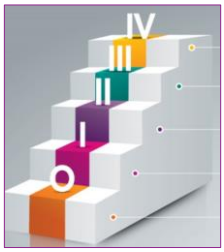
HOW TO USE THE AJCC CANCER STAGING MANUAL, 8TH EDITION

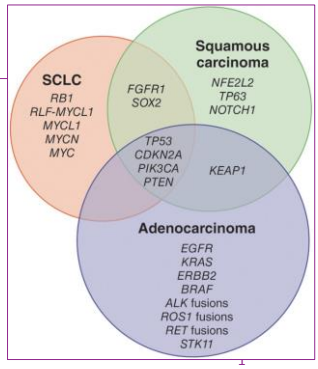


FCDS Annual Educational Conference

Orlando, Florida

July 28, 2017

Steven Peace, CTR



1

CDC & Florida DOH Attribution

"We acknowledge the Centers for Disease Control and Prevention, for its support of the Florida Cancer Data System, and the printing and distribution of the materials for the 2015-2016 FCDS Webcast Series under cooperative agreement DP003872-03 awarded to the Florida Department of Health. The findings and conclusions in this series are those of the author(s) and do not necessarily represent the official position of the Centers for Disease Control and Prevention".

CDC Centers for Disease Control and Prevention

Florida HEALTH

FCDS would also like to acknowledge the Florida Department of Health for its support of the Florida Cancer Data System, including the development, printing and distribution of materials for the 2015-2016 FCDS Webcast Series under state contract CODJU. The findings and conclusions in this series are those of the author(s) and do not necessarily represent the official position of the Florida Department of Health.

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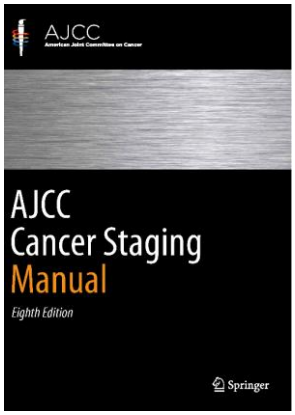
Outline

- History, Purpose and Background
- Purchase and Ordering Information & Errata
- Introduction to AJCC Cancer Staging Manual, 8th ed.
- AJCC Cancer Staging Manual Organization
- General Chapter Outline and Contents
- Specific Neoplasms Included by Chapter
- Neoplasms Not Included in the AJCC Manual
- Locating the Correct Chapter for a Case
- AJCC 8th Edition Staging Rules
- Other Helpful Information
- Questions



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History, Purpose and Background

- The AJCC Cancer Staging Manual is used by physicians, cancer registries, and other allied health care professionals throughout the world to provide consistent nomenclature to describe cancer stage and to facilitate the uniform description and reporting of cancer staging for most adult neoplastic diseases.
- Staging provides patients with cancer and their physicians the critical benchmark and standards for defining prognosis, the likelihood of overcoming the cancer once diagnosed, and for determining the best treatment approach for the disease.
- Staging also forms the basis for understanding the changes in population cancer incidence, the extent of disease at initial presentation, and the overall impact of improvements in cancer treatment.
- A major challenge to TNM Staging is the rapid evolution of knowledge in cancer biology and the discovery and development of biologic factors that predict cancer outcome and response to treatment with better accuracy than purely anatomically based staging.
- However, anatomic extent of disease remains the key prognostic factor, the strongest predictor of outcome, in most diseases. Therefore, the T, N, and M components remain purely anatomic.
- The Eighth Edition of the AJCC Cancer Staging Manual brings together all the currently available information on staging of cancer at various anatomic sites and incorporates new knowledge on the etiology and pathology of cancer…supplemented by selected genetic and biomolecular tumor markers.

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Purchase and Ordering Information

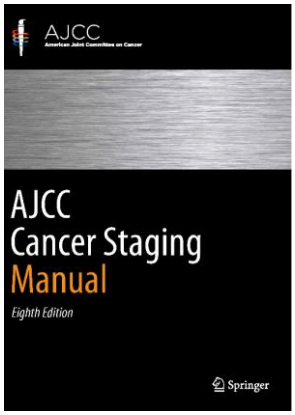
- **AJCC Cancer Staging Manual – 8th edition, 2017**
- **COST: $119.99**
- **ISBN: 978-3-319-40617-6**

- **1429 pages**
- **512 illustrations**
- **187 color illustrations**

- Required - Florida Mandate
  - FCDS will not purchase
  - Facility may purchase
  - Individual may purchase

- https://cancerstaging.org
- http://springer.com
- 1-800-SPRINGER

COMING SOON
E-book Versions
for
Amazon Kindle
Apple iBook



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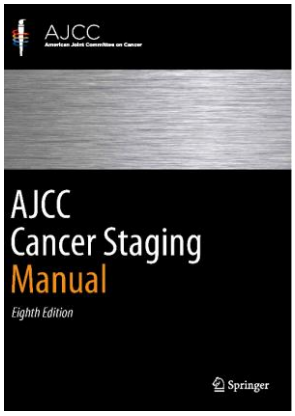
AJCC Cancer Staging Manual, 8th ed - Errata

Date Added	Chapter/ Part #	Chapter/Part Title	Section	Page #	Colu	Before Correction	After Correction
5/19/2017	50	Vulva	Author List	633	n/a	...Alexander B. Olawaiye, Lee-may Chen...	...Alexander B. Olawaiye, Priya R. Bhosale, Lee-may Chen...
5/19/2017	51	Vagina	Author List	641	n/a	...Alexander B. Olawaiye, Lee-may Chen...	...Alexander B. Olawaiye, Priya R. Bhosale, Lee-may Chen...
5/19/2017	52	Cervix Uteri	Author List	649	n/a	...Adriana Bermudez, Edward C. Grendys...	...Adriana Bermudez, Priya R. Bhosale, Edward C. Grendys...
5/19/2017	53	Corpus Uteri - Carcinoma and Carcinosarcoma	Author List	661	n/a	...Adriana Bermudez, Perry W. Grigsby...	...Adriana Bermudez, Priya R. Bhosale, Perry W. Grigsby...
5/19/2017	54	Corpus Uteri - Sarcoma	Author List	671	n/a	...Alexander B. Olawaiye, Robert K. Brookland...	...Alexander B. Olawaiye, Priya R. Bhosale, Robert K. Brookland...
5/19/2017	55	Corpus Uteri - Sarcoma	Author List	681	n/a	...Adriana Bermudez, Lee-may Chen...	...Adriana Bermudez, Priya R. Bhosale, Lee-may Chen...
4/28/2017	63	Urethra	Fig. 63.1	769	1	THIS IS A RETRACTION OF AN ERRATUM ISSUED 4/14/17. THE FIGURE LEGEND IS CORRECT AS PRINTED. Regional and distant lymph nodes of the urethra	THIS IS A RETRACTION OF AN ERRATUM ISSUED 4/14/17. THE FIGURE LEGEND IS CORRECT AS PRINTED. Regional lymph nodes of the urethra
4/21/2017	55	Ovary, Fallopian Tube and Primary Peritoneal Carcinoma	Summary of Changes	681	n/a	Stage III: IIIA1 is subdivided into IIIA1(i)—metastasis up to 5 mm in greatest dimension—and IIIA1(ii)—metastasis more than 5 mm in greatest dimension	Stage III: IIIA1 is subdivided into IIIA1(i)—metastasis up to and including 10 mm in greatest dimension—and IIIA1(ii)—metastasis more than 10 mm in greatest dimension
4/21/2017	66	Conjunctival Melanoma	WHO Classification of Tumors	795	1	8721 Melanoma, NOS	8720 Malignant melanoma, NOS
4/21/2017	74	Thyroid - Medullary	Definition of Primary Tumor (T)	896	2	T2: Tumor >2 cm but <4 cm in greatest dimension limited to the thyroid	T2: Tumor >2 cm but ≤4 cm in greatest dimension limited to the thyroid



