AJCC 8th Edition Staging

Minor Rule Changes

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

AJCC
American Joint Committee on Cancer

Validating science. Improving patient care.

This webinar is sponsored by

The Centers for Disease Control and Prevention

Supported by the Cooperative Agreement Number DP13-1310

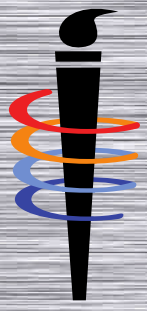
Learning Objectives

- Examine key rules with their rationale
- Identify minor rule changes between 7th & 8th editions
- Dissect reasons for minor changes
  - Keep pace with changing medicine
  - Clarifications
  - Criteria and specifications

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

Key Rules and Rationales



Stage Classifications: Time Frame & Criteria

- All stage classifications have **TIME FRAME** & criteria

- Time frame or staging window
  - Defines point in time of patient's care
  - Starting and stopping time points

Stage Classifications: Time Frame & Criteria

- All stage classifications have time frame & **CRITERIA**
- Criteria defined by
  - Diagnostic workup
  - Definitive treatment
- Diagnostic procedures are **sample**
  - No intent to remove entire tumor
  - Do not know entire tumor removed until *after* treatment performed
  - Surgical diagnostic procedures **≠** surgical treatment
- Definitive treatment
  - Surgical treatment meets resection requirement in chapter
  - Neoadjuvant therapy **must satisfy** NCCN/ASCO/other guidelines

Diagnostic vs. Treatment

- **Do not** use old registry rules for staging
  - Anything that modified, removed, controlled, or destroyed tumor is considered treatment
- Diagnostic
  - Procedures to diagnose
  - Procedures to further define/stage in order to develop treatment plan
- Treatment
  - Treatment definition based on patient outcome/survival
  - Intent to remove all or most of cancer
  - Planned significant impact on cancer burden
  - Provides patient with greatest chance of survival

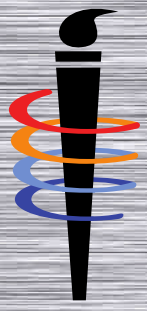
Scenario

- Pt had hematuria and underwent TURB. Path showed urothelial carcinoma into muscularis propria.
- Only clinical staging assigned for this case
- TURB
  - While it is a type of resection
  - TURB is NOT considered treatment for staging
- Pathological staging requires at least partial cystectomy

Scenario

- Breast core bx shows infiltrating ductal ca. Lumpectomy shows no residual tumor.
- Biopsy used for clinical staging
- Lumpectomy used for pathological staging
- Bx NOT considered definitive treatment for staging criteria
  - No intent to remove tumor
  - No knowledge tumor removed until after surgical treatment
  - Biopsy never appropriate definitive treatment

Minor Changes Between 7th and 8th Editions



Any T, Any N

- Any T defined
  - Includes all T categories **except Tis**
  - Includes TX and T0
- Any N defined
  - Includes all N categories
  - Includes NX and N0

Scenario

- Cystectomy showing T4b bladder ca, no nodes removed.
- Ileum resection, no primary tumor found, 2 regional nodes for pN1, no distant mets.

- Registry documents pT4b pNX cM0 stage IVA
  - Any N includes NX

T4b	Any N	M0	IVA

- Registry documents pT0 pN1 cM0 stage IIIA
  - Any T includes T0

Any T	N1	M0	IIIA

Stage Classification Criteria

- Clinical staging criteria: known or suspected tumor
  - **Must** be known or suspected
  - Have diagnostic workup including at least history & physical exam
  - NOT incidental finding at time of surgical treatment
  - No retrospective assignment during/after treatment

- Pathological staging criteria: primary tumor surgical resection
  - **Must** meet surgical resection criteria
  - Surgical resections ranges from
    - Resection of tumor, up to
    - Complete resection of organ, and
    - Usually includes resection of some regional lymph nodes
  - Depends on site-specific info necessary to determine
    - Adjuvant therapy
    - Patient's prognosis

Scenario

- Patient has gastric sleeve surgery for weight loss. Path report shows adenocarcinoma.

