OBJECTIVES

• Recognize general difference between 7th ed. & 8th ed.
• Understand how 8th edition is formatted & organized
• Comprehend & define basic AJCC cancer staging nomenclature
• Review & understand criteria for staging classification rules
• Recognize & define new general guidelines and rules
• Consider how changes affect 2018 registry coding
WHAT’S NEW & DIFFERENT IN THE 8TH EDITION

Summary of General Changes
8th Edition Updates

- Standard format outline for all chapters
- Updated Chapter 1 staging guidelines & rules
- Revised staging systems in several chapters
- Outlined histologic classifications & grading systems
- Defined WHO histology codes
- Additional illustrations throughout
New Paradigms

• HPV staging system for Oropharynx
• Separate posttherapy staging system for Esophagus & Stomach
• Sarcoma & Neuroendocrine staging systems based on anatomical site
• Introduction of H category (heritable trait) for Retinoblastoma
New Features

• Defined levels of evidence for staging system changes
• Imaging guidelines for each disease site chapter
• Risk Assessment Models for select disease sites
• Categorized prognostic factors
  • Required for staging
  • Recommended for clinical care
New Site Chapters

• Cervical Nodes w/Unknown Head/Neck primary
• HPV+ Oropharynx
• Head & Neck Cutaneous Carcinoma
• Thymus
• Parathyroid
• Leukemia
8TH EDITION CHAPTER CHANGES

• **Bone**: No stage group for spine (C41.2) or pelvis (C41.4)
• **Soft Tissue Sarcoma**: Split into separate chapters per primary site
• **Pharynx**: Split into three chapters – HPV+ Oropharynx, HPV- Oropharynx & Hypopharynx, and Nasopharynx
• **Pancreas**: Now chapter for Exocrine histologies only
8th Edition Chapter Changes

- **Neuroendocrine Tumors**: Split into separate chapters per primary site
- **Thyroid**: Split into two chapters – medullary & non. In Endocrine section.
- **Ovary, Fallopian Tube & Primary Peritoneal**: Chapters merged into one
- **Deleted**: Staging for cutaneous carcinoma sites C44.5-C44.7
8TH EDITION CHAPTER FORMAT

Chapter Organization Highlights
GENERAL CHAPTER OUTLINE
14 SECTIONS

- Chapter Summary
- Introduction
- Anatomy
- Rules for Classification
- Prognostic Factors
- Risk Assessment Models
- Definitions of TNM

- AJCC Prognostic Stage Groupings
- Registry Data Collection Variables
- Histologic Grade
- Histopathologic Type
- Survival Data
- Illustrations
- Bibliography
Matrix Table Color Codes

• **GRAY:** Informational data. Defines related topography, histology & grading codes
• **BLUE:** $T$ category definitions
• **YELLOW:** $N$ category definitions
• **GREEN:** $M$ category definitions
• **PURPLE:** Required SSF for stage
• **ROSE:** AJCC Prognostic Stage Groups
KEY CHAPTER ELEMENTS

- **Chapter Summary**
  - What is and is not staged using the chapter
  - Summary of changes
  - Applicable topography & histology codes

- **Anatomy**
  - Regional lymph nodes & common metastatic sites

- **Rules for Classification**
  - Site specific rules impacting category & stage classification
  - Site specific guidelines for the use of imaging in category & stage classification
KEY CHAPTER ELEMENTS

• Prognostic Factors
  • Factors required for staging
  • Factors recommended for clinical care
  • Emerging factors – Web Only

• Registry Data Collection Variables
  • List of site specific elements recommended for collection by registry

• Anatomy & Staging Illustrations
  • Updated & enhanced illustrations throughout chapters
STAGING STRUCTURE NOMENCLATURE

pT1c(m) pN1a(sn) cM0 IIIA G3 R1

• Classification
• Category
• Subcategory
• Stage Descriptors
• Prognostic Stage Group
• Prognostic Factors (SSF)/Histologic Descriptors
\[ \text{pT1c(m) pN1a(sn) cM0 IIIA G3 R1} \]

**Classification**

- Describes defined points in time during cancer care
- Also called staging windows
- Documented as lower case prefix prior to category
- Five TNM Staging classifications
  - \( c\text{TNM} \) = clinical
  - \( p\text{TNM} \) = pathological
  - \( yc/yp\text{TNM} \) = posttherapy
  - \( r\text{TNM} \) = recurrence/progression posttherapy
  - \( a\text{TNM} \) = autopsy
pT1c(m) pN1a(sn) cM0 IIIA G3 R1

