

**WELCOME BACK!**

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# AJCC

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## T, N, M Staging System



# CLASSIFICATIONS

- Clinical
- Pathological
- Post-therapy
- Recurrence
- Autopsy



# Classifications

- c: Clinical
- p: Pathological
- yc: Post Neoadjuvant - clinical
- yp: Post Neoadjuvant – pathological
- r: recurrence or retreatment
- a: Autopsy



# Clinical c(TNM)

- Clinical stage classification is based on the patient's
  - History
  - Physical examination
  - Pre-treatment imaging
  - Scopes
  - Surgical exploration without resection of the primary tumor
  - Biopsy information on regional lymph nodes an/or other sites of metastatic disease can be used in the clinical classification
    - However, they must be done within the clinical timeframe



# Pathological p(TNM)

This classification is applicable when surgery is performed as part of first course treatment

- Before the initiation of adjuvant treatment
- Pathological stage classification is based on:
  - Clinical stage findings
    - The clinical finding will be modified by operative findings and
  - Pathological evaluation of the resected specimens
  - Operative findings
  - Pathological review of resected surgical specimen



# Post-therapy or Post Neoadjuvant Therapy yc(TNM) and yp(TNM)

- These stages are determined after treatment for patients receiving systemic and/or radiation alone or as a component of their initial treatment
- Neoadjuvant is defined as:
  - The treatment is initiated before planned surgery



# Recurrence or Retreatment r(TNM)

- Recurrence Classification: Staging classification at the time of treatment for a recurrence or disease progression
- Also referred to as Retreatment Classification
- Criteria:
  - Disease recurrence after disease-free interval
  - Upon disease progression if further treatment is planned for cancer that:
    - Recurs after disease-free interval
    - Progresses (without a disease-free interval)
- rc and rp does not replace the originally assigned Clinical (c) or Pathological (p) or post-therapy (yc or yp) stage classification



# Autopsy a(TNM)

Autopsy Classification: For cancers identified only at autopsy



# Prognostic Factors

- The AJCC includes additional factors that play a role in the calculation of the AJCC Stage Group for certain sites
- Prognostic factors required for staging can modify the calculation of stage
  - **Example Sites with prognostic factors:**
    - **Breast**
      - Grade
      - HER2 Status
      - PR Status
      - ER Status
    - **Prostate**
      - Gleason Grade
      - PSA



# CATEGORY

**T: Tumor**

**N: Lymph Nodes**

**M: Metastases**



# Category

- TNM stage for each cancer type is built by defining the anatomic extent of the cancer for the:
  - Tumor (T)
  - Lymph Nodes (N)
  - Distant Metastases (M)
- For each T, N, and M, there are a set of categories
  - Most often these categories are a number
- The higher the values of T, N, and M categories the greater the extent of disease
  - This generally makes for a worst prognosis



- The descriptions of the anatomic factors are specific for each disease site
- Assigning T, N, and M categories follows a set of general rules
- These rules apply to all cancer sites
  - Any exceptions to the rules are defined in the relevant disease-specific chapter



# T (Tumor)

- Category T is defined as the size and/or contiguous extension of the primary tumor
- The roles that size and extent of contiguous spread play in defining T is specific for each site
- The higher the T value typically represents a larger more invasive tumor
  - These are usually most indicative of a worse prognosis



# Primary Tumor Categories

## **TX:**

- No information about the size and/or extent of the primary tumor
- Tumor cannot be assessed
- The use of TX should be minimized as much as possible

## **T0:**

- No Evidence of primary tumor



## Tis:

- Carcinoma in-situ

## T<sub>1</sub>, T<sub>2</sub>, T<sub>3</sub>, T<sub>4</sub>:

- Primary Tumor is invasive
- Higher category generally means
  - An increasing size
  - An increasing local extension
  - Both increasing size and extension



# N (Lymph Node)

- Category N refers to cancer in the regional lymph nodes
- Distant nodes are covered in M (metastatic disease)
- The value of N can indicate the absence or presence of cancer spread to the regional nodes
  - Number of positive lymph nodes
  - Involvement of specific lymph node chains
  - Size of nodal metastasis
  - Extension through the regional node capsule
  - In-transit and satellite metastases
    - Unique manifestation of non-nodal intratympanic regional disease that is found between the primary tumor and the draining nodal basins



