

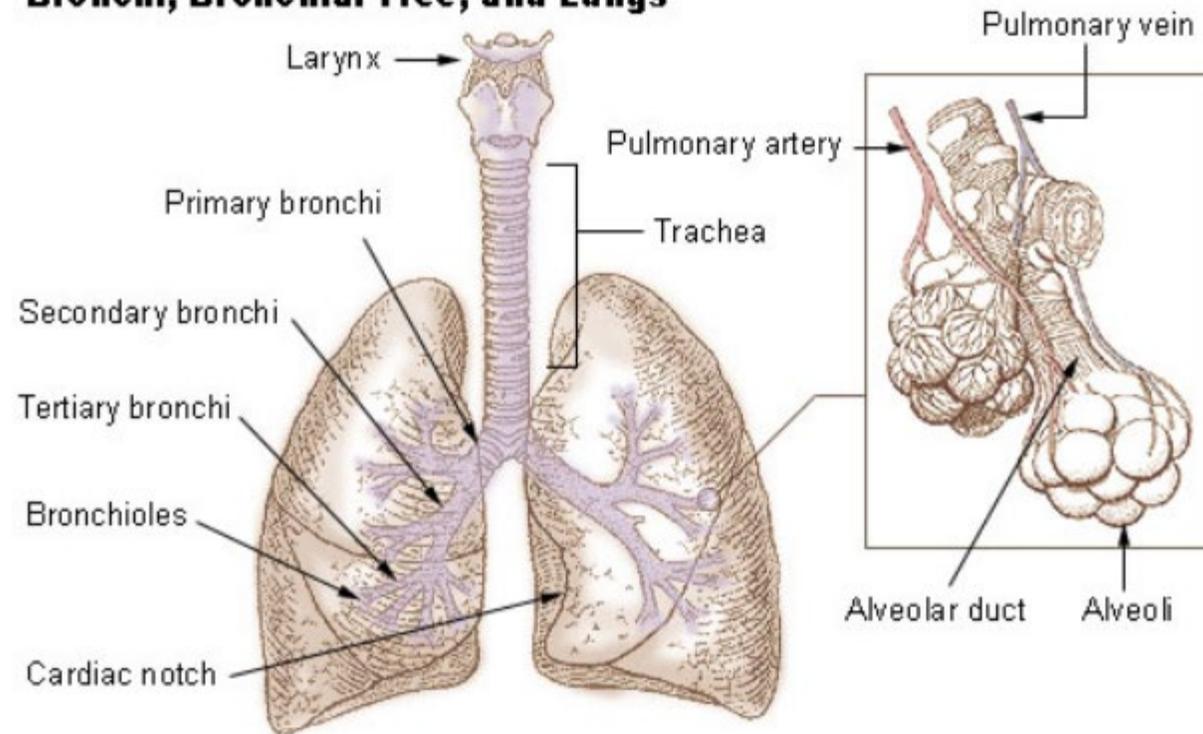
LUNG

How the Patterns of Disease Relate to:

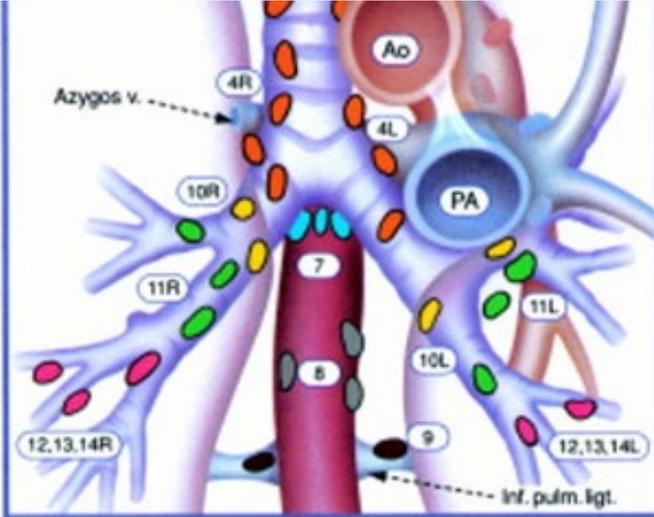
- **SSDIs**
 - Separate Tumor Nodules
 - Visceral and Parietal Pleural Invasion
 - ALK Reengagement
 - EGFR Mutational Analysis
- **EOD**
 - Primary Tumor (in Pitfall Presentation)

Anatomy

Bronchi, Bronchial Tree, and Lungs



LYMPH NODES



- 3 Prevascular and retrotracheal
- 4 Lower paratracheal (including azygos nodes)

N2 = single digit, ipsilateral
N3 = single digit, contralateral or supraclavicular

Aortic nodes

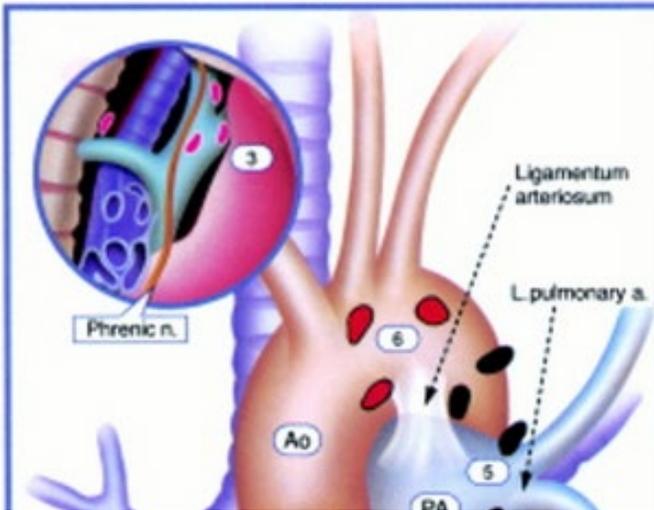
- 5 Subaortic (A-P window)
- 6 Para-aortic (ascending aorta or phrenic)

Inferior mediastinal nodes

- 7 Subcarinal
- 8 Para-oesophageal (below carina)
- 9 Pulmonary ligament

N1 nodes

- 10 Hilar
- 11 Interlobar



Metastases

Lung cancer can spread to almost any part of the body

Most common locations for metastasis include the:

- Liver
- Bones
- Brain
- Adrenal glands

PATTERNS OF DISEASE

Patterns of Disease

Long-term epidemiologic studies of multiple primaries have shown that lung **metastases usually** present as multiple tumors/masses.

- This can present as:
 - Multiple tumors in one lobe
 - Multiple tumors in different lobes within the same lung
 - Multiple tumors in one lung and one tumor in the contralateral lung
 - Multiple tumors in both the right and left lung
- Long-term epidemiologic studies of multiple primaries have also shown that:
 - A ***single*** tumor in each lung is **unlikely** to be a single primary (e.g. metastatic to the contralateral lung) and is **most likely** to be individual, unrelated occurrences.

Typical Tumor Spread Pattern

Remember the ABC's

- A. A single tumor
- B. Buddies
 - Tumors developing in the same lobe or lung

 - or
 - Spreading to the lymph nodes
- C. Contralateral lung

Going directly from A to C, while skipping B, deviates from the usual pattern and indicates that the tumors are not related (not started from the same abnormal cell nor sharing the same cancer catalyst/stimuli).

