CHAPTERS 1 & 2 SUMMARY REVIEW

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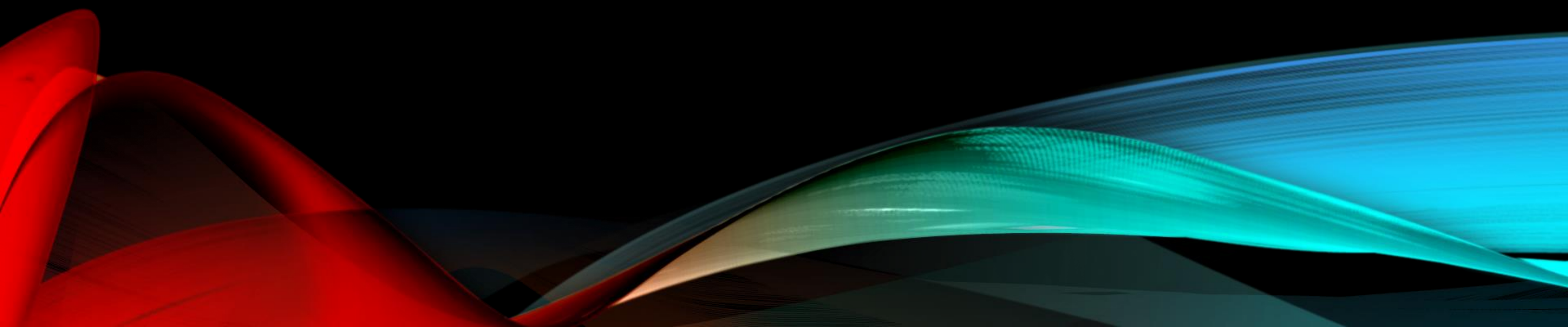
OBJECTIVES

- 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

8TH EDITION NEW STUFF

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

8TH EDITION NEW STUFF

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

8TH EDITION NEW STUFF

New Site Chapters

- Cervical Nodes w/Unknown Head/Neck primary
- HPV+ Oropharynx
- Head & Neck Cutaneous Carcinoma
- Thymus
- Parathyroid
- Leukemia

8TH EDITION CHAPTER CHANGES

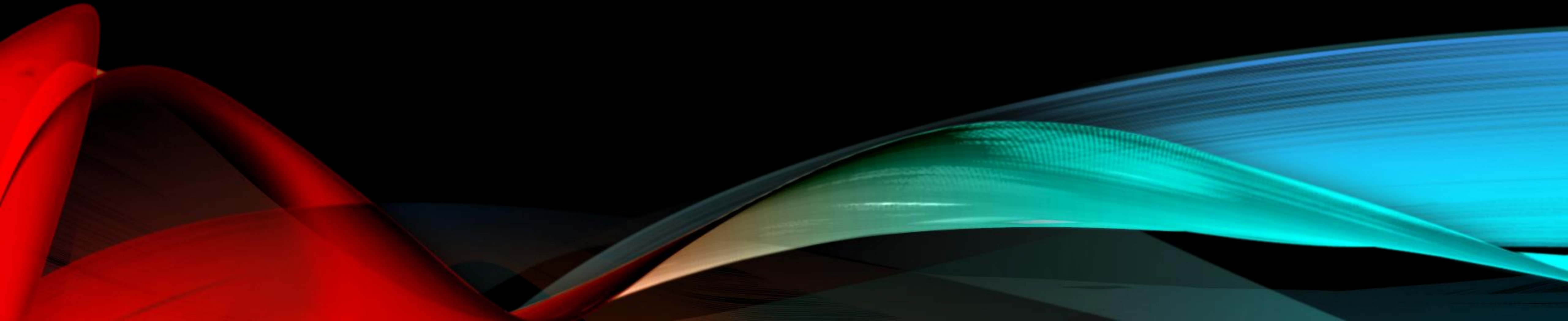
- **Bone**: No stage group for spine (C41.2) or pelvis (C41.4)
- **Soft Tissue Sarcoma**: Split into separate chapters per primary site
- **Pharynx**: Split into three chapters – HPV+ Oropharynx, HPV- Oropharynx & Hypopharynx, and Nasopharynx
- **Pancreas**: Now chapter for Exocrine histologies only

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 TABLES

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

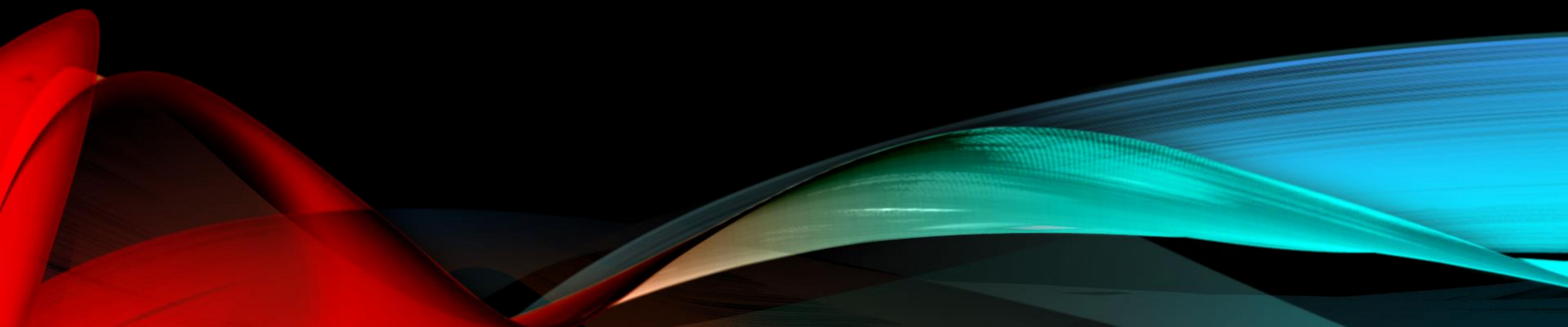
- **Chapter Summary**
  - What is and is not staged using the chapter
  - Summary of changes
  - Applicable topography & histology codes
- **Anatomy**
  - Regional lymph nodes & common metastatic sites
- **Rules for Classification**
  - Site specific rules impacting category & stage classification
  - 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