Category
• Describes the three main anatomic components of stage
• T = tumor extension
• N = regional lymph node involvement
• M = distant metastatic involvement
• Composed of a capital letter describing anatomic category and a number defining extent of disease as defined by chapter criteria
• Should not be referred to as “stage” (ie: T stage; N stage)
pT1c(m) pN1a(sn) cM0 IIIA G3 R1

Subcategory

- Some disease sites use subcategories for more detailed reporting
- Subcategories are added immediately to the right of the category number
- Most are usually in the form of a lower case letter(s) sometimes followed by another number – pT1c3
- Exception: Subcategories notating ITC’s & CTC’s are in the form of parenthesis & plus sign – pN0(mol+) or cM0(i+)
  - Note: Do not confuse ITC subcategory as staging descriptor as the distinction only applies to certain sites
pT1c(m) pN1a(sn) cM0 IIIA G3 R1

**Staging Descriptors**

- Lower case suffix to relay supplemental information for any site
- May be added in parenthesis to the right of the appropriate category or subcategory
- Three defined suffix **stage descriptors**
  - (m) – Used in the T category to define multiple invasive tumors
  - (sn) – Used in the N category to define sentinel lymph node excision as final LN procedure
  - (f) – Used in the N category to define FNA OR core biopsy as final LN procedure
pT1c(m) pN1a(sn) cM0 IIIA G3 R1

Prognostic Stage Group

• The calculated prognostic designation group derived from aggregate classification, category, subcategory and site specific factor information

• TNM categories, classifications, & required SSF must be defined with known values to assign most Stage Groups

• Composed of Roman Numerals and sometimes an uppercase letter(s) immediately to the right

• Also called “Stage Group” or simply “Stage”
pT1c(m) pN1a(sn) cM0 IIIA G3 R1

Prognostic Factors (SSF)/Histologic Descriptors

• Data items sometimes required to assign stage group or included for general information

• No formal direction on how to incorporate SSF in typical AJCC stage format

• Uppercase letter(s) often used to describe grading, residual disease, or other important prognostic factors specific to disease site
  • G = Grade
  • R = Residual tumor
  • LVI = Lymph-vascular invasion
CLINICAL CLASSIFICATION: DEFINED

- **Time frame**: Date of diagnosis to start date of treatment or 4 months from date of diagnosis whichever is shorter
- **Criteria**: Cancer must be identified prior to any treatment
- **Designation**: c prefix: cT, cN, cM0, cM1 or pM1; TNM
  - Note: unassigned prefix is also considered clinical classification
- **Based on**: H&P; Imaging; Endoscopy; Biopsy; Excision of LN w/o primary site surgery; Surgical exploration w/o resection; etc..
Every cancer suspected prior to treatment can and should be clinically staged.

Incidental findings at the time of resection are not eligible for clinical classification and should not be clinically staged retrospectively.

Clinical stage should never be updated or changed based on surgical resection finding or clinical information obtained after the start of treatment.
CLINICAL CLASSIFICATION: T CATEGORY

• When assigning tumor size for **clinical T category** refer to the “Imaging” section of each chapter for guidance as to which imaging technique(s) are most accurate.

• Microscopic assessment that defines highest **T category**, without resection, is to be assigned **cT** rather than **pT**.

• In situ disease found on diagnostic work-up biopsy is assigned a **clinical classification** for the **T category**: **cTis**.
**CLINICAL CLASSIFICATION: N CATEGORY**

- **Clinical nodal category cN0** may be assigned based only on physical exam – imaging NOT required.

- Microscopic assessment of regional lymph nodes during diagnostic workup is assigned **clinical classification, cN**

- Microscopic assessment that defines highest **N category**, without primary site resection, is to be assigned **cN** rather than **pN**
  - Includes: FNA, core biopsy, incisional biopsy, excisional lymph node biopsy or sentinel lymph node procedure
CLINICAL CLASSIFICATION: M CATEGORY

• Only physical exam needed to assign M category
• Terms pM0 and MX are not valid category classifications
• Clinical M classification may be assigned as cM0, cM1, or pM1, with the addition of subcategories if applicable
• CTC’s or DTC’s detected by IHC or molecular studies is assigned cM0(i+) for special designated sites
• Any microscopic evidence of metastatic disease is classified as pM1
• Assignment of pM1 allowed in both clinical and pathologic Stage IV designation
PATHOLOGICAL CLASSIFICATION: DEFINED