SOLID TUMOR RULES

Coding Primary Site

- **Table 1** (Page 6-7 on the Solid Tumor Manual, Lung Module)
 - This table has terms and anatomical descriptions which are not in the ICD-O.
 - Use this table to determine the **correct site** code. **Do not** use for other fields such as laterality.

PRIMARY SITE

Terminology used by physicians or on scans to describe the location of lung "mass")

Indicates if the location is found only in the right or left lung or if can be found in both lungs (bilateral).

Contains the ICD-O term and site code for the terminology used

<u>Terminology</u>	<u>Laterality</u>	<u>Site Term and Code</u>
Bronchus intermedius Carina Hilus of lung Perihilar	Bilateral	Mainstem bronchus C340 <i>Note: Bronchus intermedius is the portion of the right mainstem bronchus between the upper lobar bronchus and the origin of the middle and lower lobar bronchi</i>
Lingula of lung	Left	Upper lobe C341
Apex Apex of lung Lung apex Pancoast tumor Superior lobar bronchus Upper lobe bronchi	Bilateral	Upper lobe C341
Middle lobe Middle lobe bronchi	Right	Middle lobe C342
Base of lung Lower lobar bronchus Lower lobe Lower lobe bronchi Lower lobe segmental bronchi	Bilateral	Lower lobe C343
Overlapping lesion of lung	Bilateral	Overlapping lesion of lung C348 <i>Note: One lesion/tumor which overlaps two or more lobes</i>

Terminology	Laterality	Site Term and Code
Bronchus NOS Bronchogenic Extending up to the hilum Extending down to the hilar region Lung NOS Pulmonary NOS Suprahilar NOS	Bilateral	Lung NOS C349 <i>Note: Includes</i> <ul style="list-style-type: none"> • Multiple tumors in different lobes of ipsilateral lung OR • Multiple tumors in ipsilateral lung; unknown if same lobe or different lobe OR • Tumor in bronchus, unknown if mainstem or lobar bronchus OR • Tumor present, unknown which lobe
Lobar bronchi NOS Lobar bronchus NOS	Bilateral	Code the lobe in which the lobar bronchus tumor is present C34__ <i>Note: When lobe of origin is not documented/unknown, code to lung NOS C349</i>

Code C349 when:

Multiple tumors in different lobes of ipsilateral lung OR

Multiple tumors in ipsilateral lung; unknown if same lobe or different lobe

- This is for cases ***with intrapulmonary metastases!***
- If ***all*** tumors are located in the ***same*** lobe, ***the primary site will be coded to that lobe location***

In Contrast

In cases with **multiple synchronous tumors** abstracted as a single primary.

Code the primary site in reference to the largest tumor.

- This will give a point of reference when evaluating response to treatment or progression.

Tumor in bronchus, unknown if mainstem or lobar bronchus

- **Per the instructions on page 5:**
 - Code to mainstem bronchus C340 when it is **specifically stated** in the operative report and/or documented by a physician.
 - When **only** called bronchus, code to the lobe in which the bronchial tumor is located
 - If only called bronchus and the lobe location is not given, **Code C349**

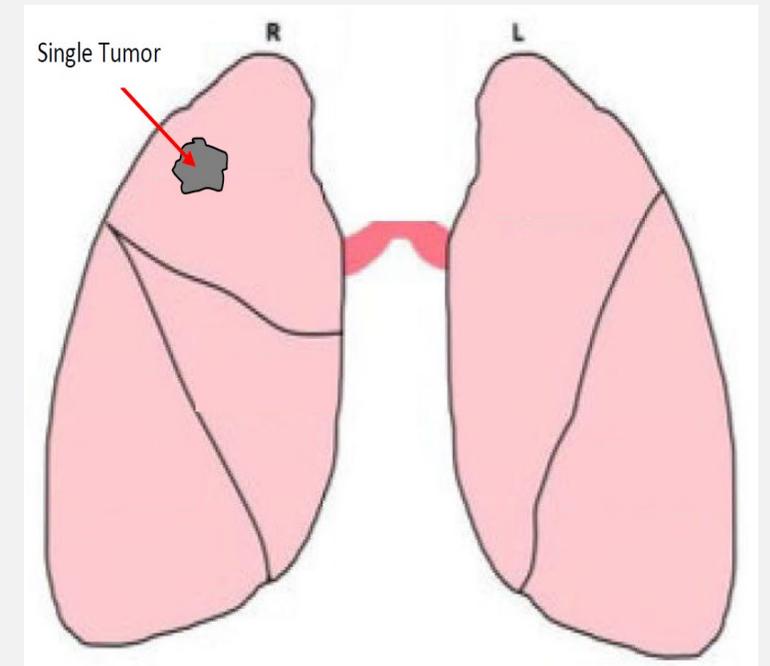
MULTIPLE PRIMARY RULES

M2

Abstract a Single Primary

The single tumor is always a single primary rule

- 1 tumor = 1 primary
- **Remember:**
- The tumor may overlap into or extend into an adjacent site or subsite (aka contiguous)
- The tumor may contain both in-situ and invasive portions
- The tumor may have two or more histologic components (Mixed histology)

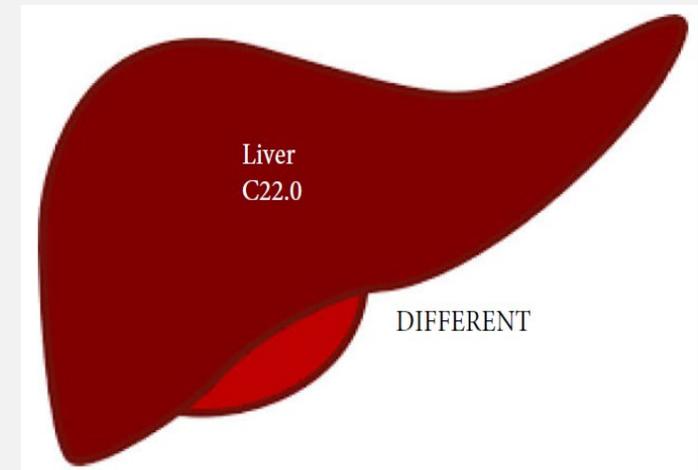
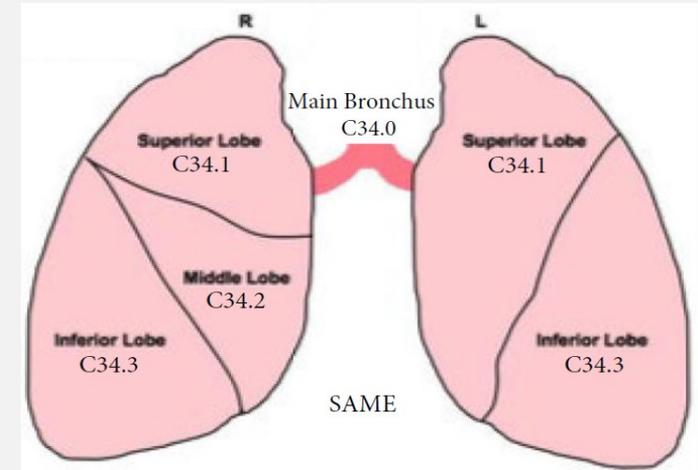