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Intro to AJCC Staging Manual, 8th ed.

- Enhanced Chapter 1 – Principles of Cancer Staging
- Enhanced Descriptions of Staging Rules – Chapter 1
  - Timing for Staging
  - Clinical Staging Criteria and General Rules
  - Pathologic Staging Criteria and General Rules
  - Rules for Assigning T, N, and M Category Codes
  - Rules for Determining Prognostic Stage Group
  - Timing and Criteria for Post-Therapy Staging (yc/yp)

- 12 new staging systems
- 83 total chapters defined by site/subsite and specific histologies
- New Site-Specific Fields – no more "factors" – but similar instructions and codes

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Intro to AJCC Staging Manual, 8th ed.

- New Sections or Features within Chapters
  - AJCC Levels of Evidence for Changes to Staging Criteria
  - Guidance on the Use of Imaging to Evaluate Stage for Each Chapter
  - Prognostic Factors
    - Factors Required to Assign Prognostic Stage Group
    - Factors Recommended for Managing Patient Care
    - Emerging Factors
  - Risk Assessment Models
  - Clinical Stratification Recommendations

- Chapter-Specific Histology Codes – No longer uses range of acceptable codes –
- Histology Code List updated with 2018 MPH Rules to ensure all new for 2018 histology codes are included in appropriate chapter(s) – and to keep up with WHO Classifications

8

Intro to AJCC Staging Manual, 8th ed.

- New Chapters for 8th edition
  - Head and Neck
    - Cervical Lymph Nodes with Unknown Primary – check for EBV or HPV Status
    - HPV-Mediated (p16+) Oropharynx Cancer – When p16- Use Oropharynx (p16_) or Hypopharynx
    - Cutaneous Squamous Cell Carcinoma of Head and Neck
  - Thorax
    - Thymus
  - Endocrine System
    - Parathyroid
    - Adrenal Neuroendocrine Tumors
  - Hematologic Malignancies
    - Leukemia

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Intro to AJCC Staging Manual, 8th ed.

- Split Chapters for 8th edition
  - Pancreas
    - Exocrine Pancreas – Hepatobiliary System
    - Neuroendocrine Tumor of Pancreas – see Neuroendocrine Tumors (NET)
  - Neuroendocrine Tumors (NET)
    - NET of Stomach
    - NET of Duodenum and Ampulla of Vater
    - NET of Jejunum and Ileum
    - NET of Appendix
    - NET of Colon and Rectum
    - NET of Pancreas

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Intro to AJCC Staging Manual, 8th ed.

- Split Chapters for 8th edition
  - Bone – multiple staging tables with T Category Code based on type/location of primary
    - Appendicular Skeleton
    - Pelvis
    - Spine
  - Soft Tissue Sarcoma
    - Introduction to Soft Tissue Sarcoma
    - Soft Tissue Sarcoma of Head and Neck
    - Soft Tissue Sarcom of Trunk and Extremeties
    - Soft Tissue Sarcoma of Abdomen and Thoracic Visceral Organs
    - Soft Tissue Sarcoma of Retroperitoneum
    - Soft Tissue Sarcoma – Unusual Histologies and Sites
    - GIST is now in Soft Tissue Sarcoma Section

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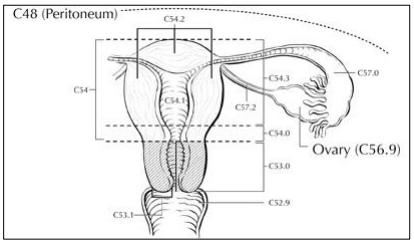
Intro to AJCC Staging Manual, 8th ed.

- Merged Chapters for 8th edition
  - Ovary, Fallopian Tube, Primary Peritoneal Carcinoma
  - Consistent with WHO Classification, 4th edition
  - Allows GYN Staging of C48.2 Cases



Surface Epithelial – Epithelial Stromal Tumors

Serous tumors:
- Benign (cystadenoma)
- Borderline tumors (serous borderline tumor)
- Malignant (serous adenocarcinoma)

Mucinous tumors, endocervical-like and intestinal type:
- Benign (cystadenoma)
- Borderline tumors (mucinous borderline tumor)
- Malignant (mucinous adenocarcinoma)

Endometrioid tumors:
- Benign (cystadenoma)
- Borderline tumors (endometrioid borderline tumor)
- Malignant (endometrioid adenocarcinoma)

Clear cell tumors:
- Benign
- Borderline tumors
- Malignant (clear cell adenocarcinoma)

Transitional cell tumors:
- Brenner tumor
- Brenner tumor of borderline malignancy
- Malignant Brenner tumor
- Transitional cell carcinoma (non-Brenner type)

Epithelial-stromal:
- Adenosarcoma
- Carcinosarcoma (formerly mixed Mullerian tumors)

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Changes from AJCC Staging Manual, 7th ed.

TABLE 1. Innovations in the Descriptors Introduced in the Eighth Edition of the TNM Classification of Lung Cancer Compared With the Seventh Edition

DESCRIPTOR	SEVENTH EDITION	EIGHTH EDITION
T component		
0 cm (pure lepidic adenocarcinoma ≤3 cm total size)	T1a if ≤2 cm; T1b if >2-3 cm	Tis (AIS)
≤0.5 cm invasive size (lepidic predominant adenocarcinoma ≤3 cm total size)	T1a if ≤2 cm; T1b if >2-3 cm	T1mi
≤1 cm	T1a	T1a
>1-2 cm	T1a	T1b
>2-3 cm	T1b	T1c
>3-4 cm	T2a	T2a
>4-5 cm	T2a	T2b
>5-7 cm	T2b	T3
>7 cm	T3	T4
Bronchus <2 cm from carina	T3	T2
Total atelectasis/pneumonitis	T3	T2
Invasion of diaphragm	T3	T4
Invasion of mediastinal pleura	T3	-
N component		
No assessment, no involvement, or involvement of regional lymph nodes	NX, N0, N1, N2, N3	No change
M component		
Metastases within the thoracic cavity	M1a	M1a
Single extrathoracic metastasis	M1b	M1b
Multiple extrathoracic metastases	M1b	M1c

Abbreviations: AIS, adenocarcinoma in situ; mi, minimally invasive adenocarcinoma; Tis, tumor in situ.

