


AJCC 8<sup>th</sup> Edition Staging

Minor Rule Changes

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National Center for Chronic Disease Prevention and Health Promotion  
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Learning Objectives

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



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### 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



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### Key Rules and Rationales



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### 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



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### 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

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### 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

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### 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

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**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



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Minor Changes Between  
7<sup>th</sup> and 8<sup>th</sup> Editions



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**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



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

Any T	N1	M0	IIIA
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### 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

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### 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

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### 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



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### 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



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### 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



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### 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)



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### 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



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### 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*



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### 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

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### 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

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### 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

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### Scenario

- Mammogram showed 2cm tumor in elderly patient. Core needle bx was ductal ca, Nottingham grade 2, ER+, PR+, HER2 neg. FNA It 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



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### 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



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### 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



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**Scenario**

- Gross specimen A labeled It 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 It 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



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**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



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**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



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**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
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**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

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**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 7<sup>th</sup> edition
  - Valid for 7<sup>th</sup> edition AJCC staging **and** 8<sup>th</sup> edition AJCC staging

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**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



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**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



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**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



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### 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



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### 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



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### Information and Questions on AJCC Staging



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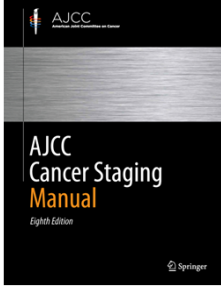
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AJCC Web site

- <https://cancerstaging.org>
- Ordering information
  - [Cancerstaging.net](http://Cancerstaging.net)
- General information
  - Education
  - Articles
  - Updates



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CAnswer Forum

- Submit questions to AJCC Forum
  - NEW 8<sup>th</sup> Edition Forum
  - 7<sup>th</sup> Edition Forum will remain
  - Located within CAnswer Forum
  - Provides information for all
  - Allows tracking for educational purposes
- <http://cancerbulletin.facs.org/forums/>



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Quiz



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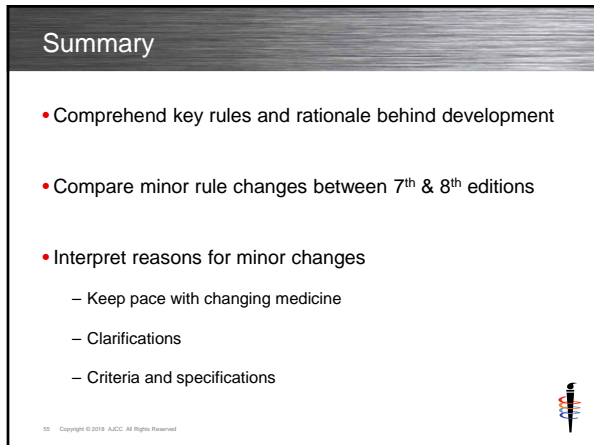
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Summary

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

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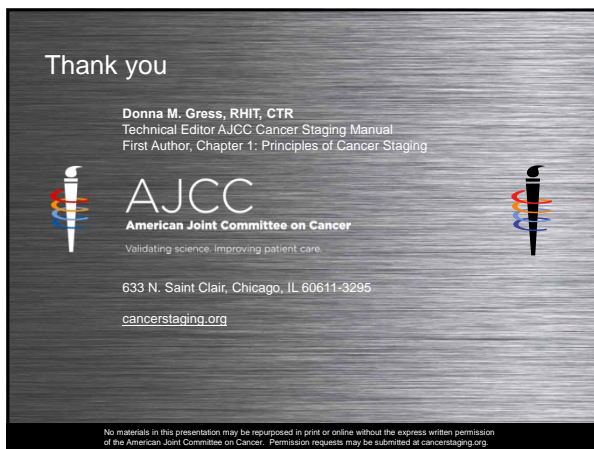
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Thank you

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