AJCC 2010 (7th edition)
Staging Changes

Stomach, colon, lung, liver, others
Dean W. Joelson, M.D.

AJCC 2010 Staging Changes

Handbook version has gone from 469 pages to 718 pages

A Tale of Two Cities (Dickens): 496 pages
The Grapes of Wrath (Steinbeck): 464 pages
The Republic (Plato): 480 pages
The Chronicles of Narnia (the entire thing!) (Lewis): 768 pages
The History of the Decline and Fall of the Roman Empire (Gibbon): 848 pages
Guinness Book of World Records 2011: 288 pages

Some General Notes

A key feature of the 7th edition of TNM is coordination with the UICC
- Establishes a consistent worldwide standard for cancer staging
- International collaboration for data collection
- Especially lung, esophagus, stomach, melanoma, and gynecologic malignancies

The MX category is no more
- The use of MX may result in exclusion from staging
- cMX is inappropriate as the clinical assessment of metastasis can be based on physical examination alone
- If the pathologist does not have knowledge of the clinical M, MX should NOT be recorded
- pMX does not exist; pM0 does not exist (except at autopsy)

cM0: Clinically no distant metastasis
cM1: Distant metastasis clinically (i.e., colon cancer with liver metastasis based on CT)
pM0: Clinically no distant metastasis
pM1: Distant metastasis proven microscopically (i.e., needle biopsy)

If a cM1 (e.g., liver met) is biopsied and is negative, it becomes cM0, not pM0
AJCC 2010 Staging Changes

New Chapters:

- Mucosal Melanoma of the Head and Neck
- Appendix (previously used the same system as colon)
- Gastrointestinal Stromal Tumor (GIST)
- Neuroendocrine Tumors (of digestive system)
- Intrahepatic Bile Duct (now different than HCC staging system)
- Perihilar Bile Duct (broken out of "Extrahepatic Bile Ducts" in 6th ed.)
- Distal Bile Duct (broken out of "Extrahepatic Bile Ducts" in 6th ed.)
- Pancreas, endocrine
- Merkel Cell Carcinoma
- Adrenal Gland (only adrenal cortical carcinoma)
- Ocular Lymphoma

*AJCC Cancer Staging Manual, 7th edition. 2009*
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Most Changed Systems:
- Stomach
- Colon and Rectum
- Liver
- Lung
- Cutaneous Squamous Cell Carcinoma
- Melanoma of the Skin
- Breast
- Urinary Bladder
- Prostate
- Malignant Melanoma of the Uvea

*Per AJCC pamphlet "Understanding the Changes from the Sixth to the Seventh Edition of the AJCC Cancer Staging Manual." 2009
While the histologic presence of invasive carcinoma invading dermal lymphatics is supportive of the diagnosis, it is not required, nor is dermal lymphatic invasion without typical clinical findings sufficient for a diagnosis of inflammatory breast cancer. If microinvasive disease is not well understood at this time.

• Acknowledged that microinvasive carcinoma is not well understood at this time.

• Recommend that all invasive cancers should be graded using the Nottingham combined histologic grade (grade I, II, III).

• Identified specific imaging modalities that can be used to estimate clinical tumor size, including mammography, ultrasound, and magnetic resonance imaging.

• Made the specific recommendation to use the clinical measurement thought to be most accurate to determine the clinical T of breast cancers treated with neoadjuvant therapy. Pathologic (posttreatment) size should be estimated based on the best combination of gross and microscopic histological examination by carefully measuring and recording the relative positions of tissue samples submitted for microscopic evaluation and determining which histologic section corresponds to the clinical measurement.

• Made specific recommendations that (1) the microscopic measurement is the most accurate and preferred method to determine pT with a small margin of error; (2) clinical measurement can be used if microscopic measurement is not feasible, although the clinical impact of multifocal carcinoma is generally thought to be quite favorable, although the clinical impact of multifocal carcinoma has not been formally established.

• Made the specific recommendation that only cases referred to as LIN containing LCIS (±ALH) are classified as Tis (LCIS).

• Acknowledged the histologic presence of invasive carcinoma as a general rule, although the clinical impact of multifocal carcinoma has not been formally established. The pathologic (posttreatment) size should be estimated based on the best combination of gross and microscopic histological examination by carefully measuring and recording the relative positions of tissue samples submitted for microscopic evaluation and determining which histologic section corresponds to the clinical measurement.

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Primary Tumor (T)
- pTX: Cannot be assessed
- pT0: No evidence of primary tumor
- pTis: Carcinoma in situ
- pT1: Tumor invades lamina propria or submucosa
  - pT1a: Tumor invades lamina propria
  - pT1b: Tumor invades submucosa
- pT2: Tumor invades muscularis propria or subserosa
  - pT2a: Tumor invades muscularis propria
  - pT2b: Tumor invades subserosa
- pT3: Tumor penetrates serosa (visceral peritoneum) without invasion of adjacent structures
- pT4: Tumor directly invades adjacent structures

Stomach Prior AJCC TNM Staging

Nodes (N)

Metastases (M)
- M0: No evidence of metastases
- M1: Evidence of metastases

Postneoadjuvant Therapy

- Magnetic resonance imaging (MRI) or pathologically

• Patients will be considered to have M1 (and therefore Stage IV) breast cancer if they have had clinically or radiographically detectable metastases, with or without biopsy, prior to neoadjuvant systemic therapy.

- A description of the degree of response to neoadjuvant therapy will be collected by the registrar with the posttreatment nodal metastases no greater than 0.2 millimeters are classified as ypN0.

- The posttreatment ypT will be defined as the largest contiguous focus of invasive cancer as defined histopathologically with a subscript to indicate the pathologic T stage.

- In the setting of patients who received neoadjuvant therapy, clinical T (cT) should be based on clinical or imaging findings.

- Stage grouping. Assuming that they do not have clinically and/or radiographically detectable metastases, patients with M0(N0) at surgery will be staged according to T.

- Stage grouping.

- Breast 2010 AJCC Changes

- Prior AJCC TNM Staging

- Stomach

- Magnetic resonance imaging (MRI) or pathologically

- • A description of the degree of response to neoadjuvant therapy will be collected by the registrar with the posttreatment nodal metastases no greater than 0.2 millimeters are classified as ypN0.

- • The posttreatment ypT will be defined as the largest contiguous focus of invasive cancer as defined histopathologically with a subscript to indicate the pathologic T stage.