Multiple Tumors

M3

Abstract Multiple Primaries

- Abstract **multiple primaries** when there are **separate, non-contiguous** tumors in sites with ICD-O **site** codes that differ at the second CXxx and/or third character CxXx.
- **Note:** When **codes differ** at the second or third characters, the tumors are in **different primary sites**.
- **Remember:**
 - C is the first character
 - These rules are **NOT** used for tumor(s) described as “metastases.” This means that a tumor in a metastatic site is not counted



M4

Abstract Multiple Primaries

- Abstract **multiple primaries** when the patient has a subsequent tumor after being **clinically disease-free** for greater than **three years** after the original diagnosis or last recurrence.
- **Note 1: Clinically** disease-free means that there was **no evidence** of recurrence in the same lung on follow-up.
 - Scans are NED (No Evidence of Disease)
- **Note 2:** When there is a recurrence less than or equal to three years of diagnosis, the **“clock”** starts over. The time interval is calculated from the **date of last recurrence**. In other words, the patient must have been disease-free for greater than three years from the date of the last recurrence.
- **Note 3:** When it is **unknown/not documented** whether the patient had a recurrence, use **date of diagnosis** to compute the time interval.
- **Note 4:** The physician may state this is a **recurrence**, meaning the patient had a previous lung tumor and now has another lung site tumor. **Follow the rules**; do not attempt to interpret the physician’s statement.

M5

Abstract Multiple Primaries

Abstract **multiple primaries** when there is **at least one** tumor that is **small cell** carcinoma **8041** or any small cell subtypes/variants and another tumor that is **non-small cell** carcinoma **8046** or any non-small cell carcinoma subtypes/variants.

- Small cell carcinoma and non-small cell carcinoma are the two major classifications/divisions for lung cancer.
- It is **irrelevant** whether the tumors are in the **ipsilateral** (same) lung or are **bilateral** (both lungs).

M6-M8

Use Table 3

The table is divided into Rows and Columns

Each row contains a different NOS terms

- Each row in the table is a distinctly different histology.
 - Rule of thumb: If tumors are on different rows, then they are different primaries.

• Each row consists of 3 columns

- Column 1 contains specific and NOS histology terms.
 - Specific histology terms do not have subtypes/variants
 - NOS histology terms do have subtypes/variants
- Column 2 contains synonyms for the specific or NOS term.
 - Synonyms have the same histology code as the specific or NOS term.
- Column 3 contains subtypes/variants of the NOS histology.
 - Subtypes/variants do not have the same histology code as the NOS term.
 - Each histology within this column is distinctly different from each other.

Columns

1

2

3

ROWS

1

2

3

4

5

6

Specific or NOS Histology Term and Code	Synonym of Specific or NOS	Subtype/variant of NOS and Code
Adenocarcinoma 8140 Note 1: Mucinous adenocarcinoma for lung only is coded as follows: <ul style="list-style-type: none"> • 8253/3* when <ul style="list-style-type: none"> o Behavior unknown/not documented (use staging form to determine behavior when available) o Invasive o 8257/3* when o Microinvasive o Minimally invasive • 8253/2* when <ul style="list-style-type: none"> o Preinvasive o In situ Note 2: Non-mucinous adenocarcinoma for lung only is coded as follows: <ul style="list-style-type: none"> • 8256/3* when <ul style="list-style-type: none"> o Microinvasive o Minimally invasive • 8250/2* when <ul style="list-style-type: none"> o Preinvasive o In situ 	Adenocarcinoma NOS Adenocarcinoma in situ 8140/2 Adenocarcinoma invasive 8140/3 Adenocarcinoma, non-mucinous, NOS Minimally invasive adenocarcinoma 8140/3	Acinar adenocarcinoma/adenocarcinoma, acinar predominant (for lung only) 8551* Adenoid cystic/adenocystic carcinoma 8200 Colloid adenocarcinoma 8480 Enteric adenocarcinoma/pulmonary intestinal-type adenocarcinoma 8144 Fetal adenocarcinoma 8333 Lepidic adenocarcinoma/adenocarcinoma, lepidic predominant 8250/3* Mucinous carcinoma/adenocarcinoma (for lung only) in situ 8253/2* invasive 8253/3* minimally invasive 8257/3* microinvasive 8257/3* preinvasive 8253/2* Micropapillary adenocarcinoma/adenocarcinoma, micropapillary predominant 8265 Mixed invasive mucinous and non-mucinous adenocarcinoma 8254* Non-mucinous adenocarcinoma (for lung only) in situ 8250/2* microinvasive 8256/3* minimally invasive 8256/3* preinvasive 8250/2* Papillary adenocarcinoma/adenocarcinoma, papillary predominant 8260 Solid adenocarcinoma/adenocarcinoma, solid predominant 8230
Adenosquamous carcinoma 8560		
Epithelial-myoepithelial carcinoma 8562 Note: Adenomyoepithelioma, epithelial/myoepithelial tumor of unproven malignant potential were thought to be adenomas (not reportable) prior to 2018. These histologies are now designated as low-grade carcinomas based on lymph node metastasis, local invasion, and aggressiveness	Adenomyoepithelioma* Epimyoeplithelial carcinoma Epithelial-myoepithelial tumor of unproven malignant potential* Malignant mixed tumor comprising epithelial and myoepithelial cells Pneumocytic adenomyoepithelioma*	
Epithelioid hemangioepithelioma 9133		
Giant cell carcinoma 8031		
Intrapulmonary thymoma (arising within lung) 8580/3 Note: <u>Intrapulmonary</u> thymoma is always malignant /3.		

M6

Abstract Multiple Primaries

Abstract **multiple primaries** when separate/non-contiguous tumors are two or more **different subtypes/variants** in Column 3, **Table 3** in the Equivalent Terms and Definitions. Timing is irrelevant.

- The tumors may be subtypes/variants of the **same** or **different** NOS histologies.
- The tumors may be different **behaviors**: Acinar adenocarcinoma 8551/3 and mucinous carcinoma, in situ 8253/2 are both subtypes of adenocarcinoma NOS 8140/3 but are distinctly different histologies. Abstract multiple primaries.