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AJCC 8th Edition Staging Rules – Chapter 1

- Entire 30 pages devoted to Staging Rules and is Table-Driven with User Notes
- Definitions are included for vocabulary related to cancer staging
- Clarification on Use of "X", <blank> and Zero (0)
- Clarification on Use of Staging Descriptors
- Clarification on "Response to Neoadjuvant Therapy"

- Explanation for How to Apply Tables to Assign New Prognostic Stage Groups
- AJCC will be hosting webinar(s) on Key Elements of Chapter 1 – General Rules
- 2018 FCDS Abstractor Code Test Absolutely WILL Have Questions from Chapter 1

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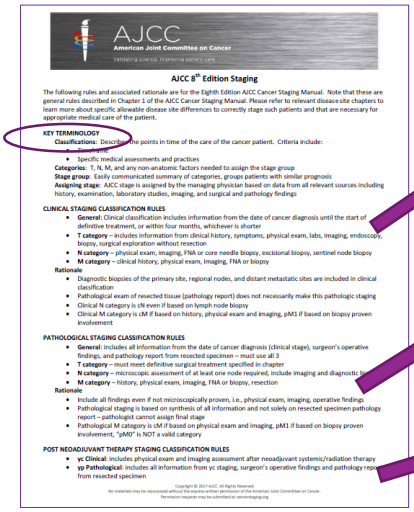
AJCC 8th Edition Staging Rules - PDF



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

AJCC 8th Edition Staging

The following rules and associated rationale are for the Eighth Edition AJCC Cancer Staging Manual. Note that these are general rules described in Chapter 1 of the AJCC Cancer Staging Manual. Please refer to relevant disease-site chapters to learn more about specific allowable disease site differences to correctly stage such patients and that are necessary for appropriate medical care of the patient.

KEY TERMINOLOGY

Classifications: Describe the points in time of the care of the cancer patient. Criteria include:
- Specific time
- Specific medical assessments and practices

Categories: T, N, M, and any non-anatomic factors needed to assign the stage group
Stage group: Easily communicated summary of categories, groups patients with similar prognosis
Assigning stage: AJCC stage is assigned by the managing physician based on data from all relevant sources including history, examination, laboratory studies, imaging, and surgical and pathology findings

CLINICAL STAGING CLASSIFICATION RULES
- **General**: Clinical classification includes information from the date of cancer diagnosis until the start of definitive treatment, or within four months, whichever is shorter
- **T category** – includes information from clinical history, symptoms, physical exam, labs, imaging, endoscopy, biopsy, surgical exploration without resection
- **N category** – physical exam, imaging, FNA or core needle biopsy, excisional biopsy, sentinel node biopsy
- **M category** – clinical history, physical exam, imaging, FNA or biopsy

Rationale
- Diagnostic biopsies of the primary site, regional nodes, and distant metastatic sites are included in clinical classification
- Pathological exam of resected tissue (pathology report) does not necessarily make this pathologic staging
- Clinical N category is cN even if based on lymph node biopsy
- 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**: includes all information from the date of cancer diagnosis (clinical stage), surgeon's operative findings, and pathology report from resected specimen – must use all 3
- **T category** – must meet definitive surgical treatment specified in chapter
- **N category** – microscopic assessment of at least one node required, include imaging and diagnostic biopsy
- **M category** – history, physical exam, imaging, FNA or biopsy, resection

Rationale
- Include all findings even if not microscopically proven, i.e., physical exam, imaging, operative findings
- Pathological staging is based on synthesis of all information and 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 biopsy proven involvement, "pM0" is 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

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AJCC 8th Edition – Staging Clarifications

AJCC
American Joint Committee on Cancer
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In Situ Neoplasia – AJCC Cancer Staging Manual 8th Edition

AJCC is announcing a change in staging rules for the AJCC Staging Manual Eighth Edition effective with cases diagnosed on or after January 1, 2017, in the assignment of the T category for *in situ* neoplasia, carcinoma *in situ* and melanoma *in situ*.

Starting with the 8th edition in 2017, the clinical T category will now be cTis.
- This rule change for the 8th edition does not affect cases staged with previous editions prior to 2017.
- Starting in 2017 for the 8th edition, other valid T and N categories with the appropriate c and p prefix will be introduced based on 8th edition rules.

Rationale
The decision to change the rules occurred after thoughtful deliberation by many physicians. The main reason for the previous pTis was to emphasize the need for microscopic or histologic evidence of *in situ* carcinoma. The diagnosis of carcinoma *in situ* can never be made on imaging alone.

It was decided to change the clinical T category to cTis, indicating it was a diagnosis made on a diagnostic core needle or incisional biopsy and not based on complete examination of a surgical resection specimen. The pathological T category based on the surgical resection specimen will be pTis. There will now be separate designations, cTis and pTis, indicating the timeframe and type of specimen. During the clinical staging classification, all diagnostic biopsies will be cT regardless of whether the microscopic evidence shows an *in situ* or an invasive cancer, e.g., cTis, cT1a.

8th Edition Chapter 1: Principles of Cancer Staging

Clinical T:
- *In situ* neoplasia identified during the diagnostic workup on a core or incisional biopsy is assigned cTis.

Pathological T:
- *In situ* neoplasia identified from a surgical resection, as specified in the disease site pathological criteria, is assigned pTis.
- *In situ* neoplasia identified microscopically during the diagnostic workup may be used to assign the pathological stage pTis if the patient had a surgical resection and no residual tumor was identified.

Clinical Stage 0:
- *In situ* neoplasia identified microscopically during the diagnostic workup is assigned as cTis cN0 cM0 clinical Stage 0.

Pathological Stage 0:
- *In situ* neoplasia is an exception to the stage grouping guidelines that otherwise require regional lymph node evaluation for pathological classification. By definition, *in situ* neoplasia has not involved any structures in the primary organ that would allow tumor cells to spread to regional nodes or distant sites.
- The primary tumor surgical resection criteria for pathological stage must be met in order to assign pathological Stage 0.
- Lymph node microscopic assessment is not necessary to assign pathological Stage 0 for *in situ* neoplasia; for example, pTis cN0 cM0 is staged as pathological Stage 0.

