Learning Objectives

• Demonstrate purpose and approach to AJCC staging

• Examine format and expansion of Chapter 1

• Outline use of stage descriptors and guidelines

• Dissect 8th edition staging 1-page guide
### Purpose of AJCC Stage

- **Stage is for patient care**
  - Defines prognosis
  - Critical for appropriate treatment
- **Stage serves as basis for**
  - Clinical trial inclusion, exclusion, and stratification
  - Evaluate results of treatment
  - Facilitate exchange and comparison of info between registries
  - Clinical and translational cancer research
- **Cohesive approach to staging provides method for**
  - Clearly conveying clinical experience to others
  - Without ambiguity
  - At national and international levels

### Assigning AJCC Stage for Patient Care

- **Assigning AJCC stage for patient care**
  - Documenting in legal medical record
- **Role of managing physician**
  - Only managing physician may assign patient’s stage
  - Only person with access to all pertinent information
  - Only person who can synthesize array of physical exam & findings
- **Role of pathologist and radiologist**
  - Provide important T-, N-, and/or M-related information
  - May not assign stage
Assigning AJCC Stage in Registry

- Assigning AJCC stage for registry purposes
  - Recording stage in abstract database
  - MAY NOT document in legal medical record

- Role of cancer registrar
  - Documenting physician assigned stage in abstract database
  - Assigning AJCC stage in abstract database
  - When managing physician documented stage is not available
  - When only partial stage info available from physicians
  - Ensure all appropriate stage classifications in abstract
    - Clinical if cancer known prior to treatment
    - Either pathological or posttherapy based on qualifying treatment

Registry Specific AJCC Rules

- Cancer registry documentation and data
  - Specific registry guidelines throughout chapter 1
  - Document what is found
  - Do not adjust, interpret, change
  - Critical for researchers to have this unaltered data

- Rationale
  - Registry data affects future patient care
  - Altered data could negatively impact patient care

- Note to registrars on AJCC staging
  - Do not complete data items when info unclear or unavailable
  - Never prioritize completeness over accuracy

Format and Expansion – AJCC Chapter 1

- Chapter 1 “Principles of Cancer Staging”
  - New user-friendly format
  - Rules repeated so each staging classification has complete info
  - Provide examples and exceptions

- Comprehensive analysis of staging rules and nomenclature
  - AJCC-UICC Lexicon Project January 2012
  - Content Harmonization Core August 2014
  - Team of fifteen physicians
  - Line by line review over span of two years
  - Harmonization Summit September 2015
  - 60 physicians voted on rules, along with registrars
  - Resulted in expansion of chapter
  - Precise standardized definitions and rules for staging
  - Final chapter reviewed/edited by 7 physicians
AJCC Terminology

- **Stage**
  - Used only for aggregate information resulting from T, N, and M
  - Never individual categories (no T stage)
- **Classifications** – time point in patient’s care continuum
  - Time frame (staging window)
  - Criteria
- **Categories**
  - T, N, M
  - Prognostic factors required for stage group
- **AJCC Prognostic Stage Groups**
  - Stage groups or stage
  - Aggregate information

Aligning Registry Data Items with AJCC

Cohesive Approach to AJCC TNM

- Aligning registry data items with AJCC TNM system
  - Need cohesive approach to break down barriers
  - Allow registrar to document AJCC TNM without alteration
  - Plans presented to registry community
- **Existing differences hinder ability to communicate, affects**
  - Registrar and physician communication
  - Researchers utilizing national databases
  - Electronic exchange between systems

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### Registry Data Alignment with AJCC

- Facilitates communication with physicians & researchers
  - Use same language as AJCC
  - No more registry shorthand and storage codes
  - Examples from registrar questions & physicians
    - cT2 N2a M0
    - cT2 cN2a cM0

- All new AJCC 8th stage data items
  - Clinical
  - Pathological
  - Posttherapy

- Use format specified in AJCC manual, up to 15 characters
  - ypTis(DCIS)
  - pN0(m+0)
  - cM1b(0)
  - SC (only exception, do not use Roman numerals for group)

### Change in Registry Data Item for Descriptors

- Descriptor data item prior to 2018
  - Category suffix: (m)
  - Stage prefix: y
  - Stage group info for lymphoma: E, S

- Identified issues with descriptor data item
  - Confusing to mix disparate concepts in one data item
  - Poor compliance and inconsistent usage
  - Alter for 2018 by creating new items or merging into existing