- • In the setting of patients who received neoadjuvant therapy, clinical T (cT) should be based on clinical or imaging findings.
Stomach
New 2010 AJCC TNM Staging

- Primary Tumor (T)
  - pTX Cannot be assessed
  - pT0 No evidence of primary tumor
  - pTis Carcinoma in situ
  - pT1 Tumor invades lamina propria, muscularis mucosae, or submucosa
    - pT1a: Tumor invades lamina propria or muscularis mucosae
    - pT1b: Tumor invades submucosa
  - pT2 Tumor invades muscularis propria (used to be pT2a)
  - pT3 Tumor invades subserosal connective tissue, without involvement of visceral peritoneum or adjacent structures (used to be pT2b)
  - pT4 Tumor involves serosa (visceral peritoneum) or adjacent structures
    - pT4a: Tumor invades serosa (visceral peritoneum) (used to be pT3)
    - pT4b: Tumor invades adjacent structures (used to be T4 by itself)

The very definition of gastric cancer has changed.

In fact, sometimes gastric cancer isn’t even gastric cancer!

Stomach
New 2010 AJCC TNM Staging

- Previously, a pathologist could stage a GE junction tumor as either esophageal or gastric based on from where he/she thought it was arising
  - As intelligent as it was to place this critical staging power in the hands of a pathologist, some claimed this system was arbitrary and confusing
  - According to the new stomach staging criteria:
    - Tumors arising at the esophagogastric junction, or arising in the stomach 5 cm or less from the esophagogastric junction and crossing the esophagogastric junction, are staged using the TNM system for esophageal carcinoma. The revised gastric cancer staging system applies to tumors arising in the more distal stomach and to tumors arising in the proximal 5 cm but not crossing the esophagogastric junction.

1 or other physician
2 or other physician
Classification of GE Junction Adenocarcinoma

Siewert et al (2000) came up with three different categories:

- Type I: adenocarcinoma of the distal esophagus, which usually arises from an area with specialized intestinal metaplasia of the esophagus (i.e., Barrett esophagus) and infiltrate the esophagogastric junction from above;
- Type II: true carcinoma of the cardia arising immediately at the esophagogastric junction;
- Type III: subcardial gastric carcinoma that infiltrates the esophagogastric junction and distal esophagus from below.

Survival with GE Junction Adenocarcinomas

This implies that true adenocarcinoma of the cardia behaves more like esophageal adenocarcinoma than gastric adenocarcinoma.

Furthermore...

Best Staging System for GE Junction Tumors

- Both esophageal and gastric systems work, but...
- Gaur P et al (2010) showed that among all patients with GE junction tumors:
  - 6th edition gastric staging system best 2.4% of the time
  - 6th edition esophageal staging system was best 2.93% of the time
  - 7th edition esophageal staging system was best 94.67% of the time

Just in case you thought everyone agreed on everything...

- Huang Q et al. "Gastric cardiac carcinomas involving the esophagus are more adequately staged as gastric cancers by the 7th edition of the American Joint Commission on Cancer Staging System." Modern Pathology. 2010 Sep 17.
  - Conclusions: Neither the esophageal nor the gastric scheme proves to be clearly superior over the other

Where were we?

**Primary Tumor (T) 6th edition**
- pT0: Cannot be assessed
- pT1: No evidence of primary tumor
- pT1a: Carcinoma in situ
- pT1b: Tumor invades lamina propria or submucosa
- pT1c: Tumor invades muscularis mucosa
- pT2: Tumor invades submucosa or muscularis propria
- pT3: Tumor invades subserosa or adventitia
- pT4: Tumor directly involves adjacent structures

**Primary Tumor (T) 7th edition**
- pT0: Cannot be assessed
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- pT3: Tumor invades muscularis propria
- pT3a: Tumor invades subserosa or adventitia
- pT3b: Tumor invades subserosa or adventitia without invasion of adjacent structures
- pT3c: Tumor invades subserosa or adventitia with invasion of adjacent structures
- pT4: Tumor directly involves adjacent structures
The T Dilemma

Abundant evidence shows that there are significant differences between T2 lesions in the old 6th edition staging system.

**Old T2a = invasion of muscularis propria**

**Old T2b = invasion of subserosa**

Gastric tumor staging now more closely resembles that of the rest of tubular GI tract (i.e. T2-T4 stages based on invasion into muscularis propria, subserosa, and serosa/adjacent structures, respectively).

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**Stomach**

**Prior AJCC TNM Staging**

Regional Lymph Nodes (N)
- NX: Regional lymph nodes cannot be assessed
- N0: No regional lymph node metastasis
- N1: Metastasis in 1 to 6 perigastric lymph nodes
- N2: Metastasis in 7 to 15 perigastric lymph nodes
- N3: Metastasis in greater than 15 perigastric lymph nodes

Distant Metastasis (M)
- MX: Distant metastasis cannot be assessed
- M0: No distant metastasis
- M1: Distant metastasis

**Stomach**

**New 2010 AJCC TNM Staging**

Regional Lymph Nodes (N)
- NX: Regional lymph nodes cannot be assessed
- N0: No regional lymph node metastasis
- N1: Metastasis in 1 to 2 perigastric lymph nodes
- N2: Metastasis in 3 to 6 perigastric lymph nodes
- N3: Metastasis in 7 or more perigastric lymph nodes
  - N3a: Metastasis in 7 to 15 perigastric lymph nodes
  - N3b: Metastasis in 16 or more perigastric lymph nodes

Distant Metastasis (M)
- pM1: Distant metastasis
- Not applicable
Stomach
New 2010 AJCC TNM Staging

Regional Lymph Nodes (N)
- NX: Regional lymph nodes cannot be assessed
- N0: No regional lymph node metastasis
- N1: Metastasis in 1 to 2 perigastric lymph nodes
- N2: Metastasis in 3 to 6 perigastric lymph nodes (used to be part of N1)
- N3: Metastasis in 7 or more perigastric lymph nodes
  - N3a: Metastasis in 7 to 15 perigastric lymph nodes (used to be N2)
  - N3b: Metastasis in 16 or more perigastric lymph nodes (used to be N3 by itself)

The N Dilemma

Overall analysis of the data did not demonstrate a statistically significant cutoff value for any number of positive LNs >6

But!... (not surprisingly)

Studies have shown survival is worse the more positive lymph nodes a patient has

Therefore, N3 is broken into N3a (7 to 15 positive nodes) and N3b (greater than 16 positive nodes)

Stage Groupings

6th edition (top) and 7th edition (bottom)
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But!... (not surprisingly) Studies have shown survival is worse the more positive lymph nodes a patient has.