- **Time frame**: Date of diagnosis through surgical resection in the absence of progression
- **Criteria**: Surgery is first therapy and resection meets defined site specific *pathological classification* requirements
- **Designation**: *p* prefix: *pT*, *pN*, *cM0*, *cM1* or *pM1*
- **Based on**: *Clinical stage* information supplemented and/or modified by operative findings and pathological evaluation of resected tumor
PATHOLOGICAL CLASSIFICATION: STAGE

• Surgical resection criteria of the disease site must be met in order to assign a **pathological stage**

• Imaging studies performed after surgery may be included in **pathologic stage** if performed within 4 month window

• Two ways for **pathological stage** without primary resection
  • Microscopically confirmed metastatic disease
  • Microscopically confirmed highest T AND highest N categories
PATHOLOGICAL CLASSIFICATION: T CATEGORY

• The final \textit{pT category} should be assigned by managing physician taking clinical, pathologic and intraoperative findings all into account.

• If tumor resected in multiple specimens a reasonable estimate of size & extension should be made in accordance with CAP guidelines.

• \textit{T category} for palliative resections with gross residual disease should be based on all available clinical & pathological information.
PATHOLOGICAL CLASSIFICATION: T CATEGORY

• Primary tumor that directly extends into an adjacent organ is considered part of T category

• Pathological T category may be assigned without tumor resection if biopsy proves highest pT category
  • Note: Pathological stage may only be assigned if highest pN criteria met as well

• A cTis may be assigned as the pathologic T category of pTis when there is no residual tumor on resection
PATHOLOGICAL CLASSIFICATION: N CATEGORY

• If $pT$ available (resection) than any microscopic evaluation of LN is classified $pN$ – minimal FNA cytology of LN required

• If no microscopic exam of LN than $pN$ cannot be assigned

• Primary tumor that directly invades a regional lymph node is considered part of the $pN$ category

• Microscopic examination of regional lymph nodes during diagnostic work-up classified as $cN$ will be classified as $pN$ after primary surgical resection
PATHOLOGICAL CLASSIFICATION:
N CATEGORY

• FNA/Core Bx performed without full nodal dissection should have \( (f) \) staging descriptor suffix assigned – \( pN1(f) \)

• Sentinel Lymph Node procedures performed without full nodal dissection should have \( (sn) \) staging descriptor suffix assigned – \( pN1(sn) \)

• When complete nodal dissection is performed no staging descriptor suffix should be assigned – \( pN1 \)
PATHOLOGICAL CLASSIFICATION: N CATEGORY

• If recommended minimum number of lymph nodes are not removed pathologic classification should still be assigned to N category based on whatever number LN reported
  • Ex: Only 5 regional LN removed at colon resection & all are negative – assign as pN0

• In special site specific cases where lymph nodes involvement is rare, assignment of cN0 may be used as part of pathological stage group classification as defined by site chapter
  • Ex: Early T1 melanoma maybe assigned cN0 as part of pathological stage – pT1a cN0 cM0 IA
PATHOLOGICAL CLASSIFICATION: M CATEGORY

• Only physical exam needed to assign M category
• Terms pM0 and pMX are not valid category classifications
• **Pathological M classification** may be assigned as cM0, cM1, or pM1, with the addition of **subcategories** if applicable
• Any microscopic evidence of metastatic disease is classified as pM1
• Assignment of pM1 allows for both **clinical** and **pathologic** Stage IV designation
POSTTHERAPY CLASSIFICATION: DEFINED

Posttherapy = ycTNM

- **Time frame**: After primary systemic or RT therapy, but before or without surgical resection
- **Criteria**: Completion of first course systemic/RT therapy
- **Designation**: yc prefix - ycT, ycN, cM0, cM1 or pM1
- **Based on**: H&P; Imaging; Endoscopy; Biopsy; Excision of LN w/o primary site surgery; Surgical exploration w/o resection; etc..
POSTTHERAPY CLASSIFICATION: DEFINED

Post Neoadjuvant Therapy = ypTNM

- **Time frame**: After neoadjuvant therapy & primary resection
- **Criteria**: First course systemic/RT therapy followed by primary site surgery
- **Designation**: yp prefix - ypT, ypN, cM0, cM1 or pM1
- **Based on**: Posttherapy yc stage info, supplemented by operative findings & pathological exam of resected specimen
POSTTHERAPY CLASSIFICATION: STAGE

• Post neoadjuvant therapy stage should be documented for all patients so as to better analyze treatment response.

