WHAT ARE WE DISCUSSING?

- What is AJCC Staging
- Purpose of staging
- General rules for clinical and pathological TNM staging
- Anatomic stage/prognostic grouping rules
- Using Blanks and X’s when information is unknown
AJCC STAGING

- AJCC stands for American Joint Committee on Cancer
- Established in 1959 to formulate and publish systems of classification of cancer
- Comprised of nineteen member organizations
AJCC STAGING

- Classifies the extent of disease at diagnosis based on extent of the primary tumor, involvement of regional LNs, and presence or absence of distant mets.
- Currently on 8th edition (for cases diagnosed January 1, 2018 forward).
- Required by ACoS approved facilities; optional for others.
- For specified histologies.
PURPOSE OF STAGING

- Stage of disease
  - Helps establish prognosis
  - Is used to determine appropriate treatment, based on the experience and outcomes of previous patients

- Stage of disease
  - Is used in evaluating the results of treatments and clinical trials
  - Provides a common framework for comparison of patients across treatment centers
  - Serves as a basis for clinical and translational research
- All cases **should** have microscopic confirmation, even for clinical classification. In situ cases **MUST** have microscopic confirmation.

- Cases without microscopic confirmation can be staged, but survival should be analyzed separately.
Assigning T, N, and M categories generally follows general rules. If there are exceptions to the general rules they are outlined in the disease site specific chapter.

The role of the T tumor size and/or contiguous spread are specifically defined for each chapter.

Use of TX category should be minimized as much as possible.

Any T defined
  - Includes all T categories except Tis
  - Includes TX and T0
T N M CLASSIFICATION

- T describes the primary tumor, and is defined by size or contiguous extension
  - T0, Tis, T1 – T4, TX

- N denotes the presence or absence of cancer in regional draining lymph nodes
  - N0, N1 – N3, NX

- M denotes the presence or absence of distant spread or metastases
  - M0, M1
DISEASE PROGRESSION AND STAGING

- Both clinical and pathological staging say to use only the information before progression to assign the stage.
- If there is evidence of progression before the start of any treatment, do not use that information for staging.
STAGING AND NEOADJUVANT THERAPY

- Neoadjuvant therapy is systemic therapy or radiation therapy given before surgical resection.

- Staging assigned after neoadjuvant therapy is indicated by a ‘y’ descriptor
  - yc - clinical stage after systemic or radiation therapy but prior to surgical resection; this is not currently captured by cancer registries
  - yp – pathologic stage after systemic or radiation therapy AND surgical resection; this is currently reported in the pathologic stage elements, with the ‘y’ descriptor
Some AJCC chapters require non-anatomic factors for assigning stage.

- Clearly defined in each chapter – Also check the SSDIs required to stage list in the SSDI manual.
- These are collected separately from T, N, and M and are used to assign stage groups.
- There are more of these prognostic factors for staging in the 8th Edition.
REQUIRED PROGNOSTIC FACTORS

- Cancer registry data collection
  - Registry must record X or unknown if factor not available
  - Registry must NOT use lowest category
  - Registry may NOT assign stage group if factor needed
IS IT STAGEABLE?

### ICD-O-3 Topography Codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C18.0</td>
<td>Cecum</td>
</tr>
<tr>
<td>C18.2</td>
<td>Ascending colon</td>
</tr>
<tr>
<td>C18.3</td>
<td>Hepatic flexure of colon</td>
</tr>
<tr>
<td>C18.4</td>
<td>Transverse colon</td>
</tr>
<tr>
<td>C18.5</td>
<td>Splenic flexure of colon</td>
</tr>
<tr>
<td>C18.6</td>
<td>Descending colon</td>
</tr>
<tr>
<td>C18.7</td>
<td>Sigmoid colon</td>
</tr>
<tr>
<td>C18.8</td>
<td>Overlapping lesion of colon</td>
</tr>
<tr>
<td>C18.9</td>
<td>Colon, NOS</td>
</tr>
<tr>
<td>C19.9</td>
<td>Rectosigmoid junction</td>
</tr>
<tr>
<td>C20.9</td>
<td>Rectum, NOS</td>
</tr>
</tbody>
</table>