Therefore, N3 is broken into N3a (7-15 positive nodes) and N3b (greater than 16 positive nodes).

Stage Groupings
6th edition (top) and 7th edition (bottom)

Ahn HS et al. “Evaluation of the Seventh American Joint Committee on Cancer/International Union Against Cancer Classification of Gastric Adenocarcinoma in Comparison With the Sixth Classification.” Cancer 2010 (published online ahead of print)
Stomach
I’m not done, yet
* M1 category now encompasses positive peritoneal fluid cytology

Non-staging related note:
* In October 2011, CAP proposed adding additional elements to their protocol, including detailed information of Her-2/neu status

Colon

Colon
Prior AJCC TNM Staging

<table>
<thead>
<tr>
<th>Primary Tumor (T)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TX</td>
<td>Primary tumor cannot be assessed</td>
</tr>
<tr>
<td>T0</td>
<td>No evidence of primary tumor</td>
</tr>
<tr>
<td>Tis</td>
<td>Carcinoma in situ: intraepithelial or invasion of lamina propria</td>
</tr>
<tr>
<td>T1</td>
<td>Tumor invades submucosa</td>
</tr>
<tr>
<td>T2</td>
<td>Tumor invades muscularis propria</td>
</tr>
<tr>
<td>T3</td>
<td>Tumor invades through the muscularis propria into the subserosa, or into non-peritonealized pericolic or perirectal tissues</td>
</tr>
<tr>
<td>T4</td>
<td>Tumor directly invades other organs or structures, and/or perforates visceral peritoneum</td>
</tr>
</tbody>
</table>
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New 2010 AJCC TNM Staging

Primary Tumor (T)
- TX: Primary tumor cannot be assessed
- T0: No evidence of primary tumor
- Tis: Carcinoma in situ: intraepithelial or invasion of lamina propria
- T1: Tumor invades submucosa
- T2: Tumor invades muscularis propria
- T3: Tumor invades through the muscularis propria into pericolic tissues
- T4a: Tumor penetrates to the surface of the visceral peritoneum
- T4b: Tumor directly invades or is adherent to other organs or structures

Colon
Prior AJCC TNM Staging

Regional Lymph Nodes (N)
- NX: Regional lymph nodes cannot be assessed
- N0: No regional lymph node metastasis
- N1: Metastasis in 1 to 3 regional lymph nodes
- N1a: Metastasis in one regional lymph node
- N1b: Metastasis in 2 to 3 regional lymph nodes
- N1c: Tumor deposit(s) in the subserosa, mesentery, or unperitonealized pericolic or perirectal tissues without regional nodal metastasis
- N2: Metastasis in 4 or more regional lymph nodes
- N2a: Metastasis in 4 to 6 regional lymph nodes
- N2b: Metastasis in seven or more regional lymph nodes

Colon
New 2010 AJCC TNM Staging

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Colon
New 2010 AJCC TNM Staging

Distant Metastasis
- Not applicable
- M1 Distant metastasis
  - M1a Metastasis confined to one organ or site (e.g., liver, lung, ovary, nonregional lymph node)
  - M1b Metastasis in more than one organ/site or the peritoneum

Colon
New 2010 AJCC Stage Grouping

<table>
<thead>
<tr>
<th>Stage</th>
<th>T</th>
<th>N</th>
<th>M</th>
<th>Dukes Mod. Astler-Coller</th>
<th>5-Year Survival</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Ti</td>
<td>N0</td>
<td>M0</td>
<td>A</td>
<td>74.3%</td>
</tr>
<tr>
<td>I</td>
<td>T1</td>
<td>N0</td>
<td>M0</td>
<td>A</td>
<td>74.3%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>A</td>
<td>78.7%</td>
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<tr>
<td>II</td>
<td>T2</td>
<td>N0</td>
<td>M0</td>
<td>A</td>
<td>74.3%</td>
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<td>78.7%</td>
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<td></td>
<td>A</td>
<td>32.5%</td>
</tr>
</tbody>
</table>

Colon
New 2010 AJCC Changes

What inspired stage grouping changes:
- Essentially, data showed relative increased importance of T category in survival compared with N category.
  - i.e. T1-T2/N2 patients showed better survival (62%) compared to T3-4/N2 patients (16%-43%)
  - Thus the shift of T1-T2/N2 patients from stage IIIC to IIIA/B
  - i.e. T4/N1 patients showed worse survival (47%) than T3/N1 patients (55%)
    - Thus the shift of T4/N1 patients from IIIIB to IIIC

### Colon New 2010 AJCC Stage Grouping

<table>
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<tr>
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<th>T</th>
<th>N</th>
<th>M</th>
<th>Outcomes</th>
<th>5-Year Survival</th>
</tr>
</thead>
<tbody>
<tr>
<td>T0</td>
<td>T1</td>
<td>N0</td>
<td>M0</td>
<td>A</td>
<td>99.2% / 99.7%</td>
</tr>
<tr>
<td>T1</td>
<td>T1</td>
<td>N0</td>
<td>M0</td>
<td>A</td>
<td>93.2% / 93.7%</td>
</tr>
<tr>
<td>T2</td>
<td>T1</td>
<td>N0</td>
<td>M0</td>
<td>A1</td>
<td>88.2% / 88.7%</td>
</tr>
<tr>
<td>T4a</td>
<td>T3</td>
<td>N0</td>
<td>M0</td>
<td>B1</td>
<td>66.7% / 68.7%</td>
</tr>
<tr>
<td>T4b</td>
<td>T4a</td>
<td>N0</td>
<td>M0</td>
<td>B2</td>
<td>55.7% / 58.7%</td>
</tr>
<tr>
<td>T4c</td>
<td>T4a</td>
<td>N0</td>
<td>M0</td>
<td>B3</td>
<td>45.7% / 48.7%</td>
</tr>
<tr>
<td>T1</td>
<td>T1</td>
<td>N2a</td>
<td>M0</td>
<td>C1</td>
<td>47.7% / 49.7%</td>
</tr>
<tr>
<td>T1</td>
<td>T1</td>
<td>N2b</td>
<td>M0</td>
<td>C2</td>
<td>47.7% / 49.7%</td>
</tr>
<tr>
<td>T1</td>
<td>T1</td>
<td>N2c</td>
<td>M0</td>
<td>C2</td>
<td>47.7% / 49.7%</td>
</tr>
<tr>
<td>T1</td>
<td>T1</td>
<td>N2a</td>
<td>M0</td>
<td>C2</td>
<td>47.7% / 49.7%</td>
</tr>
<tr>
<td>T1</td>
<td>T1</td>
<td>N2c</td>
<td>M0</td>
<td>C2</td>
<td>47.7% / 49.7%</td>
</tr>
<tr>
<td>T1</td>
<td>T1</td>
<td>N2b</td>
<td>M0</td>
<td>C2</td>
<td>47.7% / 49.7%</td>
</tr>
<tr>
<td>T1</td>
<td>T1</td>
<td>N2c</td>
<td>M0</td>
<td>C2</td>
<td>47.7% / 49.7%</td>
</tr>
</tbody>
</table>