Columns

1 Specific or NOS Histology Term and Code	2 Synonym of Specific or NOS	3 Subtype/variant of NOS and Code
<p><u>Adenocarcinoma 8140</u></p> <p>Note 1: Mucinous adenocarcinoma for lung only is coded as follows:</p> <ul style="list-style-type: none"> • 8253/3* when <ul style="list-style-type: none"> ○ Behavior unknown/not documented (use staging form to determine behavior when available) ○ Invasive • 8257/3* when <ul style="list-style-type: none"> ○ Microinvasive ○ Minimally invasive • 8253/2* when <ul style="list-style-type: none"> ○ Preinvasive ○ In situ <p>Note 2: Non-mucinous adenocarcinoma for lung only is coded as follows:</p> <ul style="list-style-type: none"> • 8256/3* when <ul style="list-style-type: none"> ○ Microinvasive ○ Minimally invasive • 8250/2* when <ul style="list-style-type: none"> ○ Preinvasive ○ In situ 	<p>Adenocarcinoma NOS</p> <p>Adenocarcinoma in situ <u>8140/2</u></p> <p>Adenocarcinoma invasive <u>8140/3</u></p> <p>Adenocarcinoma, non-mucinous, NOS</p> <p>Minimally invasive adenocarcinoma <u>8140/3</u></p>	<p>Acinar adenocarcinoma/adenocarcinoma, acinar predominant (for lung only) 8551*</p> <p>Adenoid cystic/adenocystic carcinoma 8200</p> <p>Colloid adenocarcinoma 8480</p> <p>Enteric adenocarcinoma/pulmonary intestinal-type adenocarcinoma 8144</p> <p>Fetal adenocarcinoma 8333</p> <p>Lepidic adenocarcinoma/adenocarcinoma, lepidic predominant 8250/3*</p> <p>Mucinous carcinoma/adenocarcinoma (for lung only)</p> <ul style="list-style-type: none"> in situ 8253/2* invasive 8253/3* minimally invasive 8257/3* microinvasive 8257/3* preinvasive 8253/2* <p>Micropapillary adenocarcinoma/adenocarcinoma, micropapillary predominant 8265</p> <p>Mixed invasive mucinous and non-mucinous adenocarcinoma 8254*</p> <p>Non-mucinous adenocarcinoma (for lung only)</p> <ul style="list-style-type: none"> in situ 8250/2* microinvasive 8256/3* minimally invasive 8256/3* preinvasive 8250/2* <p>Papillary adenocarcinoma/adenocarcinoma, papillary predominant <u>8260</u></p> <p>Solid adenocarcinoma/adenocarcinoma, solid predominant 8230</p>

M7

Abstract a Single Primary

Abstract a single primary when synchronous, separate/non-contiguous tumors in the same lung are on the same row in Table 3 in the Equivalent Terms and Definitions.

- Tumors must be in the same lung.
- The same row means the tumors are:
 - The same histology (same four-digit ICD-O code) OR
 - One is the preferred term (column 1) and the other is a synonym for the preferred term (column 2) OR
 - A NOS (column 1/column 2) and the other is a subtype/variant of that NOS (column 3)

Columns

1

2

3

Specific or NOS Histology Term and Code	Synonym of Specific or NOS	Subtype/variant of NOS and Code
Adenocarcinoma 8140 Note 1: Mucinous adenocarcinoma for lung only is coded as follows: <ul style="list-style-type: none"> • 8253/3* when <ul style="list-style-type: none"> ○ Behavior unknown/not documented (use staging form to determine behavior when available) ○ Invasive • 8257/3* when <ul style="list-style-type: none"> ○ Microinvasive ○ Minimally invasive • 8253/2* when <ul style="list-style-type: none"> ○ Preinvasive ○ In situ Note 2: Non-mucinous adenocarcinoma for lung only is coded as follows: <ul style="list-style-type: none"> • 8256/3* when <ul style="list-style-type: none"> ○ Microinvasive ○ Minimally invasive • 8250/2* when <ul style="list-style-type: none"> ○ Preinvasive ○ In situ 	Adenocarcinoma NOS Adenocarcinoma in situ 8140/2 Adenocarcinoma invasive 8140/3 Adenocarcinoma, non-mucinous, NOS Minimally invasive adenocarcinoma 8140/3	Acinar adenocarcinoma/adenocarcinoma, acinar predominant (for lung only) 8551* Adenoid cystic/adenocystic carcinoma 8200 Colloid adenocarcinoma 8480 Enteric adenocarcinoma/pulmonary intestinal-type adenocarcinoma 8144 Fetal adenocarcinoma 8333 Lepidic adenocarcinoma/adenocarcinoma, lepidic predominant 8250/3* Mucinous carcinoma/adenocarcinoma (for lung only) in situ 8253/2* invasive 8253/3* minimally invasive 8257/3* microinvasive 8257/3* preinvasive 8253/2* Micropapillary adenocarcinoma/adenocarcinoma, micropapillary predominant 8265 Mixed invasive mucinous and non-mucinous adenocarcinoma 8254* Non-mucinous adenocarcinoma (for lung only) in situ 8250/2* microinvasive 8256/3* minimally invasive 8256/3* preinvasive 8250/2* Papillary adenocarcinoma/adenocarcinoma, papillary predominant 8260 Solid adenocarcinoma/adenocarcinoma, solid predominant 8230

1

1st Histology: Columns 1,2, or 3

2nd Histology: Columns 1 or 2

***If both histologies are in column 3, see M6**

M8

Abstract Multiple Primaries

Abstract multiple primaries when separate/non-contiguous tumors are:

- On different rows in Table 3 in the Equivalent Terms and Definitions
- A combination code in Table 2 and a code from Table 3
- It doesn't matter if they are in the same or contralateral lung
- Timing is irrelevant.
- Tumors may be synchronous or non-synchronous.
- Tumors might fall within the 3-year recurrent window.
 - Different histologies means that the subsequent tumor did not originate from the original tumor cells.

Remember: Each row in the table is a distinctly different histology.

1**2****3**

Specific or NOS Histology Term and Code	Synonym of Specific or NOS	Subtype/variant of NOS and Code
Adenocarcinoma 8140 Note 1: Mucinous adenocarcinoma for lung only is coded as follows: <ul style="list-style-type: none"> • 8253/3* when <ul style="list-style-type: none"> ○ Behavior unknown/not documented (use staging form to determine behavior when available) ○ Invasive • 8257/3* when <ul style="list-style-type: none"> ○ Microinvasive ○ Minimally invasive • 8253/2* when <ul style="list-style-type: none"> ○ Preinvasive ○ In situ Note 2: Non-mucinous adenocarcinoma for lung only is coded as follows: <ul style="list-style-type: none"> • 8256/3* when <ul style="list-style-type: none"> ○ Microinvasive ○ Minimally invasive • 8250/2* when <ul style="list-style-type: none"> ○ Preinvasive ○ In situ 	Adenocarcinoma NOS Adenocarcinoma in situ 8140/2 Adenocarcinoma invasive 8140/3 Adenocarcinoma, non-mucinous, NOS Minimally invasive adenocarcinoma 8140/3	Acinar adenocarcinoma/adenocarcinoma, acinar predominant (for lung only) 8551* Adenoid cystic/adenocystic carcinoma 8200 Colloid adenocarcinoma 8480 Enteric adenocarcinoma/pulmonary intestinal-type adenocarcinoma 8144 Fetal adenocarcinoma 8333 Lepidic adenocarcinoma/adenocarcinoma, lepidic predominant 8250/3* Mucinous carcinoma/adenocarcinoma (for lung only) in situ 8253/2* invasive 8253/3* minimally invasive 8257/3* microinvasive 8257/3* preinvasive 8253/2* Micropapillary adenocarcinoma/adenocarcinoma, micropapillary predominant 8265 Mixed invasive mucinous and non-mucinous adenocarcinoma 8254* Non-mucinous adenocarcinoma (for lung only) in situ 8250/2* microinvasive 8256/3* minimally invasive 8256/3* preinvasive 8250/2* Papillary adenocarcinoma/adenocarcinoma, papillary predominant 8260 Solid adenocarcinoma/adenocarcinoma, solid predominant 8230
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Epithelioid hemangioepithelioma 9133		
Giant cell carcinoma 8031		
Intrapulmonary thymoma (arising within lung) 8580/3 Note: <u>Intrapulmonary</u> thymoma is always malignant /3.		

Remember: Each row in the table is a distinctly different histology.

If histologies are in different rows on Table 3, they are multiple primaries!