AJCC STAGING NOMENCLATURE

Defining and Understanding Elements of Stage



STAGING STRUCTURE NOMENCLATURE

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

- Classification
- Category
- Subcategory
- Stage Descriptors
- Prognostic Stage Group
- Prognostic Factors (SSF)/Histologic Descriptors

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**
  - **cTNM** = clinical
  - **pTNM** = pathological
  - **yc/ypTNM** = posttherapy
  - **rTNM** = recurrence/progression posttherapy
  - **aTNM** = 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 – pT1**c3**
- **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**"

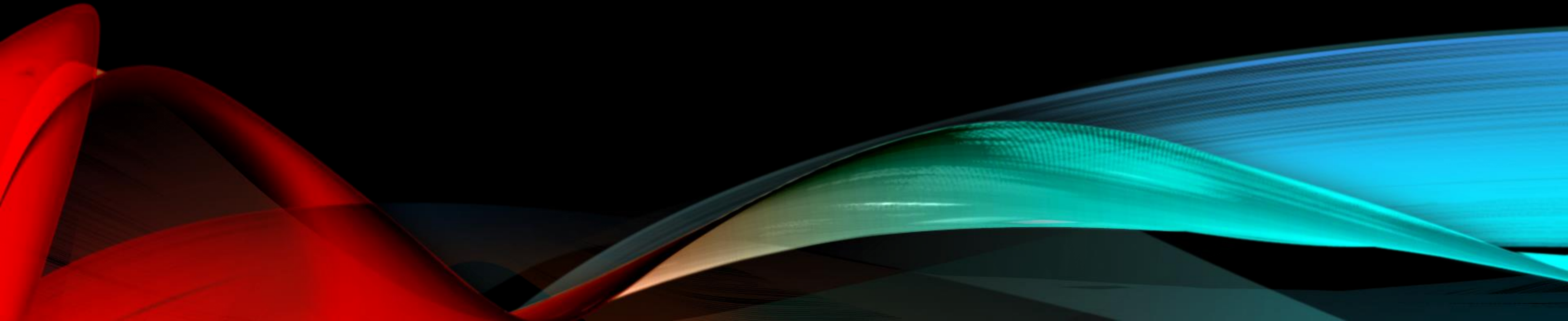
pT1c(m) pN1a(sn) cM0 IIIA **G3 R1**

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

STAGING CLASSIFICATION RULES & GUIDELINES

Timing is Everything



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..

CLINICAL CLASSIFICATION: STAGE

- 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 **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
- **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: **ypT0 ypN0 cM0 Stage 99**
- The **M category classification** remains as documented in the initial **clinical stage group**: **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

RECURRENCE 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**

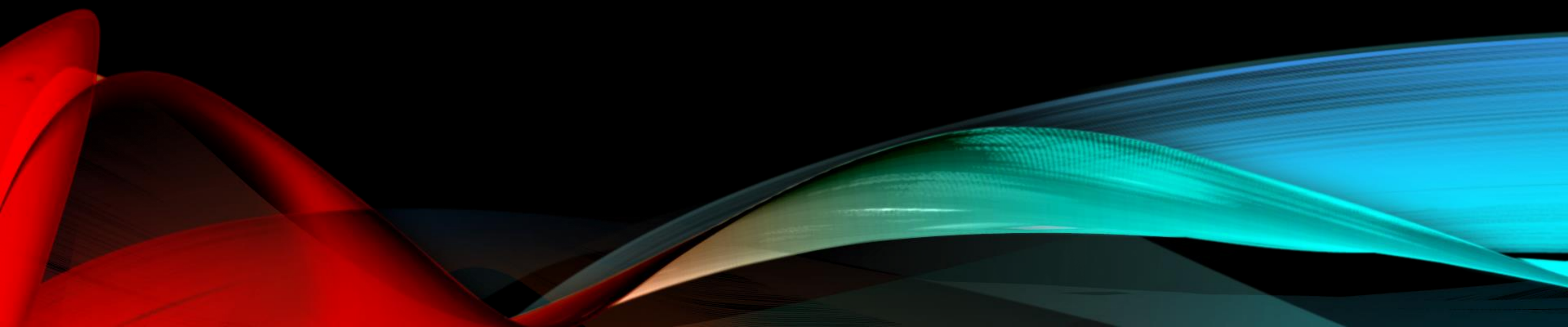
    Staging groups that define **Any T** or **Any N** with **M0** ie: Intrahepatic Bile Duct - **cTX cN1 cM0 Stage IIIB**

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**

AJCC 8TH EDITION GENERAL STAGING GUIDELINES & RULES

Setting the Foundation



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 SQCCA 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 **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.

IMPORTANT TAKE AWAY POINTS

- 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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