- No clinical stage assigned
  - Not known or suspected prior to surgery
  - Incidental finding at surgical resection
  - No retrospective assignment after surgery

Unknown Primary or No Evidence of Primary

- T0
  - No evidence of primary tumor
  - Primary site of tumor is unknown
  - Staging based on clinical suspicion of primary organ site
  - T0 not available in all sites, cannot suspect primary from nodes/mets
- Example
  - Axillary node involvement, suspected clinically to be from breast
- Example of exception
  - T0 **not** used for head & neck squamous ca sites
  - Use Cervical Nodes & Unknown Primary Tumor chapter
  - **Exception to exception**: T0 is valid for
    - HPV-related oropharynx and
    - EBV-related nasopharynx

Scenario

- Patient has enlarged axillary nodes. Biopsy showed melanoma. No skin lesions are identified.
- Registry assigns clinical cT0 cN1b cM0 stage III
- T0
  - Indicates no primary tumor found
  - Staging based on clinical suspicion of skin melanoma

Scenario

- Patient has pancreatoduodenal nodes showing well differentiated neuroendocrine ca.
- T0 not available for neuroendocrine duodenum & pancreas
  - Cannot suspect primary site without more information
  - Less than 4% of all GI neuroendocrine ca arise in duodenum
  - Rare occurrence of neuroendocrine ca in pancreas
- More info needed to choose appropriate chapter for staging

Rarely Node Status Not Required

- Node status not required in **rare** circumstances
- Clinical and pathological staging N category
  - Cancer sites where node involvement is rare
  - NX may not be category option
  - Node status not determined as involved assigned as cN0
  - cN0 for pathological staging ensures no confusion with nodes microscopically proven to not contain tumor (pN0)

Rarely Node Status Not Required

- Nonexhaustive examples commonly discussed
  - Soft tissue does not have NX
  - Bone note states NX may not be appropriate, may be cN0
  - Melanoma allows cN0 for pathologic stage group with pT1
  - Corpus uteri at times permits cT and cN in pathological staging
    - Surgeon's nodal assessment specifically noted in operative report

Node Status Not Required in pN Category

- All chapter exceptions where cN0 used for cN & pN category
  - 38 Bone
  - 40 Soft Tissue Sarcoma of Head and Neck
  - 41 Soft Tissue Sarcoma of Trunk and Extremities
  - 42 Soft Tissue Sarcoma of Abdomen and Thoracic
  - 43 Gastrointestinal Stromal Tumor
  - 44 Soft Tissue Sarcoma of Retroperitoneum
  - 53 Corpus Uteri Carcinoma and Carcinosarcoma
  - 54 Corpus Uteri Sarcoma
  - 67 Uveal Melanoma
  - 68 Retinoblastoma

- Limited exception where cN0 used for pN category
  - 47 Melanoma: pT1

Other rules also allow cT and cN in pathological staging

Scenario

- CT and image guided bx confirm 6cm FNCLCC grade 2 retroperitoneal sarcoma.
- Retroperitoneal sarcoma resection shows 6.5cm tumor, FNCLCC grade 1, no nodes removed.

- Registry assigns clinical stage cT2 cN0 cM0 G2 stage IIIA
  - Physician judgment and imaging allow cN0

- Registry assigns pathological stage pT2 cN0 cM0 G2 stage IIIA
  - Exception allowing cN0 used for pathological staging
  - **Rare** nodal involvement
  - Path stage = clinical stage + op findings + path resected specimen
  - Grade 2 used for pathological staging

Microscopic Assessment cN & pN

- Microscopic assessment for cN and pN
  - Fine needle aspiration (FNA)
  - Core (needle) biopsy
  - Incisional biopsy
  - Excisional biopsy
  - Sentinel node biopsy/procedure
  - pN ONLY: regional lymph node dissection
- Specifies **cytology** just as valid as tissue
  - Pathologists confirmed
  - Registrars should not doubt cytology