## Regional Node Categories:

### **NX:**

- No information about the N category for regional lymph nodes
- It is unknown or it cannot be assessed

### **N0:**

- No regional lymph node involvement with cancer
- Non-nodal regional disease as noted earlier

### **N<sub>1</sub>, N<sub>2</sub> or N<sub>3</sub>:**

- Evidence of regional nodes containing cancer
- An increasing number generally means:
- Increase number of nodes involved by cancer
- Regional nodal group involvement
- Increase in the size of nodal metastases



# Designation X

- The X designation is used if information on a specific T or N category is unknown
- X should only be used when absolutely necessary
- X cannot be assigned to the M category
  - No mention of metastatic disease is to coded M0



# M (Metastases)

- Category M refers to the absence or presence of distant metastases
- These can refer to spread from the primary tumor to:
  - Other distant organs or sites
  - Distant lymph nodes
- **Metastases Categories:**
  - M0: No evidence of distant metastases
  - M1: Distant metastases present
- Microscopically confirmed metastases are assigned pM
- If microscopically confirmed during clinical timeframe, case is eligible for pathological staging with the Any T, Any N, pM1 rule
  - T and N can be cT and/or cN



# Designation cM0

- Unless there is clinical or pathological evidence that there are distant metastases, the patient is classified as cM0
- A history and physical is all that is needed to categorize a patient as cM0
- It is not necessary to perform any imaging or invasive study to categorize the patient as cM0



# Designation pM0

- There is no pM0 designation
- In order to have a pM0 every cell within the body would have to be sampled

## Pathological Stage

- Assign cM0 when absence of metastatic disease
- Assign cM1 or cM2 when metastatic disease is clinically apparent
- Assign pM1 or pM2 when metastatic disease is pathologically confirmed
- The presence of pM1 or pM2 during the clinical or pathological stage, automatically qualifies for pathological staging regardless of the value within the T or N categories



# Subcategories

- These subcategories can be for T, N and/or M
- Some disease sites have subcategories devised to give detailed information
  - This is most often to give more specific prognostic information
    - **Examples:**
      - Breast Cancer
        - T1 has 4 subcategories based on tumor size
          - T1mi
          - T1a
          - T1b
          - T1c
        - N2 has 2 subcategories bases on nodal involvement
          - N2a
          - N2b
      - Prostate Cancer
        - M1 has 3 subcategories bases on metastatic disease
          - M1a
          - M1b
          - M1c



# SUFFIXES

- (m) = multiple tumors
- (sn)= sentinel lymph node
- (f)= FNA or core biopsy of lymph node



# Suffix (m)

- If multiple tumors are the same histology are present in one organ:
- The tumor with the highest T category is classified and staged
  - The (m) suffix is to be assigned
    - m = multiple tumors
- The (m) suffix is important because it denotes the tumor burden on the patient
- If the number of tumor is known you can assign the number of tumors present in place of (m)

**Example:** Patient with 4 tumors within the primary site can be coded: pT(4)

**Important:** Do not assign the (m) suffix for multiple foci or in-situ cancers or cancer with a mixed invasive and in-situ cancer



# Sentinel Lymph Nodes

## Rationale:

- To distinguish lymph nodes identified during sentinel lymph node (SLN) biopsy from those examined by physical examination or imaging
- If SLN biopsy is performed during the clinical timeframe as part of the diagnostic workup:
  - The cN category should have the (sn) suffix
- If the SNL biopsy is performed during resection of the primary tumor:
  - The pN category should have the (sn) suffix



# FNA or Core Biospy of Lymph Nodes

## Rationale:

- To distinguish lymph nodes identified during FNA or core biopsy from those examined by physical examination or imaging
- If an FNA or core biopsy is performed during the clinical timeframe as part of the diagnostic workup:
  - The cN category should have the (f) suffix
- If an FNA or core biopsy is performed during resection of the primary tumor:
  - The pN category should have the (f) suffix



# GENERAL STAGING RULES

These general rules apply to:

- The application of T, N, and M categories
- All anatomic Sites and Classifications



# Microscopic Confirmation

- Microscopic confirmation is necessary for TNM classification
  - Including clinical classification (with rare exceptions)
    - On rare clinical scenarios, patients who do not have any biopsy or cytology of a tumor may be staged
      - Only if the cancer diagnosis is NOT in doubt