• Patients with complete path response should be assigned: \( \text{ypT0 \ ypN0 \ cM0 \ Stage \ 99} \)

• The M category classification remains as documented in the initial clinical stage group: \( \text{ypT1 \ ypN0 \ cM0 \ Stage \ I} \)
**POSTTHERAPY CLASSIFICATION: M CATEGORY**

- **M category** for *posttherapy classification* remains the same as initially assigned for *clinical stage classification*.

- If cM1 prior to therapy and no evidence of distant disease posttherapy the *category classification* would remain cM1.

- *Posttherapy classification* of M NEVER includes a y prefix may only be assigned as cM0, cM1, or pM1, with the addition of *subcategories* if applicable.
RECURRENCE CLASSIFICATION: DEFINED

Recurrence = rTNM

- **Time frame**: From identification of recurrence or progression until new treatment initiation
- **Criteria**: Disease recurrence after disease free interval OR obvious disease progression
- **Designation**: r prefix - rcT, rpT, rcN, rpN, rcM0, rcM1 or rpM1
- **Based on**: rc classification includes only clinical information prior to treatment. rp classification includes both clinical & pathological resection info
RECURRENT CLASSIFICATION: GUIDELINES

- Recurrence classification staging is separate from clinical and pathologic stage.
- Initial clinical and/or pathologic stage should never be altered based on recurrence or progression.
- Recurrence stage should always be documented if applicable even if retreatment is not planned.
- rc classification is based on clinical H&P and imaging.
- rp classification is based on rc stage info supplemented or modified by operative findings & path eval of resected specimen.
Autopsy Classification: Defined

**Autopsy** = aTNM

- **Time frame**: At death
- **Criteria**: Incidental finding at autopsy and cancer NOT clinically suspected prior to death
- **Designation**: a prefix - aT, aN, and aM
- **Based on**: All clinical and pathological information obtained at time of death and via postmortem exam
PROGNOSTIC STAGE GROUPS: CLASSIFICATION GUIDELINES

• Stage group classification is defined by T category prefix
• Minimally clinical stage groups should be assigned for each cancer case
• Pathological or posttherapy stage groups should be assigned as appropriate for cases with surgical resection
• Site specific staging groups are comprised of the following possible category classification designations
  • Clinical – cT cN cM or pM
  • Pathological – pT pN cM or pM
  • Posttherapy – ypT ypN cM or pM
  • Site Specific Staging – may include combination of both category classifications as outlined in disease chapter
PROGNOSTIC STAGE GROUPS: CLASSIFICATION GUIDELINES

• Site specific **category classifications** must be met in order to properly assign **stage group**
  • Example: Must have \( pT \) and \( pN \) to assign Pathologic stage group
• Microscopic evidence of distant disease should be documented as \( pM1 \) with an automatic **pathological Stage IV classification** regardless of primary site surgery
• **Pathological staging classification** may be assigned without primary surgery if BOTH the highest \( T \) AND highest \( N \) **categories** have been defined microscopically
  • Example: Lung cancer patient with positive carina bx AND positive supraclavicular bx – \( pT4 \) \( pN3 \) \( cM0 \) Stage IIIC
PROGNOSTIC STAGE GROUPS: IN SITU (TIS) GUIDELINES

• Microscopically confirmed in situ diagnosed during initial work up prior to resection is now classified as cTis and is eligible for clinical stage group 0 – cTis cN0 cM0 Stage 0

• Primary tumor surgical resection criteria for pathologic stage must be met in order to assign pTis

• Microscopic lymph node evaluation is NOT needed to assign pathologic Stage 0 – pTis cN0 cM0 Stage 0

• Rare cases of in situ primary with regional lymph node mets should be recorded as: Tis N1-3 M0 Stage 99
PROGNOSTIC STAGE GROUPS: CATEGORY GUIDELINES

• **Stage group** tables showing only main categories do not require subcategory designation for staging.

• If subcategories are specifically listed in stage group table then a known subcategory is required to assign the stage group.