Summary
The following rules should be applied for carcinoma *in situ* depending on when the case was diagnosed. This is based on a diagnostic biopsy with microscopic evidence of *in situ* for the clinical stage, and the appropriate surgical resection performed for the pathological stage.

- Cases diagnosed 2010 – 2016, Seventh Edition:
  - pTis cN0 cM0 clinical stage 0
  - pTis cN0 cM0 pathological stage 0
- Cases diagnosed 2017 – , Eighth Edition:
  - cTis cN0 cM0 clinical stage 0
  - pTis cN0 cM0 pathological stage 0

Reinforced Concepts – "X" versus <Blank>

- Explaining Blanks and X, Ambiguous Terminology and Support for AJCC Staging https://cancerstaging.org/CSE/Registrar/Documents/Explaining%20Blanks%20and%20X,%20Ambiguous%20Terminology%20and%20Support%20for%20AJCC%20Staging_updated%20Dec%202015.pdf – this presentation was updated December 2015 and is still valid.
- Does patient meet criteria for clinical and/or pathological staging?
- EDITSv18 will reinforce training – EDITSv17 was used to test

- "X" indicates something was done for T or N Category Code but result was not clear in the test report to assess the primary tumor size/extent or nodal status. "X" does not equal "Unknown"
- <blank> indicates no test was performed, patient not eligible to stage, no info available in medical record on staging to determine T or N Category Code
- M Category always be coded when the patient meets eligibility criteria for staging
  - cMo can be used for clinical no evidence of mets AND for pathological when mets not proven histologically
  - pM1 is histologically proven mets (bx or resection) and can be used for clinical and pathological

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Using the AJCC 8th edition API (AJCC API)

- The American Joint Committee on Cancer (AJCC) has developed an Application Programming Interface to deliver the 8th Edition Cancer Staging System in XML format. For the first time, the AJCC will be making the Cancer Staging System available in an XML format to directly integrate into software and applications.

- This will allow software developers to:
  - Focus on usability of software rather than accuracy of the AJCC content
  - Integrate once and maintain connection for all future versions of AJCC Staging System
  - Take advantage of upcoming enhancements to API content in real-time
  - Benefit from the most accurate and up-to-date AJCC Staging System in your software

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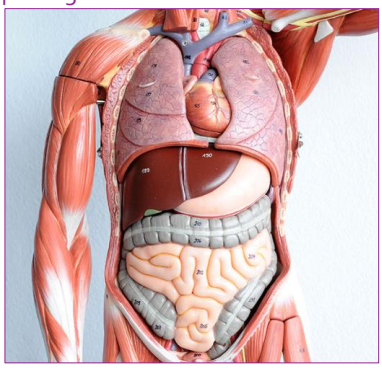
AJCC Staging Manual Organization – Chapter 2

- Table of Contents
- Part I – General Information on Cancer Staging and End-Results Reporting
  - Chapter 1 – Principles of Cancer Staging
  - Chapter 2 – Organization of the AJCC Cancer Staging Manual
  - Chapter 3 – Cancer Survival Analysis
  - Chapter 4 – Risk Models for Prognosis in Practice of Precision Oncology
- Part II – Head and Neck (Chapters 5-15)
- Part III – Upper GI Tract (Chapters 16-18)
- Part IV – Lower GI Tract (Chapters 19-21)
- Part V – Hepatobiliary System (Chapters 22-28)
- Part VI – Neuroendocrine Tumors (Chapters 29-34)
- Part VII – Thorax (Chapters 35-37)



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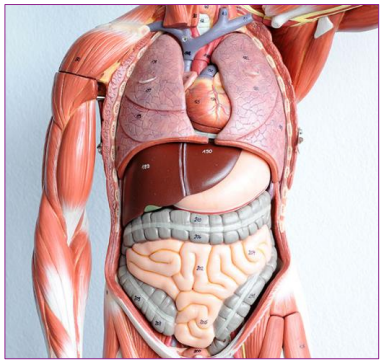
AJCC Staging Manual Organization – Chapter 2

- Part VIII – Bone (Chapter 38)
- Part IX – Soft Tissue Sarcoma (Chapters 39-45)
- Part X – Skin (Chapters 46-47)
- Part XI – Breast (Chapter 48)
- Part XII – Female Reproductive System (Chapters 49-56)
- Part XIII – Male Genital Organs (Chapter 37-59)
- Part XIV – Urinary Tract (Chapters 60-63)
- Part XV – Opthalmic Sites (Chapters 64-71)
- Part XVI – Central Nervous System (Chapter 72)
- Part XVII – Endocrine System (Chapters 73-77)
- Part XVIII – Hematologic Malignancies (Chapters 78-83)



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What Happened to the Staging Forms?

- Staging Forms for recording cancer staging data will be available on ww.cancerstaging.org.
- These printable forms may be used by physicians to record data on T, N, and M categories; prognostic stage groups; additional prognostic factors; cancer grade; and other important information.
- This form may be useful for recording information in the medical record and for communicating information from physicians to the cancer registrar.
- The cancer staging form is a document for the patient record; it is not a substitute for documentation of history, physical examination, and staging evaluation, or for documenting treatment plans for follow-up.
- Staging Forms may be used by individuals without permission from the AJCC or the publisher.

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General Chapter Outline and Contents

AJCC Cancer Staging Manual, 8th Edition – Chapter Outline	
Chapter Summary	Summary of major changes and applicable disease • Cancers Staged Using This Staging System • Cancers NotS Staged Using This Staging System • Summary of Changes • ICD-O-32 Topography Codes • WHO Histology Codes
Introduction	General information on the disease site, such as background, trends, and recent discoveries
Anatomy	• Primary Site(s) • Regional Lymph Nodes • Metastatic Sites
Rules for Classification	• Clinical ○ Imaging • Pathological
Prognostic Factors	Indication and discussion of non-TNM prognostic factors important in each disease • Prognostic Factors Required for Stage Grouping • Additional Factors Recommended for Clinical Care • Emerging Factors for Clinical Care (Web Only)
Risk Assessment Models	Prognostic and predictive models validated by the AJCC's acceptance criteria for inclusion of risk models for individualized prognosis in the practice of precision medicine • Updates are available at www.cancerstaging.org
Recommendations for Clinical Trial Stratification	Recommended factors for partitioning patients entering a clinical trial (web only)
Definitions of AJCC TNM	• Definition of Primary Tumor (T) • Definition of Regional Lymph Node (N) • Definition of Distant Metastasis (M)
AJCC Prognostic Stage Groupings	Organization of T, N, M, and any additional categories into groups
Registry Data Collection Variables	Prognostic variable recommended for collection in cancer registries
Histologic Grade (G)	Grading system to be used
Histopathologic Type	Discussion or listing of histopathologic types
Survival Data	Survival data are the basis for anatomic stage and prognostic groups
Illustration	Additional figures illustrating anatomic extent of disease