- Transformation for 2018
  - Developed new suffix data items for T and N
  - Shifted stage prefix to new yp stage data items
  - Incorporated E into stage group, S no longer used

### New Stage Data Items

- **CLINICAL STAGE**
  - Clin T
  - Clin T suffix
  - Clin N
  - Clin N suffix
  - Clin M
  - Clin Grade
  - Clin Stage Group
  - Staged by

- **PATHOLOGICAL STAGE**
  - Path T
  - Path T suffix
  - Path N
  - Path N suffix
  - Path M
  - Path Grade
  - Path Stage Group
  - Staged by

- **POST THERAPY STAGE**
  - Post Therapy T
  - Post Therapy T suffix
  - Post Therapy N
  - Post Therapy N suffix
  - Post Therapy M
  - Post Therapy Grade
  - Post Therapy Stage Group
  - Staged by
Additional Staging Descriptors and Guidelines

**N Suffix**

- N suffix for method of nodal assessment
  - Applies to all stage classifications
  - Indicates limited nodal information
  - Not used if further procedures performed within stage classification

- Type of nodal assessment has
  - Implications for completeness of review
  - May affect N category assignment

- N suffix choices
  - FNA or core needle biopsy
  - Sentinel node procedure

- Applies to all disease sites

**N Suffix: (sn)**

- (sn) sentinel node procedure indication

- Clinical staging use
  - Diagnostic workup & before definitive surgical treatment
  - cN1–3(sn)

- Pathological staging use
  - Part of initial surgical management
  - pN1–3(sn)
  - Note: suffix NOT used if completion lymph node dissection performed as component of initial surgical management
N Suffix: (f)

- (f) FNA or core needle biopsy of node indication
- Clinical staging use
  - Diagnostic workup before treatment
  - cN1–3(f)
- Pathological staging use
  - Part of primary site surgical resection
  - pN1–3(f)
  - Note: suffix NOT used if subsequent completion lymph node dissection as component of initial surgical management

New Registry Data Item for N Suffix

- N suffix – 3 new data items
  - cN suffix
  - pN suffix
  - ypN suffix
- N suffix coding
<table>
<thead>
<tr>
<th>code</th>
<th>label</th>
<th>description</th>
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</thead>
<tbody>
<tr>
<td>sn</td>
<td>(sn)</td>
<td>Sentinel node procedure without resection of nodal basin</td>
</tr>
<tr>
<td>f</td>
<td>(f)</td>
<td>FNA or core needle biopsy without resection of nodal basin</td>
</tr>
<tr>
<td>blank</td>
<td></td>
<td>No suffix needed or appropriate; not recorded</td>
</tr>
</tbody>
</table>

New Registry Data Item for T Suffix

- T suffix – 3 new data items
  - cT suffix
  - pT suffix
  - ypT suffix
- T suffix coding
<table>
<thead>
<tr>
<th>code</th>
<th>label</th>
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<tbody>
<tr>
<td>m</td>
<td>(m)</td>
<td>Multiple synchronous tumors OR For thyroid differentiated and anaplastic only, Multifocal tumor</td>
</tr>
<tr>
<td>s</td>
<td>(s)</td>
<td>For thyroid differentiated and anaplastic only, Solitary tumor</td>
</tr>
<tr>
<td>blank</td>
<td></td>
<td>No information available; not recorded</td>
</tr>
</tbody>
</table>
### Guidelines – Unknown Primary Site

- **No primary tumor evidence, but** anatomic site suspected
- **Not used if origin cannot be determined, no site information**
  - **cT0**
    - Primary tumor not identified on
      - Physical exam
      - Imaging
      - Endoscopy
      - Other diagnostic procedures
  - **pT0**
    - No evidence of primary tumor identified
      - After surgical resection of suspected primary tumor, and
      - Never identified on biopsy

### Grade in AJCC 8E

- Recommended grading system specified in each chapter
  - Grading system to be used by pathologist and
  - Documented in cancer registry
- **Cancer registry**
  - **Must** record grade as specified in disease site chapter
  - According to rules only in chapter 1 and disease site chapter
  - Do **NOT** use registry rules for new (AJCC) grade data item