• Generally stage groups cannot be assigned if the T or N category are unknown or X.
  - Exceptions: Defined M1 disease is automatically Stage IV.
    - Staging groups that define Any T or Any N with M0 ie: Intrahepatic Bile Duct - cTX cN1 cM0 Stage IIB.
PROGNOSTIC STAGE GROUPS: SSF GUIDELINES

• If required staging prognostic SSF is unknown or X the patient may still be assigned a stage group ***
  • Stage group is assigned based on SSF X designation, if applicable in stage group table
  • If SSF X designation is not applicable then managing physician may assign stage group anatomically by default using clinical judgement ***

• ***Uncertainty Rule: Does not apply to registry data collection. If SSF are required for stage group & are unknown the registrar should assign Stage 99
UNCERTAINTY RULE: CLINICIANS

• If *subcategory* is uncertain, code to *general category*

• If uncertain *subcategory* is required to determine *stage group*, assign the lower or less advanced *subcategory*

• For sites where *SSF* are used to assign *stage groups* a separate *stage group* may be assigned based solely on anatomic *categories* when *SSF* are unknown
UNCERTAINTY RULE: CANCER REGISTRY

• If **subcategory** is uncertain, code to **general category**

• If uncertain **subcategory** is required to determine **stage group**, document the **stage group 99**

• If uncertain **SSF** is required to determine **stage group**, document the **stage group 99**
UNKNOWN PRIMARY: GUIDELINES

• If no evidence of primary tumor, **stage** may be based on clinical suspicion of primary organ

• **Categorize** tumor as **T0**

• **Stage** according to relevant disease chapter

• **Exception:** **T0** is not used for SQCCCA head & neck sites. Those tumors are now **staged** using new “Cervical Nodes & Unknown Primary Tumors of Head and Neck” system – Chapter 6
MULTIPLE TUMORS: GUIDELINES

• Use the (m) stage descriptor suffix for the T category when there are multiple invasive tumors of same histology in the same organ  Ex: pT2(m) pN0 cM0 II

• In some cases the actual number of tumors might be displayed in the stage descriptor  Ex: pT2(2) pN0 cM0 II

• DO NOT use the multiplicity stage descriptor for multiple in situ tumors
PROGRESSION OF DISEASE: GUIDELINES

• If there is documented progression prior to treatment, only information prior to progression can be used to assign stage

• Progression DOES NOT include interval growth during diagnostic work-up

• Progression is a major change in clinical status based on managing physician judgement that may result in treatment plan change
REGIONAL LYMPH NODES: REMINDERS

• Extranodal extension (ENE) is extension of nodal metastasis through lymph node capsule into adjacent tissues

• ENE is NOT considered distant metastasis and should be coded in the \textbf{N category}

• In rare cases when tumor involves more than one organ, the regional lymph nodes include the nodes of ALL involved structures
NEOADJUVANT THERAPY: REMINDERS

- Not all medications given to a patient prior to resection meet the criteria for neoadjuvant therapy.
- Short term endocrine therapy in breast or prostate cases given for variable or unconventional reasons, not intended to treat or shrink tumor, should not be categorized as neoadjuvant therapy.
- Neoadjuvant therapy will never impact **M category classification**.
- **M category** retains **classification & category** assigned at **clinical stage**.
SUMMARY
IMPORTANT TAKE AWAY POINTS

- New & revised chapters: Imaging & Registry sections
- Defined nomenclature of each staging element
- Classification defines a point in time
- Site specific chapter rules trump any general rules
- The documented T category classification defines the timing of stage group classification
- M category classifications are the same for both pathological and clinical staging: cM0 cM1 or pM1
IMPORTANT TAKE AWAY POINTS

- cTis cN0 cM0 Stage 0 is now a valid clinical stage
- Microscopic lymph node evaluation is NOT needed to assign pathologic Stage 0 – pTis cN0 cM0 Stage 0
- Microscopic examination of regional lymph nodes during diagnostic work-up are classified as cN & can only be classified as pN after primary surgical resection
- Document N category staging descriptors (f) or (sn) in pathological stage when LN dissection is not performed and LN were assessed microscopically.
• Unknown primaries may be staged based upon clinical suspicion of primary site and are assigned a T0 category
• Posttherapy classification does not apply to M category, clinical M category is retained for staging
• TNM categories, classifications, & required SSF must be defined with known values to assign most Stage Groups
• Uncertainty Rule regarding required subcategory and SSF does not apply to cancer registry data. Registry must code Stage Group 99
WHAT DOES THIS MEAN FOR REGISTRY DATA COLLECTION?

• How will staging elements be captured in the registry software?
• If we are directly coding AJCC stage who is our main standard setter now?
• How do we document physician staging classifications that might be deemed incorrect per site specific staging rules or the Uncertainty Rule?
• What other impacts on data collection will the 2018 changes have?
QUESTIONS & THANK YOU

All material within this presentation is taken from the following reference:

AJCC Cancer Staging Manual 8th Edition
Chapters 1 and 2
American Joint Committee on Cancer
Springer, 2017

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