### Description of Codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>8010</td>
<td>Carcinoma, NOS</td>
</tr>
<tr>
<td>8013</td>
<td>Large cell neuroendocrine carcinoma (NEC)</td>
</tr>
<tr>
<td>8020</td>
<td>Undifferentiated carcinoma</td>
</tr>
<tr>
<td>8041</td>
<td>Small cell neuroendocrine carcinoma (NEC)</td>
</tr>
<tr>
<td>8070</td>
<td>Squamous cell carcinoma</td>
</tr>
<tr>
<td>8140</td>
<td>Adenocarcinoma in situ</td>
</tr>
<tr>
<td>8140</td>
<td>Adenocarcinoma</td>
</tr>
<tr>
<td>8213</td>
<td>Serrated adenocarcinoma</td>
</tr>
<tr>
<td>8246</td>
<td>Neuroendocrine carcinoma (NEC)</td>
</tr>
<tr>
<td>8265</td>
<td>Micropapillary carcinoma</td>
</tr>
<tr>
<td>8480</td>
<td>Mucinous adenocarcinoma</td>
</tr>
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<td>8490</td>
<td>Signet ring cell carcinoma</td>
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<tr>
<td>8510</td>
<td>Medullary carcinoma</td>
</tr>
<tr>
<td>8560</td>
<td>Adenosquamous carcinoma</td>
</tr>
<tr>
<td>8000*</td>
<td>Neoplasm, malignant</td>
</tr>
<tr>
<td>8010*</td>
<td>Carcinoma in situ, NOS</td>
</tr>
<tr>
<td>8481*</td>
<td>Mucin-producing adenocarcinoma</td>
</tr>
</tbody>
</table>
For clinical staging to apply, there must be a suspicion of cancer.

For pathologic staging to apply you must meet one of the following criteria:

- Surgical resection per AJCC Colon chapter including polypectomy, segmental resection (ex: sigmoidectomy), partial colectomy, hemicolecotomy, total colectomy)

- Biopsy of highest T category PLUS biopsy of highest N category. (T4/N2 proven).

- Positive histologic confirmation of a metastatic site. (M1 proven).

For post therapy staging to apply you must have systemic and/or radiation therapy followed by surgery.
Clinical classification composed of:
- cT
- cN
- cM or pM
Incorporates info from physical exam, endoscopy, imaging, biopsies, and surgical exploration *without* resection

Clinical staging is required by ACoS

Expressed as cT, cN, cM
CLINICAL T, N, AND M

- How can we determine a clinical TNM stage?
  - Use all information from any of the following obtained BEFORE treatment:
    - Physical examination
    - Imaging
    - Endoscopy and Biopsy
    - Surgical exploration without resection
    - Resection of a single node/sentinel node(s) with a clinical T
    - Lab test or biological markers
    - Any other relevant examinations
    - Any other relevant information before neoadjuvant treatment or surgical resection
CLINICAL M

- cM0
  - No symptoms or signs of mets
  - There is no MX category, so it must be M0 or M1 or left blank
  - Only H&P needed to assign cM0

- cM1
  - Seen on physical exam or imaging
  - Seen during scopes or operations, but not bx

- pM1
  - Diagnosed by bx
How can we determine a pathological TNM stage?

Use all of the clinical staging information in addition to information obtained in:

- Operative findings (surgeon’s statement of findings)
- Pathology report (Only 1/3 of the information)
PATHOLOGICAL CLARIFICATIONS

- Pathological classification composed of:
  - pT
  - pN
  - cM or pM

- pT – in general, resection of primary tumor is required
  - Based on tumor size of extent of contiguous spread
  - Record size to the nearest whole millimeter
  - Ex: 4.5cm = 45, 3.43cm = 34, 6.8mm = 7

- Biopsy which allows evaluation of highest T category is adequate to stage, pT can be assigned without resection
PATHOLOGICAL CLARIFICATIONS