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Specific Neoplasms Included by Chapter

ICD-O-3 Topography Codes

Code	Description
	Appendicular skeleton, trunk, skull and facial bones
C40.0	Long bones of upper limb, scapula, and associated joints
C40.1	Short bones of upper limb and associated joints
C40.2	Long bones of lower limb and associated joints
C40.3	Short bones of lower limb and associated joints
C40.8	Overlapping lesion of bones, joints, and articular cartilage of limbs
C40.9	Bones of limb, NOS
C41.0	Bones of skull and face and associated joints
C41.1	Mandible
C41.3	Ribs, sternum, clavicle, and associated joints
C41.8	Overlapping lesion of bones, joints, and articular cartilage
C41.9	Bone, NOS
	Spine
C41.2	Vertebral column
	Pelvis
C41.4	Pelvic bones, sacrum, coccyx, and associated joints

WHO Classification of Tumors

Code	Description
9180	Osteosarcoma
9180	Osteoblastic osteosarcoma
9181	Chondroblastic osteosarcoma
9182	Fibroblastic osteosarcoma
9183	Telangiectatic osteosarcoma
9185	Small cell osteosarcoma
9187	Intramedullary low grade
9194	Juxtacortical high grade
9193	Juxtacortical intermediate grade
9192	Juxtacortical low grade
9184	Secondary osteosarcoma
9220	Chondrosarcoma
9220	Conventional chondrosarcoma
9242	Clear cell chondrosarcoma
…	…
9370	Chordoma
…	…
9040	Synovial sarcoma
…	…
8830	Epithelioid sarcoma
8830	Undifferentiated spindle cell sarcoma

23

Neoplasms Not Included in Manual/Chapter

Cancers Not Staged Using This Staging System

Histologic types of cancer…	Are staged according to…	Found in Chapter…
Primary malignant lymphoma	Hodgkin and Non-Hodgkin Lymphoma	79
Multiple myeloma	Multiple Myeloma and Plasma Cell Disorders	82

Cancers Not Staged Using This Staging System

These histopathologic types of cancer…	*Are staged according to the classification for…*	*And can be found in chapter…*
Nasopharyngeal cancer	Nasopharynx	9
HPV-related oropharynx cancer	HPV-mediated (p16+) oropharyngeal cancer	10
Melanoma	Melanoma of the skin	47
Mucosal melanoma	Mucosal melanoma of the head and neck	14
Thyroid carcinoma	Thyroid carcinoma	73–74
Soft tissue sarcoma	Soft tissue sarcoma of the head and neck	40
Eyelid	Eyelid carcinoma	64

24

Locate the Correct Chapter/Section for this Case

TABLE 1. Clinical and Pathologic T Category for Human Papillomavirus-Associated (p16-Positive) Oropharyngeal Cancer, 8th Edition Staging Manual[a]

T CATEGORY	T CRITERIA
T0	No primary identified
T1	Tumor 2 cm or smaller in greatest dimension
T2	Tumor larger than 2 cm but not larger than 4 cm in greatest dimension
T3	Tumor larger than 4 cm in greatest dimension or extension to lingual surface of epiglottis
T4	Moderately advanced local disease; tumor invades the larynx, extrinsic muscle of tongue, medial pterygoid, hard palate, or mandible or beyond[b]

[a]Table 1 is used with the permission of the American Joint Committee on Cancer (AJCC), Chicago, Illinois. The original source for this material is the AJCC Cancer Staging Manual, Eighth Edition (2017) published by Springer Science and Business Media LLC (springer.com) (Amin MB, Edge SB, Greene FL, et al, eds. AJCC Cancer Staging Manual. 8th ed. New York: Springer; 2017, with permission[2]). [b]Mucosal extension to lingual surface of epiglottis from primary tumors of the base of the tongue and vallecula does not constitute invasion of the larynx.

OR

TABLE 2. Clinical and Pathologic T Category for Non-Human Papillomavirus-Associated (p16-Negative) Oropharyngeal Cancer, 8th Edition Staging Manual[a]

T CATEGORY	T CRITERIA
Tx	Primary tumor cannot be assessed
Tis	Carcinoma in situ
T1	Tumor 2 cm or smaller in greatest dimension
T2	Tumor larger than 2 cm but not larger than 4 cm in greatest dimension
T3	Tumor larger than 4 cm in greatest dimension or extension to lingual surface of epiglottis
T4	Moderately advanced or very advanced local disease
T4a	Moderately advanced local disease; tumor invades the larynx, extrinsic muscle of tongue, medial pterygoid, hard palate, or mandible[b]
T4b	Very advanced local disease; tumor invades lateral pterygoid muscle, pterygoid plates, lateral nasopharynx, or skull base or encases carotid artery

[a]Table 2 is used with the permission of the American Joint Committee on Cancer (AJCC), Chicago, Illinois. The original source for this material is the AJCC Cancer Staging Manual, Eighth Edition (2017) published by Springer Science and Business Media LLC (springer.com) (Amin MB, Edge SB, Greene FL, et al, eds. AJCC Cancer Staging Manual. 8th ed. New York: Springer; 2017, with permission[2]). [b]Mucosal extension to lingual surface of epiglottis from primary tumors of the base of the tongue and vallecula does not constitute invasion of the larynx.

25

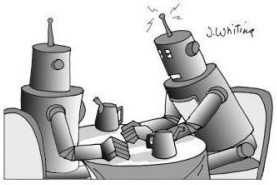
Review Clinical & Pathological Criteria for this Chapter – Does Case Meet Criteria?

- **Rules for Classification - Urinary Bladder**
  - **Clinical Classification** – "Primary tumor assessment includes cytoscopic assessment, bimanual examination before and after endoscopic surgery (biopsy o transurethral resection), radiographic evaluation, and histologic verification of the presence or absence of tumor when indicated. All factors are important in determining a clinical stage of disease. **Despite optimal evaluation, clinical under-staging and over-staging remains a concern**…*(continued)*…"
  - **Imaging** – "Imaging is recommended to stage and characterize most newly diagnosed bladder cancer. Published guidelines recommend pelvic and upper-tract evaluations for all patients with higher risk bladder tumors. As most patients with bladder cancer present with hematuria, imaging evaluation of the upper urinary tract using CT or MRI urography is recommended….Imaging plays a complementary role to deep biopsy in local staging of bladder cancer…*(continued)*…"
  - **Pathological Classification** – "Pathological staging is performed on partial cystectomy and radical cystectomy specimens and is based on both gross and microscopic assessment….A pN status should be assessed regardless of the number of lymph nodes examined and irrespective of the laterality of the lymph nodes extracted. If no lymph nodes are evaluated, pNX status should be assigned…*(continued)*…"