**Example:** Lung cancer diagnosed with CT only, without a diagnostic biopsy



# Clinical Stage Timeframe

- Any and all information gathered about the extent of the cancer is part of the clinical classification:
- From date of diagnosis and before the initiation of primary treatment or watchful watching or supportive care, to one of the following time points:
  - 4 months after diagnosis
  - Date of cancer progression before the end of the 4 month window
    - Clinical Data on the extent of cancer is only reported the date of the observed progression



# Pathological Stage Timeframe

- Information including information obtained during the clinical stage and information obtained surgical resection and examination of the resected specimen
- Surgery must be performed before the initiation of system and/or radiation treatment
- From date of diagnosis:
  - Within 4 months after diagnosis
  - And includes any information obtained about the extent of the cancer up through completion of definitive surgery of the primary site if the surgery occurs later than 4 months after diagnosis and before disease progression

**Important:** If a patient receives neoadjuvant treatment before surgical resection do not qualify for pathological staging



# Post-Therapy or Neoadjuvant Timeframe

- After completion of neoadjuvant therapy, patients should be staged as:
- yc: post-therapy clinical
- After the completion of neoadjuvant therapy followed by surgery, the patient should be staged:
- yp: post-therapy pathological
- The time frame for post-therapy clinical and pathological should occur within the time frame that is outlined in the specific site chapters

**Important:** Clinical Time should be assigned before the start of neoadjuvant therapy and adheres to the same 4 month after diagnosis or until disease progression rule



# Progression of Disease

- If there is documented progression of disease:
- Only information obtained *before* progression can be used for clinical and pathological staging
- Progression does not mean growth during the time needed to fully diagnose
  - Cancer does not stop growing once it is discovered
  - Progression does not mean after the diagnosis of the primary tumor, lymph nodes and mets are diagnosed in a separate scan or procedure
  - A full and complete clinical workup does not happen in a day
- Progression refers to a major change in the clinical status
  - Progression is determined by the managing physician's judgement
  - This may result in a major change in the treatment plan



# TNM Uncertainty

- When uncertainty exists when assigning a category, subcategory or stage group
  - Assign the lowest of the two possible choices for
    - TNM
    - Stage Group
- When there are uncertainties:
  - Review the patient records for additional information
  - Approach managing physician for clarity and document in text
- **Important:** Unknown or missing information for TNM or stage group is never assigned the lowest possible choice.
  - **Stage what you know!**



# Prognostic Factors Unavailable

- If the required prognostic factor category is unavailable:
- The category used to assign stage group is:
  - X
  - If the prognostic factor is unavailable, default to assigning the anatomic stage using clinical judgement
    - What does this mean:
      - **Example:** Breast
        - If grade is not known however, the known TNM categories along with known HER2, ER and PR results would stage to the exact same stage group, whether grade was G1, G2 or G3, go ahead and assign the stage because the unknown grade has no impact on stage group



# Grade

- The recommended histological grading system for each disease site and/or cancer type is specified in each chapter
- These grading systems should be used by the pathologist to assign grade
- Grade should be assigned for a specific site according to the coding structure of the disease chapter
- Always document in the text how grade was assigned



# Unknown Primary

- If there is no evidence of a primary tumor or the site of the primary tumor is unknown:
- Staging may be based on the clinical suspicion of the organ site of the primary tumor
  - T category will be assigned T0
  - Rules for assigning T0 are specified in the relevant site chapters



# Date of Diagnosis

- It is important to document the date of diagnosis:
  - The date of diagnosis is the date the physician determines the patient has cancer
  - It is used to calculate timeframes
  - It is used for survival analysis



# Highest T and Highest N Value

If the primary tumor and /or regional nodes cannot be removed or it is clinically not indicated to remove them:

- Can be Pathologically staged *if*:
  - Highest T value microscopically confirmed
- **AND**
  - Highest N value microscopically confirmed
- Both T and N
  - Must be the highest assigned value for that site
  - Must be microscopically confirmed highest
- Cannot be based on physical exam or imaging



Don't worry, we will go over additional AJCC coding during the site reviews for:

- Breast
- Colon
- Lung
- Prostate

**Questions?**