### Colon New 2010 AJCC Changes

**What inspired N changes:**

- The presence of N2 disease does not, by itself, confer poor prognosis
- Patients with one involved lymph node (N1a) have 5% to 13% better 5-year survival than those with two to three positive nodes (N1b)
  - EXCEPT for T1/N1a versus T1/N1b (these have similar survivals)
- Those with four to six involved nodes (N2a) have a 5% to 19% better survival than those with seven or more positive nodes (N2b)


### Colon New 2010 AJCC TNM Staging

**Regional Lymph Nodes (N):**

- **NX:** Regional lymph nodes cannot be assessed
- **N0:** No regional lymph node metastasis
- **N1:** Metastasis in 1 to 3 regional lymph nodes
  - N1a: Metastasis in one regional lymph node
  - N1b: Metastasis in 2-3 regional lymph nodes
  - N1c: Tumor deposit(s) in the subserosa, mesentery, or nonperitonealized pericolic or perirectal tissues without regional nodal metastasis
- **N2:** Metastasis in four or more regional lymph nodes
  - N2a: Metastasis in 4-6 regional lymph nodes
  - N2b: Metastasis in seven or more regional lymph nodes
But then there is N1c…

Tumor deposit(s) in the subserosa, mesentery, or nonperitonealized pericolic or perirectal tissues without regional nodal metastasis

Which begs the question, “What, exactly, is a tumor deposit?”

Tumor Deposits

Prior colonic AJCC staging:
- Stage IIA and IIB: Locally advanced cancer with spread completely through or beyond colon wall (pT3 and pT4)
- Stage III: Lymph node metastases (pN1-N2)
- Stage IV: Distant metastases (pM1)

Tumor deposits: foci of tumor in pericolonic adipose tissue without definitive lymph node

Such tumor deposits may represent discontinuous spread, lymph-vascular spread with extravascular extension, or totally replaced lymph nodes.

(Stage III) behaved as if they had distant metastases (Stage IV)

So the staging folk knew they needed to do something
But where do they go? In the N category? Or in the M category?

Wasn’t easy to tell which patients with tumor deposits would behave like they had distant metastases

Not enough evidence, so they got placed into the N category, but only if there were no other positive nodes.

If there were positive nodes, the tumors got classified according to the appropriate N category into which they fell.

In this case, the tumor deposits are relegated to an item worthy of being diagnosed, but not worthy of influencing stage.
This seems very silly, and, in reality, is.

But! It does ensure that patients who might not have been treated with chemotherapy before (i.e. as N0 patients) might now get that therapy (as N1 patients)

That still doesn’t help us determine which N1c patients are going to act like Stage IV patients

So people are very diligently trying to better define tumor deposits and what they mean
Tumor Deposits

Two kinds of tumor deposits (ignoring shape):

- Tumor deposits with lymphocytes
- Tumor deposits without lymphocytes


QUIZ!!!

Tumor Deposit?
Lymph node metastasis

Tumor Deposit?

Tumor Deposit
Tumor Deposit?

Tumor Deposit

Tumor Deposit?
A few notes…

- Rectal cancer and colon cancer showed strikingly similar SEER outcomes
- Future staging manuals will incorporate data with regard to:
  - Tumor deposits (T)
  - Radical margin status
  - Molecular markers
- In February 2011, CAP amended their protocol to include “lymph node ratio” (LNR) information
  - Number of positive nodes
  - Number of nodes examined

Lung Cancer

- AJCC 6th edition was based on:
  - 4,351 lung cancer patients treated at MD Anderson Cancer Center from 1975 to 1988
  - 968 lung cancer patients treated by the National Cancer Institute Cooperative Lung Cancer Study Group from 1977 to 1982.
  - That’s only 5,319 patients 20-30 years ago!
- AJCC 7th edition is based on:
  - An international collection of more than 81,000 patients treated from 1990-2000.
### Lung Prior AJCC TNM Staging

**Primary Tumor (T)**

- **TX**: Primary tumor cannot be assessed, or tumor proven by the presence of malignant cells in sputum or bronchial washings but not resected by imaging or bronchoscopy.
- **T0**: No evidence of primary tumor.
- **T1**: Tumor 3 cm or less in greatest dimension, surrounded by lung or visceral pleura, without extension into the pleural space or evidence of invasion into adjacent or other structures.
- **T2**: Tumor with any of the following features of size or extent:
  - Tumor more than 3 cm and no more than 7 cm in greatest dimension.
  - Tumor more than 3 cm and no more than 7 cm from the carina.
  - Tumor more than 7 cm from the carina.
  - Tumor more than 5 cm and no more than 7 cm in greatest dimension.
  - Tumor more than 5 cm and no more than 7 cm from the carina.
  - Tumor more than 7 cm and no more than 9 cm in greatest dimension.
  - Tumor more than 7 cm and no more than 9 cm from the carina.
  - Tumor more than 9 cm in greatest dimension.
  - Tumor more than 9 cm from the carina.
- **T3**: Tumor of any size which meets one of the following criteria:
  - Tumor involving the pleura or diaphragm.
  - Tumor involving the mediastinum, heart, great vessels, trachea, esophagus, vertebral body, carina.
  - Tumor involving the chest wall (including superior sulcus tumors), diaphragm, or pericardium.
  - Tumor involving the pleura or diaphragm.
  - Tumor involving the mediastinum, heart, great vessels, trachea, esophagus, vertebral body, carina.
  - Tumor involving the chest wall (including superior sulcus tumors), diaphragm, or pericardium.
- **T4**: Tumor of any size which meets one of the following criteria:
  - Tumor involving the heart, great vessels, trachea, esophagus, vertebral body, carina.
  - Tumor involving the chest wall (including superior sulcus tumors), diaphragm, or pericardium.
  - Tumor involving the pleura or diaphragm.
  - Tumor involving the mediastinum, heart, great vessels, trachea, esophagus, vertebral body, carina.
  - Tumor involving the chest wall (including superior sulcus tumors), diaphragm, or pericardium.
  - Tumor involving the pleura or diaphragm.
  - Tumor involving the mediastinum, heart, great vessels, trachea, esophagus, vertebral body, carina.
  - Tumor involving the chest wall (including superior sulcus tumors), diaphragm, or pericardium.