26

Apply General plus Chapter-Specific Rules

- Chapter 1 – General Staging Rules – READ THOROUGHLY and USE ALWAYS
- General Staging Rules PDF – READ THOROUGHLY and USE ALWAYS
- Chapter-Specific Rules – Priority Over General Rules – READ THOROUGHLY and APPLY CAREFULLY
- Many New Anatomic Drawings Added to AJCC 8th edition – Use them
- WARNING: Software Drop Down Select Menus do not include Rules
- WARNING: EDITS cannot identify all circumstances when rules apply



"Listen closely! I will tell you this only once! *Read the manual!*"

27

Determine the Best T, N, and M Category Code for Clinical and Pathological Stage

T – Primary Tumour		
Tx		Primary tumour cannot be assessed
T0		No evidence of primary tumour
T1		Tumour 3 cm or less in greatest diameter surrounded by lung or visceral pleura, without evidence of main bronchus
	T1a(mi)	Mininally invasive adenocarcinoma
	T1a	Tumour 1 cm or less in greatest diameter
	T1b	Tumour more than 1 cm but not more than 2 cm
	T1c	Tumour more than 2 cm but not more than 3 cm
T2		Tumour more than 3 cm but not more than 5 cm; or tumour with any of the following features: Involves main bronchus (without involving the carina), invades visceral pleura, associated with atelectasis or obstructive pneumonitis that extends to the hilar region
	T2a	Tumour more than 3 cm but not more than 4 cm
	T2b	Tumour more than 4 cm but not more than 5 cm
T3		Tumour more than 5 cm but not more than 7 cm or one tha directly invades any of the following: chest wall, phrenic nerve, parietal pericardium, or associated separate tumour nodule(s) in the same lobe as the primary
T4		Tumours more than 7 cm or one that invades any of the following: diaphragm, mediastinum, heart, great vessels, trachea, recurrent laryngeal nerve, oesophagus, vertebral body, carina; separate tumour nodule(s) in a different ipsilateral lobe to that of the primary

International Association for the Study of Lung Cancer, 2015

N – Regional Lymph Nodes		
Nx		Regional lymph nodes cannot be assessed
N0		No regional lymph node metastasis
N1		Metastasis in ipsilateral peribronchial and/or ipsilateral hilar lymph nodes and intrapulmonary nodes, including involvement by direct extension
N2		Metastasis in ipsilateral mediastinal and/or subcarinal lymph node(s)
N3		Metastasis in contralateral mediastinal, contralateral hilar, ipsilateral or contralateral scalene or supraclavicular lymph node(s)

M – Distant Metastasis		
M0		No distant metastasis
M1		Distant metastasis
	M1a	Separate tumour nodule(s) in a contralateral lobe; tumour with pleaural or pericardial nodules or malignant pleural or pericardial effusion
	M1b	Single extrathoracic metastasis in a single organ
	M1c	Multiple extrathoracic metastases in one or several organs

International Association for the Study of Lung Cancer, 2015

28

Did the Patient Receive NeoAdjuvant Tx?

- Isn't 'yp' stage the same as pathological staging? NO – measures response to TX
- What is Neoadjuvant Treatment? What is Intent of this Treatment?
- Does any treatment given before surgery qualify as neoadjuvant?
- What are exceptions to treatment given before surgery that is not neoadjuvant?
- What about treatment given for late stage cancer – can this be neoadjuvant?
- What about hormone therapy given before prostate or breast surgery?
- What are common cancer conditions that qualify to receive neoadjuvant therapy?
  - Breast – large tumor, clinically positive nodes
  - Rectal – any tumor, any nodal status
  - Lung – early stage, tumor location and size, resectable or not, histology
- **DON'T FORGET TO CODE THE DESCRIPTOR FOR THESE CASES** – very important!!!

29

Importance of Cancer Genomics - NCI

- **Cancer is a genetic disease.**
- Cancer genomics research contributes to precision medicine by defining cancer types and subtypes based on their genetics and identify targets for new medicines
- "targeted therapies" specifically combat characteristics of cancer cells that are different from normal cells of the body. This makes them less likely to be toxic for patients compared to other treatments such as chemotherapy and radiation that can kill normal cells.
- How do "targeted therapies" work?
  - Inhibit enzymes that trigger the abnormal growth and survival of cancer cells
    - Imatinib (Gleevec) inhibits overactivity of protein Bcr-ABL tyrosine kinase in leukemia patients
  - Block aberrant gene expression characteristic of cancer cells
    - Trastuzumab (Herceptin) controls hyperactive signaling pathway (HER2 tyrosine kinase) - breast
  - Halt molecular signaling pathways that are in overdrive in cancer cells
    - Erlotinib (Tarceva) and gefitinib (Iressa) both restrict activation opf a protein (EGFR) in lung cancers

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Tumor Marker or Genetic Alteration

Tumor Marker

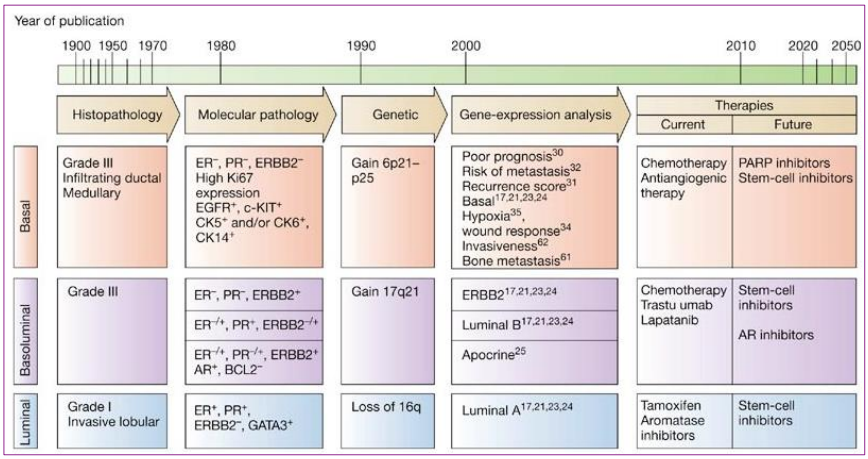
- Tumor Markers are indicators of cellular, biochemical, molecular or genetic alterations by which neoplasia can be recognized.
- Tumor markers detect the presence of tumor based on quantitative and/or qualitative measurements in blood or secretions found in cells, tissues or body fluids.
- These surrogate measures of the biology of the cancer provide insight in the clinical behavior of the tumor.
- Biochemical or immunologic counterparts of differentiation states of tumor.

Genetic Alteration

- Cancer is a multigene disease that arises as a result of mutational and epigenetic changes coupled with activation of complex signaling intra and extra cellular networks.
- Alterations in 3 Classes of Genes
  - ProtoOncogenes
  - Tumor Suppressor Genes
  - DNA Repair Genes
- Types of Mutations
  - Gene Rearrangement
  - Point Mutations
  - Gene Amplification
- Resultant effects on death mechanisms embedded within cells coupled with dysregulation of cell proliferation events.