Create an abstract for each tumor with a different histology.

M9

Abstract as a Single Primary

Abstract a **single primary** when there are **simultaneous multiple** tumors:

- In **both** lungs (multiple in right and multiple in left) **OR**
- In the **same** lung **OR**
- **Single** tumor in one lung; **multiple** tumors in **contralateral** lung
 - **Note 1:** Tumors may be combinations of:
 - In situ and invasive **OR**
 - NOS and subtype/variant (See **Table 3** in the Equivalent Terms and Definitions)
 - Cancer NOS **8000** or carcinoma NOS **8010** and any other histology
- Code multiple primaries only when there is **proof** that one of the tumors is a different histology. Proof is any one of the following:
 - Pathology from a biopsy or resection proves tumors are different histologies
 - Attending, oncologist, or pulmonologist state unequivocally that the tumors are different primaries
 - **Unequivocal** means that **no words** such as “**probable**” are used in the statement. Terms which are on the “ambiguous terms” list such as “probable” cannot be used to prove different primaries.
- When there are multiple tumors in one or both lungs, the physician usually biopsies only one mass/tumor. They treat the patient based on that single biopsy, assuming all the masses/tumors are the same histology.

M10

Abstract as a Single Primary

Abstract a **single primary** when an **in situ** tumor is diagnosed **after** an **invasive** tumor **AND** tumors occur in the same lung.

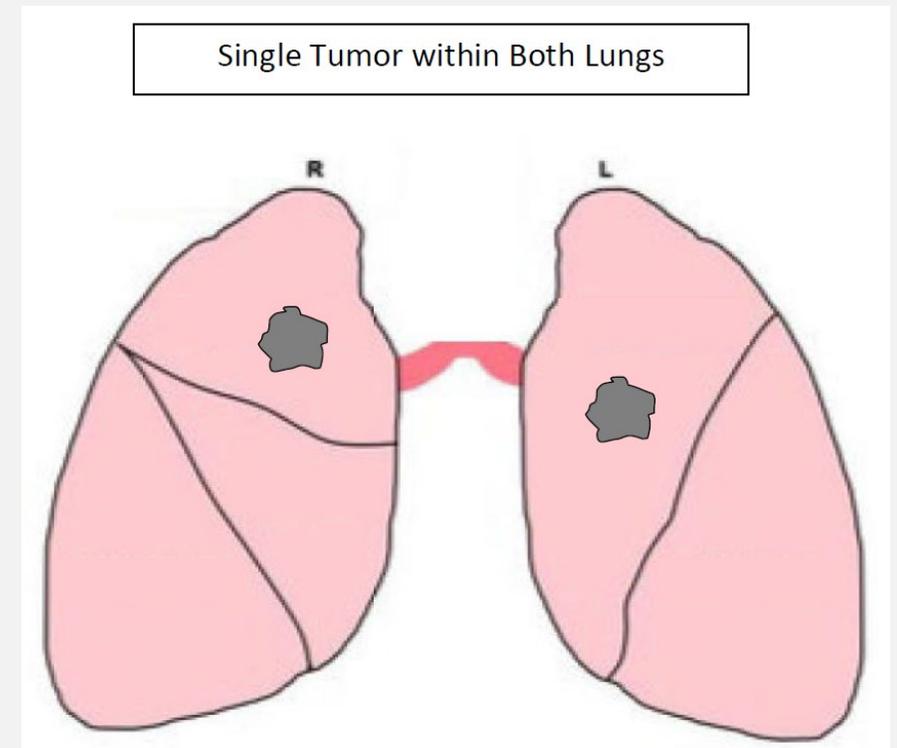
- The rules are **hierarchical**. Only use this rule when none of the previous rules apply.
 - Rule M₄ takes precedence: If this occurs after clinically disease free and after 3 years, you abstract as a multiple primary.
- The tumors may be a **NOS** and a **subtype/variant** of that NOS. See **Table 3** in the Equivalent Terms and Definitions for listings of NOS and subtype/variants.
- The **in situ** is recorded as a **recurrence** for those registrars who collect recurrence data.

M11

Abstract Multiple Primaries

Abstract **multiple primaries** when there is a single tumor in each lung (one tumor in the right lung and one tumor in the left lung).

- The only **exception** is when there is proof that one tumor is **metastatic**. Proof is any one of the following:
 - Tissue from both tumors is compared and the pathologic diagnoses definitively says one tumor is metastatic
 - Attending physician, oncologist, or pulmonologist states unequivocally that the tumor in the contralateral lung is metastatic.
 - No ambiguous terminology allowed!
- Lymph node involvement is recorded in staging criteria.



M12

Abstract as a Single Primary

Abstract a **single primary** (the invasive) when an **invasive** tumor is diagnosed **less than or equal to 60 days** *after* an **in situ** tumor *in the same lung*.

- The rules are **hierarchical**. Only use this rule when none of the previous rules apply.
- The tumors may be a **NOS** and a **subtype/variant** of that NOS.
- When the case has been abstracted, **change behavior** code on original abstract from /2 to /3.
- Do **not** change **date of diagnosis**.

M13

Abstract Multiple Primaries

Abstract **multiple primaries** when an **invasive** tumor occurs **more than 60** days after an **in situ** tumor in the same lung.

- The rules are **hierarchical**. Only use this rule when none of the previous rules apply.
- Abstract **both** the invasive and in situ tumors.
- Abstract as multiple primaries ***even if*** the **physician states** the invasive tumor is disease **recurrence** or **progression**.

Rationale for this rule: Not to diagnose the patient with having an invasive cancer longer than they actually have. This would/could skew survival data.

Histology Rules

Review the rules and guidelines for coding histology

IMPORTANT:

- Code histology diagnosed prior to neoadjuvant treatment
- Code the most specific histology from either the resection or biopsy (subtype or variant)
- Code the invasive histology when there are both invasive and insitu components in a single tumor
- When there is a discrepancy between the biopsy and resection (giving you 2 distinctly different histologies/different rows), you code the histology from the most representative specimen (greatest amount of tumor).

When there are discrepancies, make sure to use the hierarchical list of source documentation to help determine what source document takes priority.

- Code the most specific histology or subtype/variant, regardless of whether it is described as:
 - The majority or predominant part of tumor
 - The minority of tumor
 - A component
 - If these terms are used they must be describing a carcinoma or sarcoma
 - When the diagnosis is adenocarcinoma with a component of medullary carcinoma, code medullary carcinoma 8510.
 - When the diagnosis is simply adenocarcinoma with a medullary component, code adenocarcinoma NOS 8140. Do not assume this is a medullary carcinoma. This could be medullary differentiation or features.
- Code the histology described as differentiation or features/features of ONLY when there is a specific ICD-O code for the “NOS with ____ features” or “NOS with ____ differentiation”.
 - Do not code differentiation or features when there is no specific ICD-O code.

DO NOT CODE histology described as:

- Architecture
- Foci; focus; focal
- Pattern

Histology Rules

H1 Single Tumor

H10 Multiple Tumors

Code mucinous adenocarcinoma as follows (for lung only):

- 8253/3 when
 - Behavior unknown/not documented (use staging form to determine behavior when available)
 - Invasive
- 8257/3 when
 - Microinvasive
 - Minimally invasive
- 8253/2 when
 - Preinvasive
 - In situ

Important: When mucinous carcinoma is mixed with another histology, such as adenocarcinoma and mucinous carcinoma, code mucinous ONLY when mucinous is documented to be greater than 50% of the tumor.