### Lung New 2010 AJCC TNM Staging

**Primary Tumor (T)**

- **TX**: Primary tumor cannot be assessed, or tumor proven by the presence of malignant cells in sputum or bronchial washings but not resected by imaging or bronchoscopy.
- **T0**: No evidence of primary tumor.
- **T1**: Tumor 3 cm or less in greatest dimension, surrounded by lung or visceral pleura, without extension into the pleural space or evidence of invasion into adjacent or other structures.
- **T2**: Tumor with any of the following features of size or extent:
  - Tumor more than 3 cm and no more than 7 cm in greatest dimension.
  - Tumor more than 3 cm and no more than 7 cm from the carina.
  - Tumor more than 7 cm from the carina.
  - Tumor more than 5 cm and no more than 7 cm in greatest dimension.
  - Tumor more than 5 cm and no more than 7 cm from the carina.
  - Tumor more than 7 cm and no more than 9 cm in greatest dimension.
  - Tumor more than 7 cm and no more than 9 cm from the carina.
  - Tumor more than 9 cm in greatest dimension.
  - Tumor more than 9 cm from the carina.
- **T3**: Tumor of any size which meets one of the following criteria:
  - Tumor involving the pleura or diaphragm.
  - Tumor involving the mediastinum, heart, great vessels, trachea, esophagus, vertebral body, carina.
  - Tumor involving the chest wall (including superior sulcus tumors), diaphragm, or pericardium.
  - Tumor involving the pleura or diaphragm.
  - Tumor involving the mediastinum, heart, great vessels, trachea, esophagus, vertebral body, carina.
  - Tumor involving the chest wall (including superior sulcus tumors), diaphragm, or pericardium.
- **T4**: Tumor of any size which meets one of the following criteria:
  - Tumor involving the heart, great vessels, trachea, esophagus, vertebral body, carina.
  - Tumor involving the chest wall (including superior sulcus tumors), diaphragm, or pericardium.
  - Tumor involving the pleura or diaphragm.
  - Tumor involving the mediastinum, heart, great vessels, trachea, esophagus, vertebral body, carina.
  - Tumor involving the chest wall (including superior sulcus tumors), diaphragm, or pericardium.
  - Tumor involving the pleura or diaphragm.
  - Tumor involving the mediastinum, heart, great vessels, trachea, esophagus, vertebral body, carina.
  - Tumor involving the chest wall (including superior sulcus tumors), diaphragm, or pericardium.
Lung

New 2010 AJCC TNM Staging

Primary Tumor (T)
- T3: Tumor more than 3 cm but 7 cm or less in greatest dimension, surrounded by lung or visceral pleura, Involves main bronchus, 2 cm or more distal to the carina, or without involvement of the visceral pleura, parietal pericardium or subcarinal lymph node(s)
- T2: Tumor more than 3 cm but 5 cm or less in greatest dimension
- T1: Tumor 2 cm or less in greatest dimension

Regional Lymph Nodes (N)
- N0: No regional lymph node metastasis
- N1: Metastasis to ipsilateral hilar lymph nodes, and intrapulmonary nodes including involvement by direct extension of the primary tumor
- N2: Metastasis to ipsilateral mediastinal and/or subcarinal lymph node(s)
- N3: Metastasis to contralateral mediastinal, contralateral hilar, ipsilateral or contralateral scalene, or supraclavicular lymph node(s)

Distant Metastasis (M)
- M0: No distant metastasis
- M1: Distant metastasis (includes separate tumor nodule(s) in a different lobe (ipsilateral or contralateral))

No changes!
Lung
New 2010 AJCC TNM Staging

Regional Lymph Nodes (N)
- NX: Regional lymph nodes cannot be assessed
- N0: No regional lymph node metastasis
- N1: Metastasis to ipsilateral hilar lymph nodes, and intrapulmonary nodes including involvement by direct extension of the primary tumor
- N2: Metastasis to ipsilateral mediastinal and/or subcarinal lymph node(s)
- N3: Metastasis to contralateral mediastinal, contralateral hilar, ipsilateral or contralateral scalene, or supraclavicular lymph node(s)

No changes!

Distant Metastasis (M)
- M0: Metastasis to liver, brain, bone, or other distant sites
- M1a: Separate tumor nodule(s) in a contralateral lobe, tumor with pleural nodules, or malignant pleural (or pericardial) effusion
- M1b: Distant (in an organ far, far away…) metastasis

Lung New 2010 AJCC Stage Grouping

Stage T N M
0 Tis N0 M0
IA T1a N0 M0
T1b N0 M0
IB T2a N0 M0
T2b N0 M0
IIA T2a N1 M0
T2b N1 M0
IIB T2b N1 M0
T3 N0 M0
T3 N1 M0
T4 N0 M0
T4 N1 M0

IIIA T4 N0 M0
T4 N1 M0

IIIB T4 N0 M0
T4 N1 M0

IV Any T Any N M1a
Any T Any N M1b

*All T4, M0 lesions used to be IIIB; now T4 lesions with N0 or N1 are classified as IIIA

Lung New 2010 AJCC Changes

What inspired T1-T3 changes:

### New 2010 AJCC TNM Staging

**Primary Tumor (T)**
- **T1**: Tumor 3 cm or less in greatest dimension, surrounded by lung or visceral pleura, without bronchoscopic evidence of invasion more proximal than the lobar bronchus.
- **T2**: Tumor more than 3 cm but 7 cm or less in greatest dimension
- **T3**: Tumor more than 7 cm in greatest dimension
- **T4**: Tumor of any size which meets one of the following criteria:
  - Directly invades any of the following: chest wall (including superior sulcus tumors), diaphragm, mediastinal pleura, parietal pericardium
  - Involves main bronchus, 2 cm or more distal to the carina
  - Associated with atelectasis or obstructive pneumonitis that extends to the hilar region but does not involve the entire lung
  - Associated with pleural effusion
  - Associated with distant metastasis
  - Associated with any of the following features:
    - Carcinoma in situ
    - Direct invasion of vascular structures (i.e. not in the main bronchus)
    - Direct extension into mediastinum, heart, great vessels, trachea, esophagus, vertebral body, carina
    - Direct extension into the parietal pericardium
    - Tumor of any size which meets one of the following criteria:
      - Tumor more than 3 cm but 5 cm or less in greatest dimension
      - Tumor more than 2 cm but 3 cm or less in greatest dimension
      - Tumor more than 5 cm but 7 cm or less in greatest dimension
      - Tumor more than 7 cm in greatest dimension
    - Tumor which meets one of the following criteria:
      - Tumor more than 2 cm but 3 cm or less in greatest dimension
      - Tumor more than 5 cm but 7 cm or less in greatest dimension
      - Tumor more than 7 cm in greatest dimension
    - Tumor which meets one of the following criteria:
      - Tumor more than 3 cm but 5 cm or less in greatest dimension
      - Tumor more than 5 cm but 7 cm or less in greatest dimension
      - Tumor more than 7 cm in greatest dimension