31

Comparison of the histopathology, molecular pathology, genetic, and gene-expression analysis methods used to delineate breast cancer tumor subtypes and suggested current and future therapies in a historical context



http://www.nature.com/article-assets/npg/nrclinonc/journal/v4/n9/images/ncponc0908-f1.jpg

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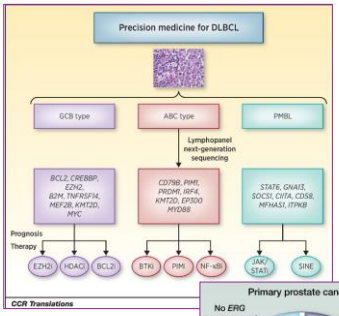
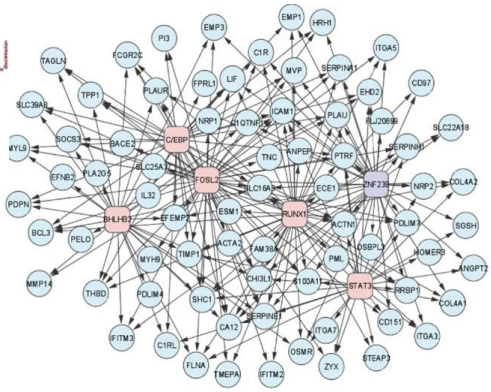
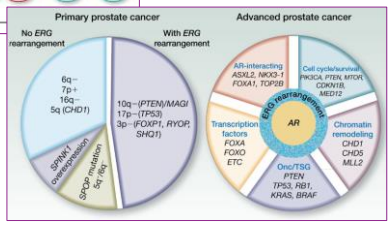
Today – Precision Cancer Medicine Workup





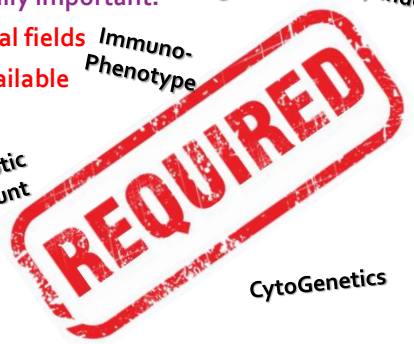


Site-Specific Fields Required for Staging

- Each Chapter includes the Site-Specific Fields Required for Staging (if any)
- You MUST also document ALL Site-Specific Field Values/Results in TEXT
- You MUST look for these tests and results – they are really important!
- Analytic Cases MUST include valid entries in these critical fields
- Non-Analytic Cases SHOULD include valid entries as available
- FCDS will monitor overuse of 999 default values
- Include same tests as CS SSFs for some cancers
- Instructions and Codes may differ from CS
- Field Length and Location of Decimal
- Site-Specific Fields Manual Pending
- Other – age, LVI, LN +/exam, T Size

HER2 MSI ER/PR CA 125 CA 19-9 PSA Gleason

B Symptoms CEA Ki-67 Index Immuno-Phenotype Mitotic Count Specified Grade CytoGenetics



Sample New SSFs - Required for Staging

Full Data Item Name: Esophagus and EGJ, Squamous Cell (including adenosquamous), Tumor Location
Recommended NAACCR Data Item Name: Esop/EGJ Tumor Epicenter
Data Item Length: 1
Required for AJCC 8th Edition Staging: Yes
Source: New data item, submitted to UDS in 2016 and approved

16.1 Esophagus and EGJ, Squamous Cell (including adenosquamous), Tumor Location

Note 1: Physician statement of the epicenter tumor location can be used to code this data item.
- Physician statement of upper, middle, or lower takes precedence over any individual results or measurements.

Note 2: Location is defined by the position of the epicenter of the tumor in the esophagus. Information is most likely to be obtained from CT scan or operative notes.

Note 3: This information is used for pathologic staging of squamous cell carcinomas of the esophagus and esophagogastric junction.

Code	Description	AJCC ID
	Blank	All except 16.1
1	U: Upper (Cervical/Proximal esophagus to lower border of azygos vein)	
2	M: Middle (Lower border of azygos vein to lower border of inferior pulmonary vein)	
3	L: Lower (Lower border of inferior pulmonary vein to stomach, including EGJ and proximal 2cm cardia of stomach)	
9	**X: Esophagus, NOS** **Specific location not documented in medical record** Specific location not assessed	

Full Data Item Name: Serum Albumin Pretreatment Level
Recommended NAACCR Data Item Name: Serum Alb PreTX Level
Data Item Length: 1
Required for AJCC 8th Edition Staging: Yes
Source: NEW, approved by UDS in 2016

82 Plasma Cell Myeloma Serum Albumin Pretreatment Level

Note 1: Physician statement of serum albumin ≥3.5 g/dL can be used to code this data item.
- Use the cut points listed below regardless of the lab's reference range

Note 2: Elevated serum albumin is defined by ≥3.5 g/dL and is part of the staging criteria.

Note 3: Record this data item based on physician statement or blood test lab values at diagnosis (pre-treatment). Do not use findings from a urine test.

Note 4: If the serum albumin level determined by available lab values differs from the physician statement of < or ≥ 3.5 g/dL, the physician's statement takes precedence.

Code	Description	AJCC ID
	Blank	All except 82
1	Serum albumin <3.5 g/dL	
2	Serum albumin ≥3.5 g/dL	
7	Test done, results not in chart	
9	**Not documented in medical record** Not tested for serum albumin, or unknown if assessed	

Site-Specific Fields – Clinically Relevant

Lifestyle Factors
- Tobacco Use
- Depression
- Alcohol

Virus Exposures
- P16/HPV
- HIV
- Hep B or Hep C

Overall Health Status
- Comorbidity(s)
- Overall Health
- Performance Status
  - Zubrod/ECOG
  - Karnofsky

Other Anatomic Info
- Location of Positive Lymph Node(s)
- Size of Positive Node
- Extranodal Extension
- Perineural Invasion
- Tumor Thickness
- Depth of Invasion
- Surgical Margins

- **Clinically Relevant Site Specific Prognostic Variables are in the AJCC Staging Manual**
- **New Site Specific Fields not yet created to store these variables**
- **ALL are Pending Review**
- **None are Required in 2018**
- **None are Optional in 2018**
- **No Instructions or Codes – Yet.**

