AJCC 8th Edition Staging

Introduction & Descriptors

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First Author, Chapter 1: Principles of Cancer Staging

American Joint Committee on Cancer
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The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.
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
Learning Assessments

• Testing effect or retrieval practice
  – Testing yourself on idea or concept to help you remember it

• Many experts have agreed for centuries
  – Act of retrieving info over and over, makes it retrievable when needed
  – Aristotle: exercise in repeatedly recalling strengthens memory

• Why retrieval/quizzing slows forgetting, helps remembering
  – Memory is dynamic (keeps changing), retrieval helps it change
  – Test often for better results

• Quizzes
  – Pretest as part of registration
  – Quiz during lecture
  – Posttest emailed weeks later to assess retention
  – Also assesses clarity of instruction and instructor
Introduction
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
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
    • c2 c2a c0
    • Tc2 Nc2a Mc0
    • cTc2 cNc2a cMc0

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

• Use format specified in AJCC manual, up to 15 characters
  – ypTis(DCIS)
  – pN0(mol+)
  – cM1b(0)
  – 3C (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

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

- **POST THERAPY STAGE**
  - Post Therapy T    Post T suffix
  - Post Therapy N    Post N suffix
  - Post Therapy M
  - Post Therapy Grade
  - Post Therapy Stage Group
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>
</tr>
</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>blank</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>
<th>description</th>
</tr>
</thead>
<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>blank</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 Issues and Solution

• **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 developed with surveillance partners  
  – Approved by **AJCC and pathologists**  
  – Medically accurate  
  – Follows AJCC 8th edition Chapter 1

• Rationale for new grade data items  
  – Grade data unusable in many sites by AJCC experts  
  – Inconsistent grading systems used  
  – Data coding rules conflicted with physician guidance
<table>
<thead>
<tr>
<th>3-Grade System</th>
<th>4-Grade System</th>
</tr>
</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></td>
<td>G4: Undifferentiated</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

- 3-grade system coding
  - 1
  - 2
  - 3

- 4-grade system coding
  - 1
  - 2
  - 3
  - 4
New Cancer Registry Grade Data Item

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

**G Definition**

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

<table>
<thead>
<tr>
<th>G</th>
<th>G Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>G1: Low combined histologic grade (favorable), SBR score of 3–5 points</td>
</tr>
<tr>
<td>2</td>
<td>G2: Intermediate combined histologic grade (moderately favorable); SBR score of 6–7 points</td>
</tr>
<tr>
<td>3</td>
<td>G3: High combined histologic grade (unfavorable); SBR score of 8–9 points</td>
</tr>
<tr>
<td>L</td>
<td>Nuclear Grade I (Low) (in situ only)</td>
</tr>
<tr>
<td>M</td>
<td>Nuclear Grade II (interMediate) (in situ only)</td>
</tr>
<tr>
<td>H</td>
<td>Nuclear Grade III (High) (in situ only)</td>
</tr>
<tr>
<td>A</td>
<td>Well differentiated</td>
</tr>
<tr>
<td>B</td>
<td>Moderately differentiated</td>
</tr>
<tr>
<td>C</td>
<td>Poorly differentiated</td>
</tr>
<tr>
<td>D</td>
<td>Undifferentiated, anaplastic</td>
</tr>
<tr>
<td>9</td>
<td>Grade cannot be assessed (GX); Unknown; Not applicable</td>
</tr>
</tbody>
</table>
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)/not identified</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>
Timing is Everything
Stage Classifications

- Pathological – p
  - Clinical - c
    - Date of Diagnosis
    - Diagnostic Workup – phy exam, imaging, bx
  - Surgical Treatment
    - Systemic or Radiation Therapy
  - Pathology Report
    - Evaluation by imaging & physical exam
    - Surgical Treatment
    - Pathology Report
  - Clinical - c
    - Posttherapy - yc
  - Posttherapy - yp
AJCC 8th Edition Staging
1-Page Guide
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
Information and Questions on AJCC Staging
AJCC Web site

- https://cancerstaging.org

- Ordering information
  - Cancerstaging.net

- General information
  - Education
  - Articles
  - Updates
CAnswer Forum

• Submit questions to AJCC Forum
  – NEW 8th Edition Forum
  – 7th Edition Forum will remain
  – Located within CAnswer Forum
  – Provides information for all
  – Allows tracking for educational purposes

• http://cancerbulletin.facs.org/forums/
Quiz
Summary
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
<table>
<thead>
<tr>
<th>Webinar Topic</th>
<th>Date</th>
<th>Time</th>
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<tr>
<td>Introduction &amp; Descriptors</td>
<td>Thursday, May 31, 2018</td>
<td>1 pm – 2 pm CDT</td>
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<tr>
<td>Minor Rule Changes</td>
<td>Tuesday, May 15, 2018</td>
<td>1 pm – 2 pm CDT</td>
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<tr>
<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>Tuesday, September 11, 2018</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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