**Distant Metastasis (M)**
- **M0**: No evidence of distant metastasis
- **M1a**: Separate tumor nodule(s) in a contralateral lobe, tumor with pleural nodules, or malignant pleural effusion
- **M1b**: Distant metastasis

### New 2010 AJCC Changes

**What inspired T4 and M changes:**
- [Graph showing changes in tumor survival rates over time](image)
- [Link to source: Journal of Thoracic Oncology 2007 Volume 2(7): 593-602.](source)

### New 2010 AJCC TNM Staging

**Primary Tumor (T)**
- **T1**: Tumor 3 cm or less in greatest dimension, surrounded by lung or visceral pleura, without bronchoscopic evidence of invasion more proximal than the lobar bronchus.
- **T2**: Tumor more than 3 cm but 7 cm or less in greatest dimension
- **T3**: Tumor more than 7 cm in greatest dimension
- **T4**: Tumor of any size which meets one of the following criteria:
  - Directly invades any of the following: chest wall (including superior sulcus tumors), diaphragm, mediastinal pleura, parietal pericardium
  - Involves main bronchus, 2 cm or more distal to the carina
  - Associated with atelectasis or obstructive pneumonitis that extends to the hilar region but does not involve the entire lung
  - Associated with pleural effusion
  - Associated with distant metastasis
  - Associated with any of the following features:
    - Carcinoma in situ
    - Direct invasion of vascular structures (i.e. not in the main bronchus)
    - Direct extension into mediastinum, heart, great vessels, trachea, esophagus, vertebral body, carina
    - Direct extension into the parietal pericardium
    - Tumor of any size which meets one of the following criteria:
      - Tumor more than 3 cm but 5 cm or less in greatest dimension
      - Tumor more than 5 cm but 7 cm or less in greatest dimension
      - Tumor more than 7 cm in greatest dimension
    - Tumor which meets one of the following criteria:
      - Tumor more than 3 cm but 5 cm or less in greatest dimension
      - Tumor more than 5 cm but 7 cm or less in greatest dimension
      - Tumor more than 7 cm in greatest dimension
    - Tumor which meets one of the following criteria:
      - Tumor more than 2 cm but 3 cm or less in greatest dimension
      - Tumor more than 5 cm but 7 cm or less in greatest dimension
      - Tumor more than 7 cm in greatest dimension
    - Tumor which meets one of the following criteria:
      - Tumor more than 3 cm but 5 cm or less in greatest dimension
      - Tumor more than 5 cm but 7 cm or less in greatest dimension
      - Tumor more than 7 cm in greatest dimension
  - Tumor which meets one of the following criteria:
    - Direct invasion of vascular structures (i.e. not in the main bronchus)
    - Involves main bronchus, 2 cm or more distal to the carina
    - Associated with atelectasis or obstructive pneumonitis that extends to the hilar region but does not involve the entire lung
    - Associated with pleural effusion
    - Associated with distant metastasis
    - Associated with any of the following features:
      - Carcinoma in situ
      - Direct invasion of vascular structures (i.e. not in the main bronchus)
      - Involves main bronchus, 2 cm or more distal to the carina
      - Associated with atelectasis or obstructive pneumonitis that extends to the hilar region but does not involve the entire lung
      - Associated with pleural effusion
      - Associated with distant metastasis
      - Associated with any of the following features:
        - Carcinoma in situ
        - Direct invasion of vascular structures (i.e. not in the main bronchus)
        - Involves main bronchus, 2 cm or more distal to the carina
        - Associated with atelectasis or obstructive pneumonitis that extends to the hilar region but does not involve the entire lung
        - Associated with pleural effusion
        - Associated with distant metastasis
        - Associated with any of the following features:
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          - Involves main bronchus, 2 cm or more distal to the carina
          - Associated with atelectasis or obstructive pneumonitis that extends to the hilar region but does not involve the entire lung
          - Associated with pleural effusion
          - Associated with distant metastasis
          - Associated with any of the following features:
            - Carcinoma in situ
            - Direct invasion of vascular structures (i.e. not in the main bronchus)
            - Involves main bronchus, 2 cm or more distal to the carina
            - Associated with atelectasis or obstructive pneumonitis that extends to the hilar region but does not involve the entire lung
            - Associated with pleural effusion
            - Associated with distant metastasis
            - Associated with any of the following features:
              - Carcinoma in situ
              - Direct invasion of vascular structures (i.e. not in the main bronchus)
              - Involves main bronchus, 2 cm or more distal to the carina
              - Associated with atelectasis or obstructive pneumonitis that extends to the hilar region but does not involve the entire lung
              - Associated with pleural effusion
              - Associated with distant metastasis
              - Associated with any of the following features:
                - Carcinoma in situ
                - Direct invasion of vascular structures (i.e. not in the main bronchus)
                - Involves main bronchus, 2 cm or more distal to the carina
                - Associated with atelectasis or obstructive pneumonitis that extends to the hilar region but does not involve the entire lung
                - Associated with pleural effusion
                - Associated with distant metastasis
                - Associated with any of the following features:
                  - Carcinoma in situ
                  - Direct invasion of vascular structures (i.e. not in the main bronchus)
                  - Involves main bronchus, 2 cm or more distal to the carina
                  - Associated with atelectasis or obstructive pneumonitis that extends to the hilar region but does not involve the entire lung
                  - Associated with pleural effusion
                  - Associated with distant metastasis
                  - Associated with any of the following features:
                    - Carcinoma in situ
                    - Direct invasion of vascular structures (i.e. not in the main bronchus)
                    - Involves main bronchus, 2 cm or more distal to the carina
                    - Associated with atlect.
Liver (intrahepatic bile ducts)

Prior AJCC TNM Staging
(actually combined with HCC System)

Primary Tumor
- **T0**: No evidence of primary tumor
- **T1**: Solitary tumor without vascular invasion
- **T2**: Solitary tumor with vascular invasion or multiple tumors none more than 5 cm
- **T3**: Multiple tumors more than 5 cm or tumor involving major branch of the portal or hepatic vein(s)
- **T4**: Tumor(s) with direct invasion of adjacent organs other than the gallbladder or with perforation of visceral peritoneum

The 6th edition AJCC staging system for liver tumors was based on data exclusively from patients with HCC.