### Grade Problems and Solution

- **Grade data unusable** in many sites by AJCC experts
  - Inconsistent grading systems used
  - Data coding rules conflicted with physician guidance
- **New** grade data items for each stage classification
  - Incorporates both AJCC and standard registry coding
  - Prioritizes AJCC specified grade
  - Provides standard registry grade when AJCC not applicable
  - Grade tables specific for each disease site
  - Grade system based on prognostic significance
- **Grade coding rules**
  - Approved by AJCC and pathologists
  - Medically accurate
  - Follows AJCC 8th edition Chapter 1
Comparison of Pathology Grading Systems

<table>
<thead>
<tr>
<th>3-Grade System</th>
<th>4-Grade System</th>
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</thead>
<tbody>
<tr>
<td>GX: Cannot be assessed</td>
<td>GX: Cannot be assessed</td>
</tr>
<tr>
<td>G1: Well differentiated</td>
<td>G1: Well differentiated</td>
</tr>
<tr>
<td>G2: Moderately differentiated</td>
<td>G2: Moderately differentiated</td>
</tr>
<tr>
<td>G3: Poorly differentiated, Undifferentiated</td>
<td>G3: Poorly differentiated</td>
</tr>
<tr>
<td>G4: Undifferentiated</td>
<td></td>
</tr>
</tbody>
</table>

Pathology Criteria for Grading Systems

- G1 criteria identical in 3- & 4-grade systems
- G2 criteria identical in 3- & 4-grade systems
- G3 and G4
  - 4-grade system distinguishes criteria, separates
  - 3-grade system does not distinguish or too subtle, groups together
- Grading systems based on
  - Prognostic significance
  - Reproducible between pathologists

<table>
<thead>
<tr>
<th>3-grade system coding</th>
<th>4-grade system coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>9</td>
<td>Grade cannot be assessed (GX); Unknown; Not applicable</td>
</tr>
</tbody>
</table>

New Cancer Registry Grade Data Item

<table>
<thead>
<tr>
<th>G Definition</th>
<th>G Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: G1: Well differentiated</td>
<td></td>
</tr>
<tr>
<td>2: G2: Moderately differentiated</td>
<td></td>
</tr>
<tr>
<td>3: Grade cannot be assessed (GX); Unknown; Not applicable</td>
<td></td>
</tr>
<tr>
<td>4: G4: Undifferentiated</td>
<td></td>
</tr>
<tr>
<td>9: G3: Poorly differentiated</td>
<td></td>
</tr>
</tbody>
</table>

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Breast Grade

**G: Definition**

1. G1: Low combined histologic grade (favorable), SBR score of 3–5 points
2. G2: Intermediate combined histologic grade (moderately favorable); SBR score of 6–7 points
3. G3: High combined histologic grade (unfavorable); SBR score of 8–9 points

L
- Nuclear Grade I (Low) (in situ only)

M
- Nuclear Grade II (InterMediate) (in situ only)

H
- Nuclear Grade III (High) (in situ only)

A
- Well differentiated

B
- Moderately differentiated

C
- Poorly differentiated

D
- Undifferentiated, anaplastic

G
- Grade cannot be assessed (GX); Unknown; Not applicable

Grade for Each Stage Classification

- Grade needed for each stage classification
  - Document, even if grade not needed for stage group
  - Critical to provide information for each, not always the same
  - Follows same timeframe and criteria rules as stage

- Grade data items
  - Grade clinical – all patients if cancer known prior to treatment
  - Grade pathological – primary treatment is surgical resection
  - Grade posttherapy – neoadjuvant followed by surgical resection

- Patients will have only 1 or 2 grades coded, never all 3

LVI: Lymphovascular Invasion

- LVI further refined for 8th edition
  - Critical to know each component in some disease sites
  - Chapter will specify use of LVI vs. L, V, both L & V

<table>
<thead>
<tr>
<th>Component of LVI coding</th>
<th>Description</th>
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<tbody>
<tr>
<td>0</td>
<td>LVI not present (absent)</td>
</tr>
<tr>
<td>1</td>
<td>LVI present/identified, NOS</td>
</tr>
<tr>
<td>2</td>
<td>Lymphatic and small vessel invasion only (L)</td>
</tr>
<tr>
<td>3</td>
<td>Venous (large vessel) invasion only (V)</td>
</tr>
<tr>
<td>4</td>
<td>BOTH lymphatic and small vessel AND venous (large vessel) invasion</td>
</tr>
<tr>
<td>9</td>
<td>Presence of LVI unknown/indeterminate</td>
</tr>
</tbody>
</table>
AJCC 8th Edition Staging

