodule – solid dominant tumor and separate solid tumor nodule(s), histologically identical. Long-term outcomes similar to synchronous 1° cancers
- Pneumonic-type Adeno – diffuse lung involvement, often mucinous, often with node metastases, outcomes poor unless localized

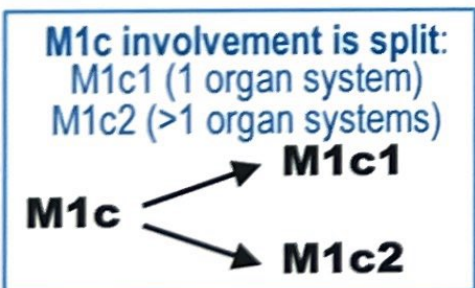
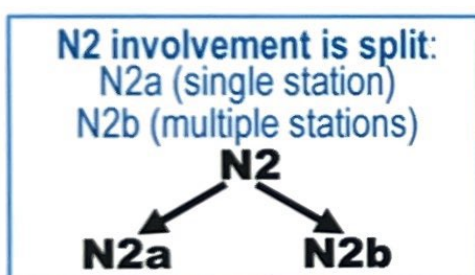
	Tumor Site 1	Tumor Site 2	Tumor Site 1	Tumor Site 2	TNM Classification
Multifocal GG/L Nodules			Adeno – Subtype composition can be the same or different MIA, acinar	 MIA, lepidic	T according to highest T lesion & (#/m) to indicate multiplicity, single N and M for all lesions collectively
Second Primary Cancer			May be the same or different histologic type Adeno	 Squam	Separate T, N and M for each tumor
Separate Tumor Nodules			 Identical Morphology	 Identical Morphology	T3 if in same lobe T4 if same side (other lobe) M1a if contralateral lobe, Single N and M for all
Diffuse Pneumonic-Type	 RUL	 RML	 Identical Morphology	 Identical Morphology	T3 if in same lobe T4 if same side (other lobe) M1a if contralateral lobe, Single N and M for all

Key Changes and Concepts (9th edition)

Clinical Context and Basic Rules

- p-TNM – stage after surgical resection (& clinical info incl. postop imaging deemed appropriate)
- c-TNM – final pretreatment stage (incl history/phys exam, imaging, invasive tests within 4 mo)
- Preliminary (working) stage – based on available info as it iteratively evolves during patient evaluation
- yp- or yc-TNM – after part (e.g. neoadjuvant therapy) or all of treatment has been given
- When in doubt, assign the lower category or stage

Key Changes (8th to 9th)



Changes to Stage Groups IIA, IIB, IIIA and IIIB

T/M	category	N0	N1	N2		N3
				N2a	N2b	
T1		IA	IIA	IIB	IIIA	IIIB
T2	T2a	IB	IIB	IIIA	IIIB	IIIB
	T2b	IIA				
T3		IIB	IIIA	IIIA	IIIB	IIIC
T4		IIIA	IIIA	IIB	IIIB	IIIC
M1	M1a, b	IVA				
	M1c1, M1c2	IVB				

	N0	N1	N2a	N2b	N3
T1	IA	IIA	IIB	IIIA	IIIB
T2	IB	IIB	IIIA	IIIB	IIIB
	IIA				
T3	IIB	IIIA	IIIA	IIIB	IIIC
T4	IIIA	IIIA	IIIB	IIIB	IIIC
M1a,b	IVA	IVA	IVA	IVA	IVA
M1c1,2	IVB	IVB	IVB	IVB	IVB

Stage Group Schematic Structure

Stage I-III – based on combination of T&N, M0 (i.e. diagonal spectrum from high T/low N ... low T/high N)

Stage IV – based on M1 categories

Reference: Detterbeck, Woodard, Bader, Dacic, Grant, Park, Tanoue. Chest 2024