Intrahepatic bile ducts

New 2010 AJCC TNM Staging

Primary Tumor
- **TX**: Primary tumor cannot be assessed
- **T0**: No evidence of primary tumor
- **Tis**: Carcinoma in situ (intraductal tumor)
- **T1**: Solitary tumor without vascular invasion
- **T2a**: Solitary tumor with vascular invasion
- **T2b**: Multiple tumors with or without vascular invasion
- **T3**: Tumor perforating the visceral peritoneum or involving the local extrahepatic structures by direct invasion
- **T4**: Tumor with periductal invasion

What happened to tumor size!? It doesn't matter for cholangiocarcinoma.1

**Intrahepatic bile ducts**

New 2010 AJCC TNM Staging

<table>
<thead>
<tr>
<th>Primary Tumor</th>
<th>Stage Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TX</td>
<td>Primary tumor cannot be assessed</td>
</tr>
<tr>
<td>T0</td>
<td>No evidence of primary tumor</td>
</tr>
<tr>
<td>Tis</td>
<td>Carcinoma in situ (intraductal tumor)</td>
</tr>
<tr>
<td>T1</td>
<td>Solitary tumor without vascular invasion</td>
</tr>
<tr>
<td>T2a</td>
<td>Solitary tumor with vascular invasion</td>
</tr>
<tr>
<td>T2b</td>
<td>Multiple tumors with or without vascular invasion</td>
</tr>
<tr>
<td>T3</td>
<td>Tumor perforating the visceral peritoneum or involving the local extrahepatic structures by direct invasion</td>
</tr>
<tr>
<td>T4</td>
<td>Tumor with peri-ductal invasion</td>
</tr>
</tbody>
</table>

---

Also...

Multiple tumors and vascular invasion had similar effects on prognosis, but the presence of both of these factors did not confer additional risk beyond either one alone.

---

**Intrahepatic bile ducts**

**New 2010 AJCC TNM Staging**

**Primary Tumor**

- **TX**: Primary tumor cannot be assessed
- **T0**: No evidence of primary tumor
- **Tis**: Carcinoma in situ (intraductal tumor)
- **T1**: Solitary tumor without vascular invasion
- **T2a**: Solitary tumor with vascular invasion
- **T2b**: Multiple tumors with or without vascular invasion
- **T3**: Tumor perforating the visceral peritoneum or involving the local extrahepatic structures by direct invasion
- **T4**: Tumor with periductal invasion

**Regional Lymph Nodes (N)**

- **NX**: Regional lymph nodes cannot be assessed
- **N0**: No regional lymph node metastasis
- **N1**: Regional lymph node metastasis

**Distant Metastasis (M)**

- **Not applicable**
- **M1**: Distant metastasis
Intrahepatic bile ducts
New 2010 AJCC Stage Grouping

<table>
<thead>
<tr>
<th>Stage</th>
<th>T</th>
<th>N0</th>
<th>M0</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>T1</td>
<td>N0</td>
<td>M0</td>
</tr>
<tr>
<td>II</td>
<td>T2</td>
<td>N0</td>
<td>M0</td>
</tr>
<tr>
<td>III</td>
<td>T3</td>
<td>N0</td>
<td>M0</td>
</tr>
<tr>
<td>IVA</td>
<td>T4</td>
<td>N0</td>
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</tr>
<tr>
<td>Any</td>
<td>Any</td>
<td>N1</td>
<td>M0</td>
</tr>
<tr>
<td>IVB</td>
<td>Any</td>
<td>Any</td>
<td>M1</td>
</tr>
</tbody>
</table>

And the best system is…

Or is it?

  - CONCLUSIONS: The 7th edition is clinically relevant and may be applicable worldwide, provided routine lymphadenectomy at the time of surgery for IHCC becomes the standard of care.

  - CONCLUSIONS: The new seventh edition of the AJCC/UICC Staging System proved to be adequate although further studies are need to confirm its superiority compared with the previous edition.

Hepatocellular

Liver (hepatocellular carcinoma)
Prior AJCC TNM Staging

<table>
<thead>
<tr>
<th>Primary Tumor</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TX</td>
<td>Primary tumor cannot be assessed</td>
</tr>
<tr>
<td>T0</td>
<td>No evidence of primary tumor</td>
</tr>
<tr>
<td>T1</td>
<td>Solitary tumor without vascular invasion</td>
</tr>
<tr>
<td>T2</td>
<td>Solitary tumor with vascular invasion or multiple tumors none more than 5 cm</td>
</tr>
<tr>
<td>T3</td>
<td>Multiple tumors more than 5 cm or tumor involving major branch of the portal or hepatic vein(s)</td>
</tr>
<tr>
<td>T4</td>
<td>Tumor(s) with direct invasion of adjacent organs other than the gallbladder or with perforation of visceral peritoneum</td>
</tr>
</tbody>
</table>
Hepatocellular carcinoma
New 2010 AJCC TNM Staging

Primary Tumor (T)

- **pT0**: Cannot be assessed
- **pT1**: No evidence of primary tumor
- **pT2**: Solitary tumor without vascular invasion
- **pT3a**: Solitary tumor with vascular invasion or multiple tumors none more than 5 cm
- **pT3b**: Multiple tumors more than 5 cm
- **pT4**: Single tumor or multiple tumors of any size involving a major branch of the portal vein or hepatic veins
- **pT4a**: Tumor(s) with direct invasion of adjacent organs other than the gallbladder or with perforation of visceral peritoneum