Microscopic Assessment pN

- Requirements for assigning pN category
  - Pathological documentation of presence/absence of ca in 1 node
  - Pathological assessment primary tumor, except in T0
  - **FNA and core needle biopsy** of node both satisfy requirement

- cN microscopic info included in pathological staging
  - Path staging = clinical stage + op findings + path resected specimen
  - Always use cN microscopic info in pathological staging
  - Include imaging/physical exam cN info **IF** pN requirement met

Scenario

- Mammogram showed 2cm tumor in elderly patient. Core needle bx was ductal ca, Nottingham grade 2, ER+, PR+, HER2 neg. FNA lt axillary node cytology showed ductal ca. Lumpectomy showed 1.8cm ductal ca, Nottingham grade 2, ER/PR+, HER2 neg. No nodes removed.

- Registry assigns clinical stage
  - cT1c cN1 cM0 Gr2 HER2- ER+ PR+ stage IB

- Registry assigns pathological stage
  - pT1c pN1a cM0 Gr2 HER2- ER+ PR+ stage IA
  - Use clinical node FNA for pathological staging, meets requirement

Sentinel Lymph Node Clearly Defined

- Sentinel lymph node (SLN)
  - Receives direct afferent lymphatic drainage from primary tumor
  - Represents nodes most likely to contain disease
  - More than 1 node may be present in nodal basin
  - Some tumors drain to more than 1 regional nodal basin

Sentinel Lymph Node Procedure

- SLN procedure – lymphatic mapping
  - Injection of colloidal material into primary tumor or organ
    - Isosulfan blue stain and/or radiotracer technetium-99 sulfur colloid
  - Identification and removal of nodes
    - Sentinel nodes: those containing colloidal material
    - Nonsentinel nodes: palpably abnormal nodes without colloidal material

- SLN procedure includes sentinel & nonsentinel nodes
  - Nonsentinel nodes **not** separate nodal procedure
  - Nonsentinel nodes **not** lymph node dissection

Scenario

- Gross specimen A labeled lt axillary sentinel lymph nodes
  - One lymph node 2x0.6x0.4cm and
  - Other inked blue lymph node 0.5x0.5x0.5cm
  - Two lymph nodes negative for carcinoma
- Gross specimen B labeled lt hottest axillary sentinel node
  - One lymph node measures 1.1x0.6x0.3cm and
  - Second inked blue lymph node 1.2x0.5x0.4cm
  - Two lymph nodes negative for carcinoma
- All 4 nodes considered sentinel node procedure
  - Two sentinel nodes inked blue
  - Two non-sentinel nodes adjacent to inked nodes
- Patient had sentinel node procedure
  - 4 nodes examined for sentinel node procedure
  - 0 nodes positive for sentinel node procedure

pM1 for Clinical & Pathological Classifications

- Microscopic evidence of distant mets, pM1, includes
  - **Cytology** from FNA
  - Core (needle) biopsy
  - Incisional or excisional biopsy
  - Resection
- Direct extension into organ **not M category**
  - Example: colon ca extends into liver, pT4b and cM0

pM1 for Clinical & Pathological Classifications

- Use of pM1 for multiple distant mets
  - If M subcategories distinguish between one or more sites
  - Microscopic evidence of **ONE** site needed for higher subcategory
  - Microscopic evidence of all sites is **NOT** necessary
  - Note: both sides of paired organ considered **ONE** site

Scenario

- Near total gastrectomy pathology report showed large stomach tumor extending into transverse colon and liver, and ten nodes negative for cancer.
- pT4b pN0 cM0 stage IIIA
- Direct extension into liver is pT4b, **NOT** M1