- **pN** Regional node assessment for path classification
- **Number of nodes resected**
  - Requires pathologic assessment of at least ONE node
  - Minimum number for sufficient sampling is explained in each chapter; however, if fewer than minimum number sampled, you can still assign pN
- Usually need pT to code pN
  - Microscopic eval of highest N category can be used to assign pN, even if T is cT
pM can only be M1 (or 1a, 1b, 1c) or blank

pM0 does NOT exist

pM1 special considerations

- Requires positive biopsy of metastatic site
- May be used WITH cT and cN to assign pStage Group
- Staged as both
  - Clinical stage IV – cT cN pM1
  - Pathologic stage IV – cT cN pM1
DEFINITIONS OF PRIMARY TUMOR

- **TX** - Primary tumor cannot be assessed
- **T0** - No evidence of primary tumor
- **Tis** - carcinoma in situ; intraepithelial or invasion of lamina propria

*Note: Tis includes cancer cells confined within the glandular basement membrane intraepithelial) or mucosal lamina propria intramucosal) with no extension through the muscularis mucosae into the submucosa.
DEFINITIONS OF PRIMARY TUMOR

- T1 – tumor invades submucosa
- Through the muscularis mucosa but not into the muscularis propria
DEFINITIONS OF PRIMARY TUMOR

- T2 – tumor invades muscularis propria
T3 – tumor invades through the muscularis propria into pericolorectal tissues
DEFINITIONS OF PRIMARY TUMOR

- T4a – tumor invades through the visceral peritoneum
DEFINITIONS OF PRIMARY TUMOR

- T4b – tumor directly invades or is adherent to other organs or structures
The ‘N’ category designates the presence or absence of tumor in the regional LNs; increasing numerical involvement based on size, fixation, or invasion of the capsule that surrounds the LN, OR on number/location of involved LNs.

<table>
<thead>
<tr>
<th>Segment</th>
<th>Regional lymph nodes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cecum</td>
<td>Pericolic, ileocolic, right colic</td>
</tr>
<tr>
<td>Ascending colon</td>
<td>Pericolic, ileocolic, right colic, right branch of the middle colic</td>
</tr>
<tr>
<td>Hepatic flexure</td>
<td>Pericolic, ileocolic, right colic, middle colic</td>
</tr>
<tr>
<td>Transverse colon</td>
<td>Pericolic, middle colic</td>
</tr>
<tr>
<td>Splenic flexure</td>
<td>Pericolic, middle colic, left colic</td>
</tr>
<tr>
<td>Descending colon</td>
<td>Pericolic, left colic, sigmoid, inferior mesenteric</td>
</tr>
<tr>
<td>Sigmoid colon</td>
<td>Pericolic, sigmoid, superior rectal (hemorrhoidal), inferior mesenteric</td>
</tr>
<tr>
<td>Rectosigmoid</td>
<td>Pericolic, sigmoid, superior rectal (hemorrhoidal), inferior mesenteric</td>
</tr>
<tr>
<td>Rectum</td>
<td>Mesorectal, superior rectal (hemorrhoidal), inferior mesenteric, internal iliac, inferior rectal (hemorrhoidal)</td>
</tr>
</tbody>
</table>
DEFINITIONS OF REGIONAL NODES

- NX – regional LNs cannot be assessed
- N0 – no regional LN metastasis
- N1 – mets in 1-3 regional LNs
- N1a – mets in one regional LN
- N1b – mets in 2-3 regional LNs
DEFINITIONS OF TNM

- N1c – tumor deposits in the subserosa, mesentery, or nonperitonealized pericolic tissues *without* regional nodal metastasis
DEFINITIONS OF TNM

- N2 – mets in four or more regional LNs
- N2a – mets in 4-6 regional LNs
- N2b – mets in seven or more regional LNs
DEFINITIONS OF TNM

- M component identifies the presence or absence of distant mets
- M0 – no distant metastasis
- M1 – distant metastasis NOS
- M1a – mets confined to one organ or site
- M1b – mets to more than one organ/site or the peritoneum
- M1c – mets to the peritoneal surface is identified alone or with other site or organ mets (NEW for AJCC 8th Edition)
STAGE GROUPINGS

