## GI Malignancies – Changes in 8<sup>th</sup> Edition AJCC Staging Manual



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## Level of Evidence

I: The available evidence includes consistent results from multiple appropriate studies

II: The available evidence is obtained from at least one appropriate study with external validation

III: The available evidence is problematic

IV: The available evidence is nonexistent



## Esophageal Cancer



#### **Esophagogastric junction** Oesophagus and Gastric Carcinomas

• A tumour the epicenter of which is within 2 cm of the **oesophagogastric junction** and also extends into the oesophagus is classified and staged using the oesophageal scheme. Cancers involving the oesophagogastric junction (OGJ) whose epicenter is within the proximal 2 cm of the cardia (Siewert types I/II) are to be staged as oesophageal

• Cancers whose epicenter is more than 2 cm distal from the OGJ will be staged using the Stomach Cancer TNM and Stage even if the OGJ is involved.

## Esophageal Cancer

There are no changes in the definitions of the T, N and M categories.

Note there are pathological prognostic groups available for squamous cell carcinoma and clinical and pathological prognostic groups available for adenocarcinoma

The AJCC also publish post preoperative therapy prognostic groups for adenocarcinoma and squamous cell carcinoma





A tumor that has its epicenter located >2 cm from esophagogastric junction (A) or a tumor located within 2 cm of the esophagogastric junction (B) but does not involve the esophagogastric junction is classified as stomach cancer.

A tumor that has its epicenter located within 2 cm of esophagogastric junction and involves the esophagogatric junction (C) is classified as esophageal cancer.



cTNM: stage groupings for cTNM differ from those of pTNM. New cTNM groupings and their cooresponding prognostic information are presented in 8<sup>th</sup> edition

ypTNM: stage groupings are the same as those for pTNM; however, prognostic information is presented using only the four broad stage categrories (Stages I–IV).



pN3a and pN3b were combined into the same pathological tumor-node metastasis (pTNM) stages in the 7th American Joint Committee on Cancer (AJCC) edition.

Consequently, pN3a and pN3b were separated into different pTNM stages in the new 8th edition.





Furthermore, pT4aN2, which was classified as stage IIIB in the 7th edition, is now classified as stage IIIA in the 8th edition.

Moreover, pT4bN0, which was classified as stage IIIB in the 7th edition, is now classified as stage IIIA in the 8th edition.

Finally, pT4bN2, which was classified as stage IIIC in the 7th edition, is now classified as stage IIIB in the 8th edition.

## (AJCC 7<sup>th</sup> Ed)



| ANATOMIC JIAG | L/PROGROSTI             | C GROOT 5            |                      |
|---------------|-------------------------|----------------------|----------------------|
| Stage 0       | Tis                     | N0                   | M0                   |
| Stage IA      | T1                      | N0                   | M0                   |
| Stage IB      | T2<br>T1                | N0<br>N1             | M0<br>M0             |
| Stage IIA     | T3<br>T2<br>T1          | N0<br>N1<br>N2       | M0<br>M0<br>M0       |
| Stage IIB     | T4a<br>T3<br>T2<br>T1   | N0<br>N1<br>N2<br>N3 | M0<br>M0<br>M0<br>M0 |
| Stage IIIA    | T4a<br>T3<br>T2         | N1<br>N2<br>N3       | M0<br>M0<br>M0       |
| Stage IIIB    | T4b<br>T4b<br>T4a<br>T3 | N0<br>N1<br>N2<br>N3 | M0<br>M0<br>M0<br>M0 |
| Stage IIIC    | T4b<br>T4b<br>T4a       | N2<br>N3<br>N3       | M0<br>M0<br>M0       |
| Stage IV      | Any T                   | Any N                | M1                   |

**ANATOMIC STAGE/PROGNOSTIC GROUPS** 

## Gastric Cancer (AJCC 8<sup>th</sup> Ed) Prognostic Groups

#### Clinical (cTNM)

| When T is | And N is      | And M is | Then the stage group is |
|-----------|---------------|----------|-------------------------|
| Tis       | N0            | M0       | 0                       |
| T1        | N0            | M0       | Ι                       |
| T2        | N0            | M0       | Ι                       |
| T1        | N1, N2, or N3 | M0       | IIA                     |
| T2        | N1, N2, or N3 | M0       | IIA                     |
| T3        | N0            | M0       | IIB                     |
| T4a       | N0            | M0       | IIB                     |
| T3        | N1, N2, or N3 | M0       | III                     |
| T4a       | N1, N2, or N3 | M0       | III                     |
| T4b       | Any N         | M0       | IVA                     |
| Any T     | Any N         | M1       | IVB                     |