- This rule goes against the guideline that states to code the most specific histology. This is done so not

H2 Single Tumor

H11 Multiple Tumors

Code non-mucinous adenocarcinoma as follows:

- **8256/3** when
 - Microinvasive
 - Minimally invasive
- **8250/2** when
 - Preinvasive
 - In situ

Important:

These are new codes and terms, so the pathologists may not use the terms “minimally invasive” and “pre-invasive” immediately. **Code the pathology diagnosis.**

H3 Single Tumor

H12 Multiple Tumors

Code the specific histology when the diagnosis is non-small cell lung carcinoma (NSCLC) consistent with (or any other ambiguous term) a specific carcinoma (such as adenocarcinoma, squamous cell carcinoma, etc.) when:

- The histology is **clinically confirmed** by a physician (attending, pathologist, oncologist, pulmonologist, etc.) **OR**
 - The patient is **treated** for the histology described by an ambiguous term
-
- If the case **does not meet** one of the criteria in the first two bullets, code non-small cell lung cancer (NSCLC) 8046.
 - If the case is added to the database based on a single histology described by ambiguous terminology and no other histology information is available/documented, then code that histology.

This rule follows the rules set in the ambiguous terminology guidelines

H4 Single Tumor

H13 Multiple Tumors

Code the histology when only one histology is present.

Important:

- Use Table 3 to code histology. New codes, terms, and synonyms are included in Table 3 and coding errors may occur if the table is not used.
- When the histology is not listed in Table 3, use the ICD-O and all updates.
- Submit a question to Ask a SEER Registrar when the histology code is not found in Table 3, ICD-O or all updates.
- This includes coding non-small cell carcinoma when it is the only diagnosis available.

H5 Single Tumor

H14 Multiple Tumors

Code the invasive histology when insitu and invasive histologies are present.

- Histologies may be NOS and a subtype/variant.
- When the NOS is invasive and the subtype/variant is insitu, code the NOS (invasive).

H6 Single Tumor

H15 Multiple Tumors

Code the subtype/variant when there is a NOS and a single subtype/variant of that NOS, such as the following:

- Adenocarcinoma 8140 and a subtype/variant of adenocarcinoma
- Mucinous adenocarcinoma and a subtype/variant of mucinous adenocarcinoma
- Non-small cell carcinoma 8046 and a subtype/variant of non-small cell carcinoma
- Sarcoma 8800 and a subtype/variant of sarcoma
- Small cell neuroendocrine tumors/NET 8041 and a subtype/variant of small cell neuroendocrine tumor/NET
- Squamous cell carcinoma 8070 and a subtype/variant of squamous cell carcinoma

Note: See Table 3 in the Equivalent Terms and Definitions to find NOS and subtypes/variants.

This follows the histology guideline that states to code the most specific histology or subtype/variant.

H7 Single Tumor

Code the histology that comprises the *greatest percentage* of tumor when two or more of the following histologies are present:

- Acinar adenocarcinoma / Adenocarcinoma, acinar predominant 8551
 - Lepidic adenocarcinoma / Adenocarcinoma, lepidic predominant 8250
 - Micropapillary adenocarcinoma / Adenocarcinoma, micropapillary predominant 8265
 - Papillary adenocarcinoma / Adenocarcinoma, papillary predominant 8260
 - Solid adenocarcinoma / Adenocarcinoma, solid predominant 8230
- The rules are hierarchical, so the tumors are **NOT** an NOS and subtype/variant.
 - If the percentages are unknown/not documented, or are equal percentages, continue through the rules.

H8 Single Tumor H16 Multiple Tumors

Code a combination code when there are multiple histologies AND

- The combination is listed in Table 2 in Equivalent Terms and Definitions, the ICD-O and all updates, OR
- You received a combination code from Ask a SEER Registrar.

Note: The rules are hierarchical. Use this rule only when previous rules do not apply.

Important: Only use TABLE 2 when the rules instruct you to!

H9 Single Tumor

Code adenocarcinoma with mixed subtypes 8255 for

- Multiple adenocarcinoma subtypes OR
- Any combination of histologies which are not listed in Table 2 in the Equivalent Terms and Definitions.
 - Note 1: Any combination of histologies listed in H7 with equal percentages is coded 8255.
 - Note 2: Adenocarcinoma with mixed subtypes 8255 does not apply to squamous cell carcinoma.

AJCC

With the help of a special subcommittee of the IASLC, and based on their recommendations, these four disease patterns were established:

- Second primary tumors
- Separate tumor nodules with the same histopathological type
- Multiple tumors with predominate ground-glass features and a lepidic pattern
- Diffused Pneumonic type lung cancers

Remember How SEER and the AJCC define these 4 patterns differ. Thus, distinguishing between multiple primaries and multiple synchronous tumors continues to be a source of confusion amongst cancer registrars.



-VS-



Second Primary Tumors

Two or more synchronous or metachronous primary tumors.

- **Synchronous Tumors:** Occur at the same time
- **Metachronous Tumors:** Occur or start at a different time
- Did not start from a cancer cell that has gone rogue from the primary tumor
 - Not intrapulmonary metastasis
 - Independent of each other (one did not cause the other)
- Can be in the same lobe, same lung or contralateral lung
 - Can be identified clinically or grossly, as well as microscopically on pathological examination
 - **Are histopathologically different** ← **This is a point of contention!**

SEER: Definition of different histologies refers to Table 2 and Table 3 in the Solid Tumor Manual and does not look at the comprehensive histological assessment (morphology or percentage make up) of each tumor.

AJCC: Definition of Second Primary tumor is having different histologies **OR** are different on comprehensive histological assessment (morphology or percentage make up).

In cases with Synchronous tumors:

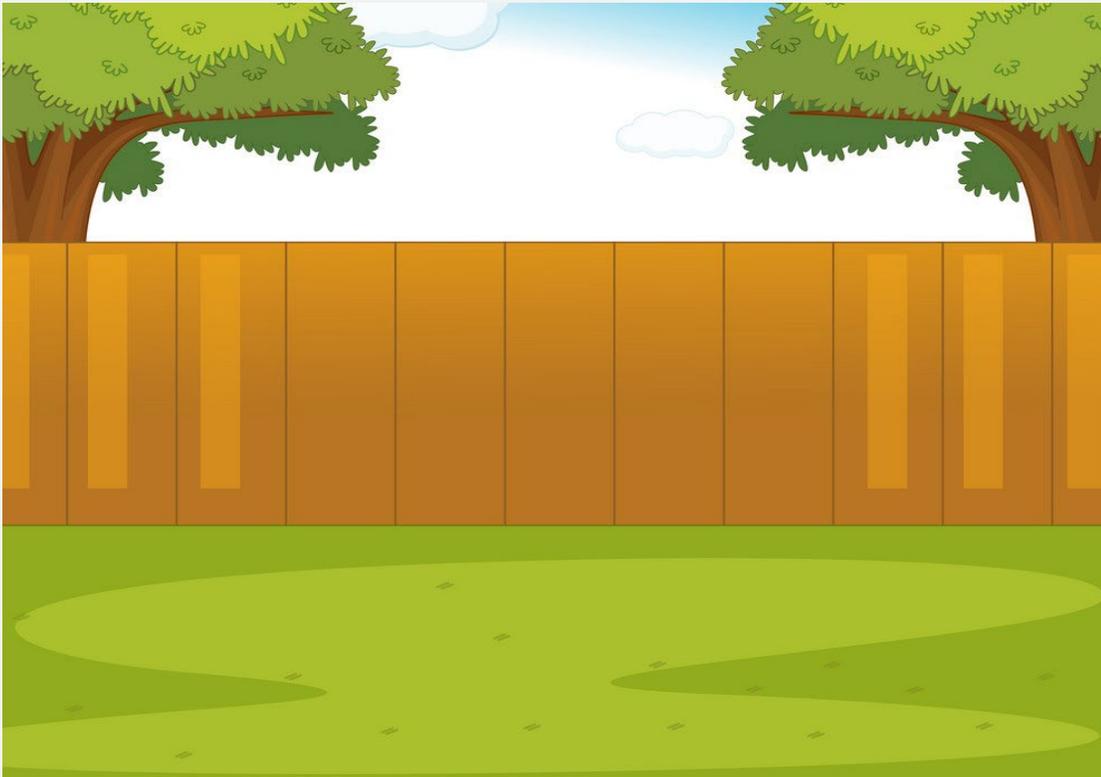
- Code multiple primaries only when there is **proof** that one of the tumors is a different histology. Proof is any one of the following:
 - Pathology from a biopsy or resection proves tumors are different histologies (as determined in tables 2 and 3 in the Solid Tumor Manual)
 - Attending, oncologist, or pulmonologist states **unequivocally** that the tumors are different primaries
 - **Unequivocal** means that **no words** such as “**probable**” are used in the statement. Terms which are on the “ambiguous terms” list such as “probable” cannot be used to prove different primaries.

Second Primary Tumors Abstracted as a Single Primary

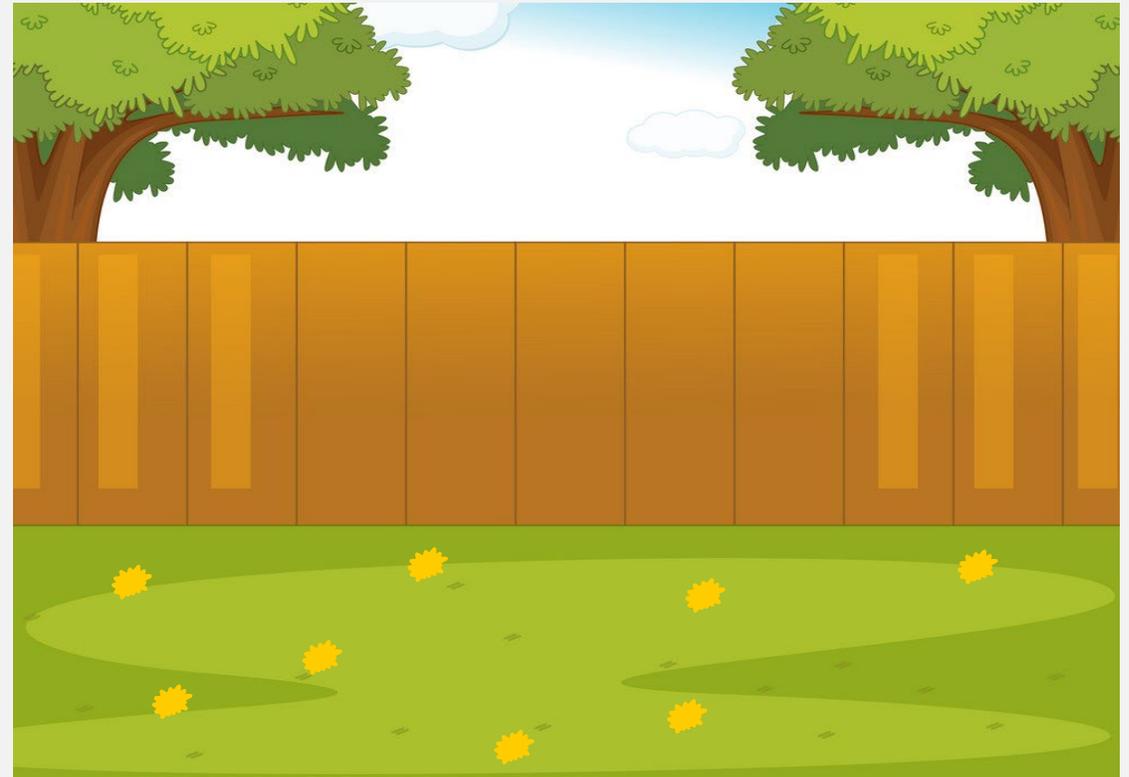
Two or more synchronous primary tumors.

- **Synchronous Tumors:** Occur at the same time
- Did not start from a cancer cell that has gone rogue from the primary tumor
 - Not intrapulmonary metastasis
 - Independent of each other (one did not cause the other)
- Have the same cancer catalyst/stimuli/cause
 - This catalyst caused **multiple individual** cells to become cancerous/abnormal
- Can be in the same lobe, same lung or contralateral lung
- Can be identified clinically or grossly, as well as microscopically on pathological examination
 - **Are histopathologically the same per the Solid Tumor Manual (comprehensive histological assessment/morphology or percentage make up is not a factor)**

Think Dandelions...



One day they are not there



The next day...
they start to pop up at the same time.
One did not cause the other to occur but had the
same cause

Classification

- Tumor size is determined by the largest tumor
- The highest T category should be followed by the number of lesions (#) or simply by (m)
 - This classification (#/m) indicates a greater tumor burden and may have a different outcome
 - Are not considered intrapulmonary metastases
 - The T(#/m) classification should be applied equally whether the lesions are in the same lobe, ipsilateral or contralateral lung.
 - If tumors are located in the contralateral lung cMo is applied

Second Primary Tumors Abstracted as Multiple Primary

Two or more synchronous or metachronous primary tumors.

- **Synchronous Tumors:** Occur at the same time
- **Metachronous Tumors:** Occur or start at a different time
- Did not start from a cancer cell that has gone rogue from the primary tumor
 - Not intrapulmonary metastasis
 - Independent of each other (one did not cause the other)
 - Can be in the same lobe, same lung or contralateral lung
 - Can be identified clinically or grossly, as well as microscopically on pathological examination
 - **Are histopathologically different**
 - A physician statement can be used, only when there is a **definitive** statement of a second primary. Thus, **no ambiguous terminology can be used.**

Each tumor will have its own abstract

Classification

Each tumor will have its own abstract

- Should be classified separately, with an individual TNM for each one, regardless of whether they are in the same lobe, same lung or contralateral lung.