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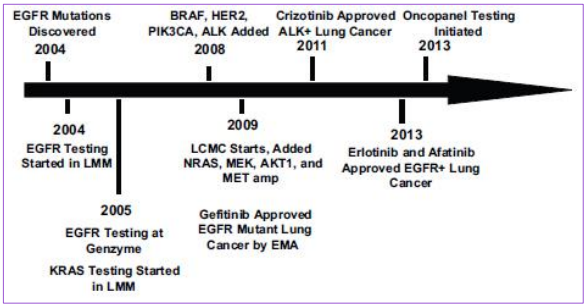
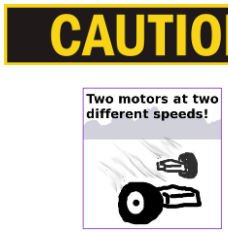
Site-Specific Fields – Emerging Factors





Identification of and Testing for Next Generation Biomarkers, Genetic Tests and Multi-Gene Profiles and Establishing Data Collection Standards for Emerging SSFs

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Determining Prognostic Stage Groups

- MUST MEET THE CRITERIA FOR STAGING TO BE STAGED
- Verify ALL Required Variables Have Been Coded
- Clinical Prognostic Stage Group
- Pathological Prognostic Stage Group
- Response to Neoadjuvant Therapy (yp/yc)
- Proper Use of Clinical and Pathological Descriptor Fields

Table 8. Examples of Revisions to Breast Cancer Staging Using Biomarkers and Oncotype DX

T	N	M	G	HER2	ER	PR	SEVENTH EDITION ANATOMIC STAGE/PROGNOSTIC GROUP	EIGHTH EDITION PROGNOSTIC STAGE GROUP
Biomarkers								
1	0	0	1	–	–	–	IA	IIA
1	0	0	3	–	+	–	IA	IIA
3	1-2	0	1	+	+	+	IIIA	IB
Oncotype DX recurrence score < 11 for ER-positive tumors								
2	0	0	Any	–	+	Any	IIA	IB
1-2	1	0	Any	–	+	Any	IIA/IIB	IB
0-2	2	0	1-2	+	+	+	IIIA	IB

Abbreviations: –, negative; O+, positive; ER, estrogen receptor; G, grade; HER2, human epidermal growth factor receptor 2; M, metasta classification; N, lymph node classification; PR, progesterone receptor; T, tumor classification.

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TNM and Site-Specific Field EDITS

Nemesis: the goddess of revenge

In the ancient Greek religion, Nemesis was the goddess who enacted retribution against those who succumb to hubris (arrogance before the gods).

Another name was Adrastela, meaning "the inescapable"

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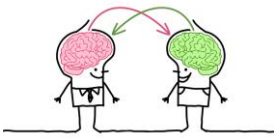
Tips and Pointers



- Read Chapter 1 – this is where the General Rules are documented
- Specific Chapters may include exceptions to General Rules
- Read the Entire Chapter at least once – there are lots of details often overlooked
- Read the Entire Chapter at least once – drop down menus do not include specifics for inclusion in staging, staging exclusions, or exceptions or special caveats for specific criteria or staging guidelines within each specific cancer site chapter
- Use EDITS to learn staging rules – DO NOT USE to change data just to "pass" edits
- Practice - Use Reliable Resource for Answers & Rationale
- Ask for Assistance as Needed

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AJCC Staging Manual Site-Specific Training

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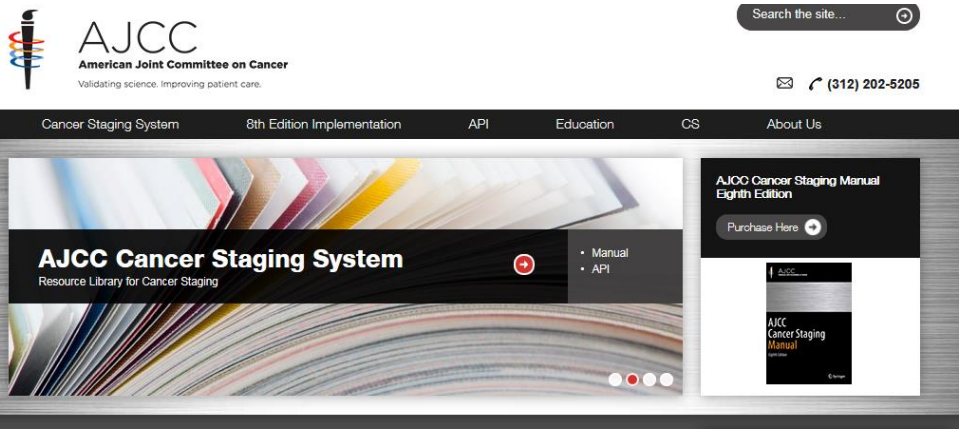
Helpful Information

https://cancerstaging.org



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Helpful Information

http://onlinelibrary.wiley.com for copies of articles

- CA Cancer J Clin. 2017 Mar 14. doi: 10.3322/caac.21393.
  - Breast Cancer—Major Changes in the American Joint Committee on Cancer 8th Edition Cancer Staging Manual
- March/April 2017 - Volume 67, Issue 2
  - The 8th Edition AJCC Cancer Staging Manual: Continuing to build a bridge from a population-based to a more "personalized" approach to cancer staging
  - Head and Neck cancers—major changes in the American Joint Committee on Cancer 8th edition Cancer Staging Manual
  - Lung cancer — major changes in the American Joint Committee on Cancer 8th edition Cancer Staging Manual
- May/June 2017 - Volume 67, Issue 3
  - Prostate cancer – major changes in the American Joint Committee on Cancer 8th edition Cancer Staging Manual
- July/August 2017 – Volume 67, Issue 4
  - AJCC Staging Topic(s) TBA

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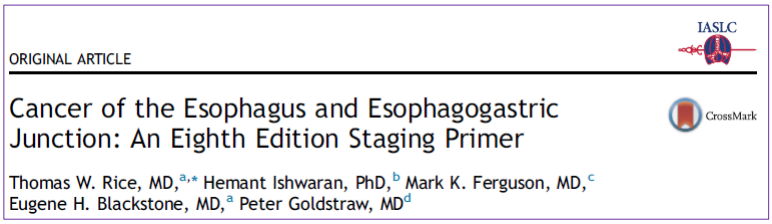
Helpful Information

http://ascopubs.org/journal/jco

- J Clin Oncol 35:274-280. © 2016 by American Society of Clinical Oncology
  - Modified Staging Classification for Pancreatic Neuroendocrine Tumors on the Basis of the American Joint Committee on Cancer and European Neuroendocrine Tumor Society Systems
- Journal of Thoracic Oncology Vol. 12 No. 1: 36-42
  - Cancer of the Esophagus and Esophagogastric Junction: An 8th Edition Staging Primer


ORIGINAL ARTICLE

Cancer of the Esophagus and Esophagogastric Junction: An Eighth Edition Staging Primer

Thomas W. Rice, MD,[a,*] Hemant Ishwaran, PhD,[b] Mark K. Ferguson, MD,[c] Eugene H. Blackstone, MD,[a] Peter Goldstraw, MD[d]

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Questions