## Gastric Cancer (AJCC 8<sup>th</sup> Ed) Prognostic Groups



| When T is | And N is | And M is   | Then the stage group is |
|-----------|----------|------------|-------------------------|
| Tis       | N0       | M0         | 0                       |
| T1        | N0       | M0         | IA                      |
| T1        | N1       | M0         | IB                      |
| T2        | N0       | M0         | IB                      |
| T1        | N2       | M0         | IIA                     |
| T2        | N1       | M0         | IIA                     |
| T3        | N0       | M0         | IIA                     |
| T1        | N3a      | M0         | IIB                     |
| T2        | N2       | M0         | IIB                     |
| T3        | N1       | M0         | IIB                     |
| T4a       | N0       | M0         | IIB                     |
| T2        | N3a      | M0         | IIIA                    |
| T3        | N2       | M0         | IIIA                    |
| T4a       | N1       | M0         | IIIA                    |
| T4a       | N2       | M0         | IIIA 🗲                  |
| T4b       | N0       | M0         | IIIA                    |
| T1        | N3b      | M0         | IIIB                    |
| T2        | N3b      | M0         | IIIB                    |
| T3        | N3a      | <b>M</b> 0 | IIIB                    |
| T4a       | N3a      | <b>M</b> 0 | IIIB                    |
| T4b       | N1       | M0         | IIIB                    |
| T4b       | N2       | <b>M</b> 0 | IIIB                    |
| T3        | N3b      | M0         | IIIC                    |
| T4a       | N3b      | M0         | IIIC                    |
| T4b       | N3a      | M0         | IIIC                    |
| T4b       | N3b      | M0         | IIIC                    |
| Any T     | Any N    | M1         | IV                      |



## Small Intestine

#### **Definition of Primary Tumor**

 For T3 and T4, the description of extent of penetration into the retroperitoneum was omitted. It is not reliably reported in the pathology assessment and is not a validated prognostic factor.



## Small Intestine

#### **Primary Tumor** (T)

- TX Primary tumor cannot be assessed
- T0 No evidence of primary tumor
- Tis Carcinoma in situ
- T1a Tumor invades lamina propria
- T1b Tumor invades submucosa\*
- T2 Tumor invades muscularis propria
- T3 Tumor invades through the muscularis propria into the subserosa or into the nonperitonealized perimuscular tissue (mesentery or retroperitoneum) with extension 2 cm or less\*
- T4 Tumor perforates the visceral peritoneum or directly invades other organs or structures (includes other loops of small intestine, mesentery, or retroperitoneum more than 2 cm, and abdominal wall by way of serosa; for duodenum only, invasion of pancreas or bile duct)

| T Category | T Criteria  |
|------------|---|
| TX         | Primary tumor cannot be assessed  |
| ТО         | No evidence of primary tumor  |
| Tis        | High-grade dysplasia/carcinoma in situ  |
| T1         | Tumor invades the lamina propria or submucosa   |
| T1a        | Tumor invades the lamina propria  |
| T1b        | Tumor invades the submucosa   |
| T2         | Tumor invades the muscularis propria  |
| Т3         | Tumor invades through the muscularis propria into the<br>subserosa, or extends into nonperitonealized<br>perimuscular tissue (mesentery or retroperitoneum)<br>without serosal penetration*   |
| T4         | Tumor perforates the visceral peritoneum or directly<br>invades other organs or structures (e.g., other loops of<br>small intestine, mesentery of adjacent loops of bowel,<br>and abdominal wall by way of serosa; for duodenum<br>only, invasion of pancreas or bile duct) |



#### Small Intestine

 N1 was redefined as one or two positive nodes and N2 as more than two positive nodes. This change harmonizes N1 staging with the rest of the upper gastrointestinal tumors and provides improved stage-specific discrimination based on a new National Cancer Data Base query

| AJCC 7 <sup>th</sup> Ed: Regional Lymph Nodes |  | AJCC 8 <sup>th</sup> Ed: Regional Lymph Nodes |  |
|---|--|---|--|
| NX  | Regional lymph nodes<br>cannot be assessed         | Nx  | Regional lymph nodes<br>cannot be assessed       |
| NO  | No regional lymph node metastasis                  | NO  | No regional lymph node metastasis                |
| N1  | Metastasis in 1–3 regional<br>lymph nodes          | N1  | Metastasis in one or two regional lymph nodes    |
| N2  | Metastasis in four or more<br>regional lymph nodes | N2  | Metastasis in three or more regional lymph nodes |