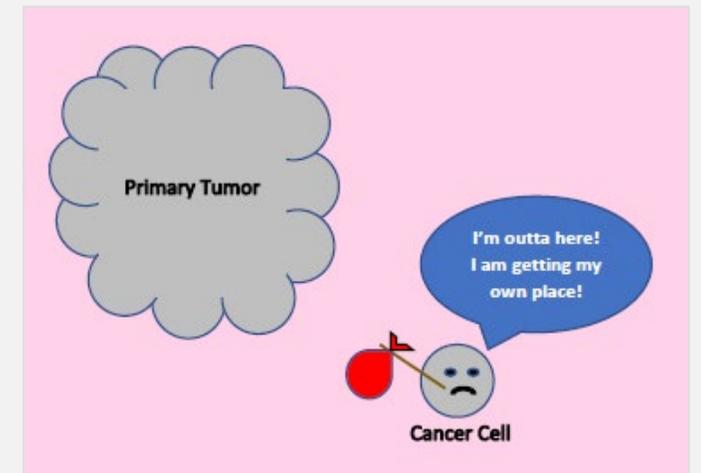
Separate Tumor Nodule (same histopathological type)

Presence of separate tumor nodules at the time of diagnosis

- Originating from a single lung primary
 - Also known as intrapulmonary metastasis
 - Are a direct result of the primary tumor
 - Started by tumor cells from primary tumor
- Must have the same histopathological type
 - In the case of multiple tumor nodules determined to be the same primary, if not all nodules are biopsied, assume they are the same histology
- Can be identified clinically or grossly, as well as microscopically on pathological examination

Single Primary

SSDI – Separate Tumor Nodules: refers to this pattern!



Classification

Classification of these tumors are based on their location

- Because there are more than one tumor in the lung, you do not assign T based on size.
- **T₃**: Same lung and same lobe as the primary tumor
- **T₄**: Same lung but different lobe as the primary tumor

Contralateral lung: M_{1a}

Multifocal Lung Adenocarcinomas (with ground glass/lepidic features)

Synchronous multiple ground-glass or part-solid nodules

Unrelated tumors, independent of each other (one did not cause the other),

They are not considered intrapulmonary metastases

They can have the same cancer catalyst/cause

Separate tumor nodules but they have similarities

Must have same histology

Adenocarcinomas with prominent lepidic components

Typically varying degrees of AIS, MIA, LPA

Single Primary



Partly Cloudy

Classification

- Tumor size is determined by the largest diameter of the solid component as proven by CT or the invasive component on pathological examination.
- The highest T category should be followed by the number of lesions (#) or simply by (m)
 - This multifocal classification (#/m) indicates a greater tumor burden and may have a different outcome
 - Are not considered intrapulmonary metastases
 - The T(#/m) multifocal classification should be applied equally whether the lesions are in the same lobe, ipsilateral or contralateral lung.
 - If tumors are located in the contralateral lung cMo is applied

GGN lesions <5mm are not counted in the TNM classification

AAH are not counted in the TNM classification

Diffuse Pneumonic Type Lung Cancers

Diffuse pneumonic, is a single tumor with ill-defined boundaries

- Patchy areas of ground glass and consolidation
- Small clusters of tumor cells that tend to spread out and grow into and infiltrate neighboring, healthy tissue
- Spread pattern can be contiguous or discontinuous
- Same histology throughout
 - Most often invasive mucinous adenocarcinoma

Single Primary



Spreads like a wildfire

Classification

- **Classification can be based on size or location**
 - **Single tumor area:**
 - T is based on tumor size. **However...**
 - **T₃**: If single tumor area is within one lobe and size is difficult to measure
 - **T₄**: If single tumor area invades adjacent lobe
 - This verifies extension into an ipsilateral lobe
 - **Multiple tumor areas:**
 - **T₃**: Multiple areas within same lobe
 - **T₄**: Multiple areas within 2 or more lobes
- **M_{1a}**: Contralateral Lung

SSDI

GRADE

Grade Manual

Table #2

- There is a preferred grading system for this schema
- Table uses generic terminology
- Must use exact terminology used in grade descriptions
 - Does not qualify for generic grade coding using the crosswalk method

Code	Grade Description
1	G1: Well differentiated
2	G2: Moderately differentiated
3	G3: Poorly differentiated
4	G4: Undifferentiated
9	Grade cannot be assessed (GX); Unknown

Lung SSDIs

- Separate Tumor Nodules
- Visceral and Parietal Pleural Invasion
- ALK Rearrangement
- EGFR Mutation Analysis

Separate Tumor Nodules

For this item, only code separate tumor nodules of the same histologic type as the primary tumor. This is also referred to as *intrapulmonary metastases*.

- In the case of multiple tumor nodules determined to be the same primary, if not all nodules are biopsied, assume they are the same histology.
- Pertains to the lobe and lung of the Primary tumor
 - **Separate tumor nodules in the contralateral lung are not coded in this data item**
- Other situations that display multiple lesions but are assigned **code 0**
 - Second primary tumors
 - Regardless of abstracted as a multiple primary or single primary
 - Multifocal lung adenocarcinoma with ground glass/lepidic features
 - Diffuse pneumonic adenocarcinoma
- If there are multiple tumor nodules or foci and the terminology used is not readily identifiable, consult with the pathologist or clinician. If no further information is available, assign code 7 and **DO NOT** use the information to assign a T category or extent of disease.

Visceral and Parietal Pleural Invasion

Visceral and Parietal Pleural Invasion is defined as invasion beyond the elastic layer or to the surface of the visceral pleura.

- A surgical resection ***must be done*** to determine if the visceral and/or parietal pleural are involved (invaded).
 - Do ***not*** use imaging findings to code this data item
 - An FNA is ***not*** adequate to assess pleural layer invasion
- Record results of visceral pleural invasion as stated on **pathology report**.
 - Physician statement of Visceral and Parietal Pleural Invasion can be used to code this data item when no other information is available.
 - There ***must*** be a statement that visceral pleural invasion is ***not*** present to code 0
 - If surgical resection of the primary site is performed and there is no mention of visceral and/or parietal pleural invasion, Code 9
 - In situ (behavior/2) tumors Code 0
- Do **NOT** code separate pleural tumor foci or nodules in this field (these are discontinuous pleural metastasis)

ALK Rearrangement

Anaplastic Lymphoma Kinase (ALK)

ALK rearrangement is recommended by treatment guidelines for patients with advanced lung cancer as a prognostic marker and factor in determining appropriate therapy

- Other names: ALK tyrosine kinase receptor, anaplastic lymphoma kinase, anaplastic lymphoma receptor tyrosine kinase, CD246, CD246 antigen, NBLST3
 - EML4-ALK
 - KIF5B-ALK
 - TFG-ALK
 - KLC1-ALK
- Source documents: pathology report or clinical laboratory report, molecular report, immunohistochemistry report
 - Physician statement of ALK rearrangement for non-small cell carcinoma can be used to code this data item when no other information is available.
- **Equivocal:** Means the results were inconclusive/could not be determined: **Code 9**

EGFR Mutational Analysis

Epidermal Growth Factor Receptor (EGFR)

EGFR mutational analysis is recommended by treatment guidelines for patients with advanced lung cancer as a prognostic marker and factor in determining appropriate therapy.

- Other names: Epidermal growth factor receptor tyrosine kinase inhibitor, ERBB, ERBB₁, ErbB₁, HER₁
 - The most common EGFR mutations are:
 - Exon 18 Gly719
 - Exon 19 deletion
 - Exon 20 insertion
 - Exon 20 Thr790Met
 - Exon 21 Leu858Arg
- Source documents: pathology report or clinical laboratory report
 - Physician statement of EGFR can be used to code this data item when no other information is available.

Questions?