<table>
<thead>
<tr>
<th>Variable</th>
<th>pT0</th>
<th>pT1</th>
<th>pT2</th>
<th>pT3a</th>
<th>pT3b</th>
<th>pT4a</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (in years)</td>
<td>72</td>
<td>120</td>
<td>120</td>
<td>105</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>Serum level of alkaline phosphatase (IU/L)</td>
<td>3.1</td>
<td>165</td>
<td>165</td>
<td>105</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>Ascites</td>
<td>0.7</td>
<td>120</td>
<td>120</td>
<td>105</td>
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<tr>
<td>Peritoneal involvement (peritoneal washout)</td>
<td>21.9</td>
<td>130</td>
<td>130</td>
<td>105</td>
<td>80</td>
<td>80</td>
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<tr>
<td>Portal vein invasion (peritoneal washout)</td>
<td>11.7</td>
<td>130</td>
<td>130</td>
<td>105</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>Hepatic vein invasion (peritoneal washout)</td>
<td>11.7</td>
<td>130</td>
<td>130</td>
<td>105</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>Cytokinin level (peritoneal washout)</td>
<td>11.7</td>
<td>130</td>
<td>130</td>
<td>105</td>
<td>80</td>
<td>80</td>
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<tr>
<td>Reticulin level (peritoneal washout)</td>
<td>11.7</td>
<td>130</td>
<td>130</td>
<td>105</td>
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<tr>
<td>C-reactive protein (peritoneal washout)</td>
<td>11.7</td>
<td>130</td>
<td>130</td>
<td>105</td>
<td>80</td>
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</tr>
<tr>
<td>Neutrophil count (peritoneal washout)</td>
<td>11.7</td>
<td>130</td>
<td>130</td>
<td>105</td>
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<tr>
<td>Lymphocyte count (peritoneal washout)</td>
<td>11.7</td>
<td>130</td>
<td>130</td>
<td>105</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>Platelet count (peritoneal washout)</td>
<td>11.7</td>
<td>130</td>
<td>130</td>
<td>105</td>
<td>80</td>
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</tr>
<tr>
<td>Tumor size (cm)</td>
<td>11.7</td>
<td>130</td>
<td>130</td>
<td>105</td>
<td>80</td>
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</table>


HCC
The Importance of Vascular Invasion

Hepatocellular carcinoma
New 2010 AJCC TNM Staging

Primary Tumor (T)
- pT0: No evidence of primary tumor
- pT1: Solitary tumor without vascular invasion
- pT2: Solitary tumor with vascular invasion or multiple tumors none more than 5 cm
- pT3a: Multiple tumors more than 5 cm
- pT3b: Single tumor or multiple tumors of any size involving a major branch of the portal vein or hepatic veins
- pT4: Tumor(s) with direct invasion of adjacent organs other than the gallbladder or with perforation of visceral peritoneum

New 2010 AJCC Stage Grouping

The Verdict


CONCLUSIONS: In terms of 5-year survival rates, the TNM-7 system is capable of stratifying pre-hepatectomy HCC patients into stages I, II, and III but is unable to stratify stage III patients into stages IIIA, IIIB, and IIC. Lack of tumor encapsulation, AST values >68 U/L, blood loss >500 mL, and AFP values >200 ng/mL are independent prognostic factors affecting long-term survival.
Prostate

Prior AJCC TNM Staging

Primary Tumor (T)
- Not identified
- pT2: Organ confined
  - pT2a: Unilateral, involving one-half of 1 side or less
  - pT2b: Unilateral, involving more than one-half of 1 side but not both sides
  - pT2c: Bilateral disease
- pT3: Extraprostatic extension
  - pT3a: Extraprostatic extension
  - pT3b: Seminal vesicle invasion
- pT4: Invasion of bladder and/or rectum

*Note: There is no pathologic T1 classification. Subdivision of pT2 disease is problematic and has not proven to be of prognostic significance.

New 2010 AJCC TNM Staging

Primary Tumor (T)
- Not identified
- pT2: Organ confined
  - pT2a: Unilateral, involving one-half of 1 side or less
  - pT2b: Unilateral, involving more than one-half of 1 side but not both sides
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- pT3: Extraprostatic extension
  - pT3a: Extraprostatic extension
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- pT4: Invasion of rectum,levator muscles and/or pelvic wall

*Note: There is no pathologic T1 classification. Subdivision of pT2 disease is problematic and has not proven to be of prognostic significance.
Prostate Bladder Neck Involvement

In 6th edition, any bladder involvement = T4

Aydin et al (2004) found that positive bladder neck margins were worse than positive margins elsewhere*

*but, the risk of progression was less than other T4 lesions

Yossepowitch O et al (2000) and Dash A et al (2002) found that bladder neck involvement (T4) wasn’t as bad as seminal vesicle involvement (T3b)

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Prostate New 2010 AJCC TNM Staging

Primary Tumor (T)

- Not identified
- pT2
  - Organ confined
    - pT2a: Unilateral, involving one-half of 1 side or less
    - pT2b: Unilateral, involving more than one-half of 1 side but not both sides
- pT3
  - Extraprostatic extension
    - pT3a: Extraprostatic extension or microscopic invasion of bladder neck
    - pT3b: Seminal vesicle invasion
- pT4
  - Invasion of rectum, levator muscles and/or pelvic wall

*Note: There is no pathologic T1 classification. Subdivision of pT2 disease is problematic and has not proven to be of prognostic significance.
Prostate
New 2010 Anatomic Stage / Prognostic Groups

Stage  T  N  M  PSA  Gleason
I  T1a  N0  M0  PSA < 10  Gleason ≤ 6
IIA  T1a  N0  M0  PSA < 20  Gleason ≤ 6
IIB  T2a  N0  M0  PSA < 20  Gleason 7
IIIA  T2b  N0  M0  PSA < 20  Gleason 7
IIIB  T3a  N0  M0  Any PSA  Gleason 8
IV  T4  N0  M0  Any PSA  Gleason 8
Any T  N1  M0  Any PSA  Any Gleason
Any T  Any N  M1  Any PSA  Any Gleason

Prostate stage grouping
- Incidence of lymph node metastasis is <4%
- PSA - most important predictor of biochemical recurrence after radiotherapy
- Gleason score - most important predictor of death
- Prior AJCC system had been essentially abandoned
  - Replaced by risk stratification schemes using PSA and Gleason score
- So new AJCC system includes PSA and Gleason score in its staging groupings

A Joke
Three buddies were talking about death and dying. One asked, "When you’re in your casket and friends and family are mourning you, what would you like to hear them say about you?"

The first guy says, "I would like to hear them say that I was a great pathologist of my time and a great family man."

The second man says, "I would like to hear that I was the best oncologist in history and a wonderful husband."

The last guy says, "I would like to hear them say LOOK, HE’S MOVING!!!"
The End