- Rules and associated rationale for Eighth Edition AJCC
- General rules described in AJCC Chapter 1
- Refer to relevant disease site chapters
  - Specific allowable disease site differences
  - Stage differences necessary for appropriate medical care of patient

KEY TERMINOLOGY

- Classifications
  - Describes points in time of care of cancer patient
  - Criteria: timeframe & specific medical assessments/practices
- Categories
  - T, N, M
  - Any non-anatomic factors needed to assign stage group
- Stage group
  - Easily communicated summary of categories
  - Groups patients with similar prognosis
- Assigning stage
  - AJCC stage assigned by managing physician
  - Based on data from all relevant sources

CLINICAL STAGING CLASSIFICATION RULES

- General: clinical classification
  - From date of diagnosis until definitive treatment, or within 4 months
- T category
  - Hx, symptoms, phy exam, labs, imaging, endoscopy, bx, surg exp
- N category
  - Phy exam, imaging, FNA/core needle bx, excisional bx, sentinel node bx
- M category
  - Clinical history, physical exam, imaging, FNA/biopsy
- Rationale
  - Diagnostic bx of primary/nodes/distant mets = clinical classification
  - Path report on biopsy is not pathological staging
  - cN even if based on lymph node bx
  - Clinical M category is
    - cM if based on history, physical exam and imaging
    - pM1 if based on biopsy proven involvement
PATHOLOGICAL STAGING CLASSIFICATION RULES

- General: pathological classification
  - Clinical stage, op findings, path report resected specimen
- T category
  - Must meet definitive surgical treatment specified in chapter
- N category
  - Microscopic assessment of 1 node required, include imaging & dx bx
- M category
  - History, physical exam, imaging, FNA/biopsy, resection
- Rationale
  - Include all findings even if not microscopically proven
  - Pathological staging based on synthesis of all info
  - Not solely on resected specimen pathology report
  - Pathologist cannot assign final stage
  - Pathological M category is
    - cM if based on physical exam and imaging
    - pM1 if based on bx proven involvement, "pM0" NOT a valid category

POST NEOADJUVANT THERAPY STAGING CLASSIFICATION RULES

- yc Clinical
  - Includes physical exam and imaging assessment
  - After neoadjuvant systemic/radiation therapy
- yp Pathological
  - Includes all information from yc staging,
  - Surgeon’s operative findings and
  - Pathology report from resected specimen
Summary

- Identify purpose and cohesive approach to AJCC staging
- Navigate new format and expansion of Chapter 1
- Comprehend use of stage descriptors and guidelines
- Identify key information of 8th edition staging 1-page guide

Eighth Edition Webinar Schedule

<table>
<thead>
<tr>
<th>Webinar Topic</th>
<th>Date</th>
<th>Time</th>
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<tbody>
<tr>
<td>Introduction &amp; Descriptors</td>
<td>Thursday, December 7, 2017</td>
<td>1 pm – 2 pm CST</td>
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<tr>
<td>Minor Rule Changes</td>
<td>Thursday, February 15, 2018</td>
<td>1 pm – 2 pm CST</td>
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<td>Major Rule Changes</td>
<td>Tuesday, March 20, 2018</td>
<td>1 pm – 2 pm CDT</td>
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<tr>
<td>CAnswer Forum &amp; Staging Questions</td>
<td>Tuesday, April 17, 2018</td>
<td>1 pm – 2 pm CDT</td>
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<tr>
<td>Head and Neck Staging</td>
<td>Wednesday, July 25, 2018</td>
<td>1 pm – 2 pm CDT</td>
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<tr>
<td>Breast Staging</td>
<td>Thursday, September 6, 2018</td>
<td>1 pm – 2 pm CDT</td>
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Webinar Schedule – NPCR ETCs

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<tr>
<td>Introduction &amp; Descriptors</td>
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<td>Thursday, Feb 8, 2018</td>
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<tr>
<td>Major Rule Changes</td>
<td>Wednesday, Mar 14, 2018</td>
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<td>CAnswer Forum &amp; Staging Questions</td>
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<td>1 pm – 2:30pm CDT</td>
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<td>Head and Neck Staging</td>
<td>Thursday, July 19, 2018</td>
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<tr>
<td>Breast Staging</td>
<td>Wednesday, Aug 29, 2018</td>
<td>1 pm – 2:30pm CDT</td>
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Thank you

Donna M. Gress, RHIT, CTR
Technical Editor AJCC Cancer Staging Manual
First Author, Chapter 1: Principles of Cancer Staging
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