T4b	Tumor invades adjacent structures/organs

Scenario

- CT guided lung bx showed adenoca. Bone scan indicated mets in lt hip. FNA liver cytology showed metastatic adenoca.
- Assign clinical M category as pM1c
- Cytology is valid microscopic evidence
- Only evidence of one met is required for higher subcategory

M1b	Single extrathoracic metastasis in a single organ (including involvement of a single nonregional node)
M1c	Multiple extrathoracic metastases in a single organ or in multiple organs

Criteria for Neoadjuvant Therapy

- Not all medication meets criteria for neoadjuvant therapy
  - Examples include *short course* endocrine Rx for breast & prostate
  - Provided for variable and often unconventional reasons
  - Not categorized as neoadjuvant therapy ***for AJCC staging***
  - Do ***not*** assign yp, surgical resection staging is p (pathological)
- Treatments that **satisfy** definition of neoadjuvant therapy
  - NCCN Guidelines
  - ASCO Guidelines
  - Other treatment guidelines
- Recent trend
  - Physician experts provided clarification, applies to 7th edition
  - Valid for 7th edition AJCC staging **and** 8th edition AJCC staging

Scenario

- Breast bx was ductal ca. Pt had one week of tamoxifen. Then lumpectomy and sentinel node procedure performed.
- Prostate bx was adenoca. Pt given one shot lupron. Then prostatectomy and nodal dissection performed.

- **NOT** neoadjuvant therapy for breast or prostate case

- Breast neoadjuvant according to guidelines
  - Usually 4-6 cycles of chemo, sometimes more
  - Usually 4-6 months of endocrine therapy, may be up to 1 year

- Prostate neoadjuvant according to guidelines
  - ***No*** neoadjuvant therapy outside of clinical trials
  - Neoadjuvant ADT short term (4-6 months) treatment
  - Neoadjuvant ADT long term (2-3 years) treatment

*ADT–androgen deprivation therapy

New Posttherapy Stage Data Items

- New stage data items for postneoadjuvant therapy staging
- Collect clinical, pathological, posttherapy staging separately
- Emphasizes differences between p and yp stage
  - Timing and criteria
  - Staging rules
- Cannot easily determine whether p or yp in pre-2018 data
  - Descriptor **y** not always coded
  - Cannot depend on systemic therapy codes
  - All coded therapy is **NOT** neoadjuvant
- Pathological stage ONLY in Path T, N, M, stage group
- Posttherapy stage ONLY in ***NEW*** Post Therapy items

Scenario

- Stomach EUS imaging and EUS-FNA showed adenoca, cT2. Pt underwent chemotherapy and radiation therapy. Then subtotal gastrectomy and node dissection performed.

- Clinical staging and posttherapy staging assigned

- Posttherapy staging in NEW data items
  - Important to distinguish from pathological staging
  - y descriptor not consistently used in past
  - Registrars assigned posttherapy in past, just new abstract location

- Pathological and posttherapy NEVER apply to same case
  - Pathological staging NOT appropriate in this case
  - Surgical treatment was not done first

Response to Neoadjuvant Rx

- Systems for pathologist to document response
  - Consult disease site chapter
  - Complete, partial, no response
  - Regression score
- Critical to assign ypT and ypN for analysis of response
- Mucin pools, necrosis, and reactive changes
  - Without viable-appearing tumor cells
  - Insufficient for diagnosis of residual cancer
  - Not included in assessment of residual cancer

Scenario

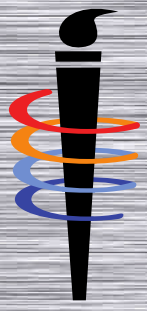
- Rectal cancer with neoadjuvant chemoradiation therapy. Then low anterior resection and node dissection performed. Pathology showed reactive changes and necrosis in rectum, and mets in 2 of 15 nodes.