- Allows grouping of patients with similar prognosis into fewer categories
- Useful for data analysis and treatment guideline development
- Stage groups summarize the stage information in a manner that is easily communicated and reproducible

- **Clinical Stage Group**
  - cT
  - cN
  - cM or pM

- **Pathologic Stage Group**
  - pT
  - pN
  - cM or pM

- **Post Tx Stage Group**
  - PostTxT
  - PostTxN
  - PostTXcM or pM
RULES FOR STAGE GROUPINGS WITH AJCC 8TH EDITION

- Subcategory info not available to registrar
  - Assign main category (available in all AJCC tables)
  - Do NOT assign lower subcategory
- Stage group info not available to registrar
  - e.g., missing subcategory or prognostic factor category
  - Do NOT assign stage group
  - Document stage group as unknown
# TNM Stage Group

## AJCC Prognostic Stage Groups

<table>
<thead>
<tr>
<th>When T is...</th>
<th>And N is...</th>
<th>And M is...</th>
<th>Then the stage group is...</th>
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</thead>
<tbody>
<tr>
<td>Tis</td>
<td>N0</td>
<td>M0</td>
<td>0</td>
</tr>
<tr>
<td>T1, T2</td>
<td>N0</td>
<td>M0</td>
<td>I</td>
</tr>
<tr>
<td>T3</td>
<td>N0</td>
<td>M0</td>
<td>IIA</td>
</tr>
<tr>
<td>T4a</td>
<td>N0</td>
<td>M0</td>
<td>IIB</td>
</tr>
<tr>
<td>T4b</td>
<td>N0</td>
<td>M0</td>
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</tr>
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<td>N1/N1c</td>
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<td>IIIA</td>
</tr>
<tr>
<td>T1</td>
<td>N2a</td>
<td>M0</td>
<td>IIIB</td>
</tr>
<tr>
<td>T3–T4a</td>
<td>N1/N1c</td>
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<td>IIIB</td>
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<tr>
<td>T1–T2</td>
<td>N2b</td>
<td>M0</td>
<td>IIIC</td>
</tr>
<tr>
<td>T4a</td>
<td>N2a</td>
<td>M0</td>
<td>IIIC</td>
</tr>
<tr>
<td>T3–T4a</td>
<td>N2b</td>
<td>M0</td>
<td>IIIC</td>
</tr>
<tr>
<td>T4b</td>
<td>N1–N2</td>
<td>M0</td>
<td>IIIIC</td>
</tr>
<tr>
<td>Any T</td>
<td>Any N</td>
<td>M1a</td>
<td>IVA</td>
</tr>
<tr>
<td>Any T</td>
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<td>IVB</td>
</tr>
<tr>
<td>Any T</td>
<td>Any N</td>
<td>M1c</td>
<td>IVC</td>
</tr>
</tbody>
</table>
WHEN TO USE BLANKS AND X’S

- “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 has to be coded when the patient meets eligibility criteria for staging. There can never be a mX or a blank M category when T and N are coded.
- cM0 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
### BLANKS AND X CONTINUED

<table>
<thead>
<tr>
<th>Blank</th>
<th>X</th>
</tr>
</thead>
</table>
| Blank = info not available OR doesn’t meet staging criteria  
• Valid only for TNM categories  
• Use when you know staging was done, but info is not in chart  
• don’t default to X | X = cannot be assessed  
• Valid only with T and N categories  
• Not a default  
• Not equivalent to unknown |

<table>
<thead>
<tr>
<th>Clinical</th>
<th>Pathologic</th>
</tr>
</thead>
</table>
| • cTX – patient not examined, no imaging or workup  
• cT blank – no access to information when abstracting case  
• cT blank – incidental finding at surgery | • pTX – resection performed, but the specimen was lost or destroyed  
• pT blank – no surgical resection  
• pT blank – no access to information when abstracting case |
### Have the rules for classification for T been met?

- **Yes**
  - T and N will not be blank
  - Must be valid value or X

- **No**
  - T and N will be blank

<table>
<thead>
<tr>
<th>Data Item</th>
<th>Value</th>
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<td>Pathologic N</td>
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<td>Pathologic M</td>
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<tr>
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QUESTIONS?