- ypT0 assigned since no viable cancer cells identified

- Tumor regression score from pathologist or physician
  - Included in CAP protocol and AJCC chapter
  - Not assigned by registrar, may be documented by registrar

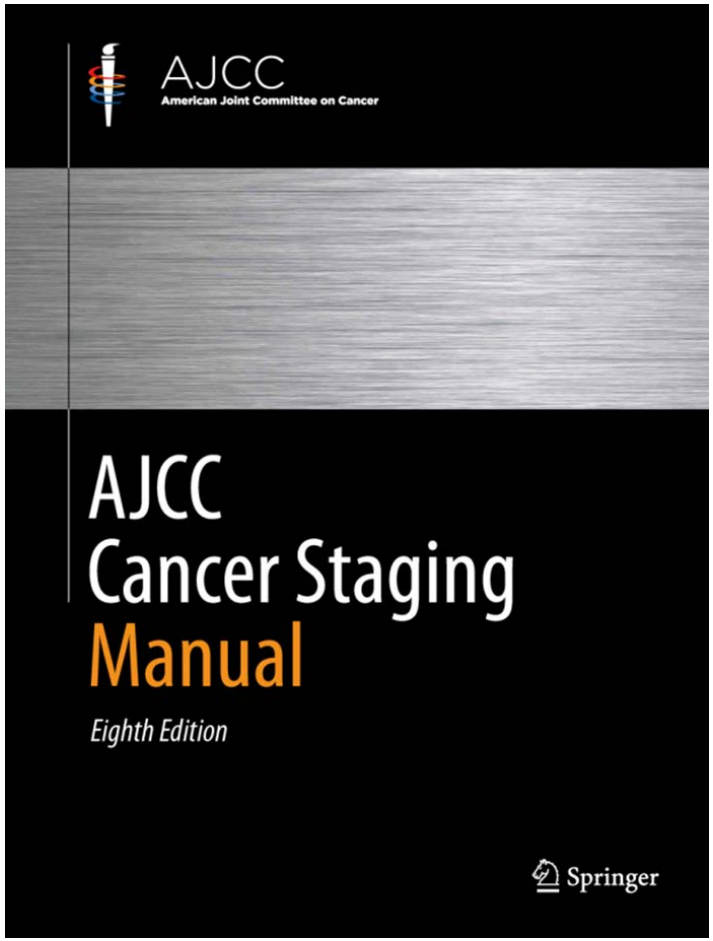
Modified Ryan Scheme Tumor Regression Score	Score
No viable cancer cells (complete response)	0
Single cells or rare small groups of cancer cells (near complete response)	1
Residual cancer with evident tumor regression, but more than single cells or rare small groups of cancer cells (partial response)	2
Extensive residual cancer with no evident tumor regression (poor or no response)	3

Information and Questions on AJCC Staging



AJCC Web site

- https://cancerstaging.org
- Ordering information
  - Cancerstaging.net
- General information
  - Education
  - Articles
  - Updates

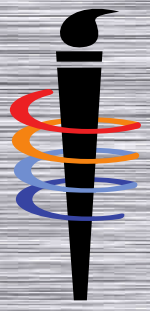


CAnswer Forum

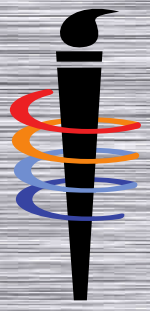
- Submit questions to AJCC Forum
  - NEW 8th Edition Forum
  - 7th Edition Forum will remain
  - Located within CAnswer Forum
  - Provides information for all
  - Allows tracking for educational purposes

- http://cancerbulletin.facs.org/forums/

Quiz



Summary



Summary

- Comprehend key rules and rationale behind development
- Compare minor rule changes between 7th & 8th editions
- Interpret reasons for minor changes
  - Keep pace with changing medicine
  - Clarifications
  - Criteria and specifications

Thank you

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

AJCC
American Joint Committee on Cancer
Validating science. Improving patient care.

633 N. Saint Clair, Chicago, IL 60611-3295

cancerstaging.org

This webinar is sponsored by

The Centers for Disease Control and Prevention

Supported by the Cooperative Agreement Number DP13-1310