#### Small Intestine

• All histologies are assigned TNM, but prognostic stage grouping is only for adenocarcinoma



#### M Category M Criteria

- M0 No distant metastasis by imaging, etc.; no evidence of tumor in distant sites or organs (This category is not assigned by pathologists.)
- M1 Metastasis to one or more distant sites or organs or peritoneal metastasis is identified
- M1a Metastasis to one site or organ is identified without peritoneal metastasis
- M1b Metastasis to two or more sites or organs is identified without peritoneal metastasis
- M1c Metastasis to the peritoneal surface is identified alone or with other site or organ metastases

#### Definition of Distant Metastasis (M)

 Introduced M1c, which details peritoneal carcinomatosis as a poor prognostic factor

#### Definition of Regional Lymph Nodes (N)

 Clarified the definition of tumor deposits



#### Colon and Rectum

#### Definition of tumour deposit clarified

Tumour deposits (satellites) are discrete macroscopic or microscopic nodules of cancer in the pericolorectal adipose tissue's lymph drainage area of a primary carcinoma that are discontinuous from the primary and without histological evidence of residual lymph node or identifiable vascular or neural structures. If a vessel wall is identifiable on H&E, elastic or other stains, it should be classified as venous invasion (V1/2)or lymphatic invasion (L1). Similarly, if neural structures are identifiable, the lesion should be classified as perineural invasion (Pn1). The presence of tumour deposits does not change the primary tumour T category, but changes the node status (N) to N1c if all regional lymph nodes are negative on pathological examination

| N Category | N Criteria  |  |
|------------|---|--|
| NX         | Regional lymph nodes cannot be assessed   |  |
| N0         | No regional lymph node metastasis   |  |
| N1         | One to three regional lymph nodes are positive (tumor<br>in lymph nodes measuring $\geq 0.2$ mm), or any number<br>of tumor deposits are present and all identifiable<br>lymph nodes are negative |  |
| N1a        | One regional lymph node is positive   |  |
| N1b        | Two or three regional lymph nodes are positive  |  |
| N1c        | No regional lymph nodes are positive, but there are<br>tumor deposits in the<br>• subserosa<br>• mesentery<br>• or nonperitonealized pericolic, or perirectal/<br>mesorectal tissues.             |  |
| N2         | Four or more regional nodes are positive  |  |
| N2a        | Four to six regional lymph nodes are positive   |  |
| N2b        | Seven or more regional lymph nodes are positive   |  |

## Colon and Rectum

Stage Unchanged except for Stage IVA, IVB, IVC as below

Stage IV Any T Any N M1

Stage IVA Any T Any N M1a

Stage IVB Any T Any N M1b

Stage IVC Any T Any N M1c



## Colon and Rectum



## Additional Factors Recommended for Clinical Care

Lymphovascular invasion: reintroduced the L and V elements to better identify lymphatic and vessel invasion

Microsatellite instability (MSI): clarified the importance of MSI as a prognostic and predictive factor

Identified KRAS, NRAS, and BRAF mutations as critical prognostic factors that are also predictive

- Landmarks that define anal and perianal tumors have been clarified
- The anal canal begins where the rectum enters the puborectalis sling at the apex of the anal sphincter complex (palpable as the anorectal ring on digital rectal examination and approximately 1 to 2 cm proximal to the dentate line) and ends with the squamous mucosa blending with the perianal skin, which coincides roughly with the palpable intersphincteric groove or the outermost boundary of the internal sphincter muscle, easily visualized on endoanal ultrasound



Lesions that clearly arise from the vulva and extend onto the perineum and potentially involve the anus should be classifed as vulvar. Similarly, lesions that clearly arise from the distal anal mucosa and extend onto the perineum should be classifed as perianal. Lesions localized to the perineum that are not clearly arising from either the vulva or the anus should be categorized based on the clinician's clinical impression. Thus, we recommend the following terminology: perineum favor vulva and perineum favor perianus



#### New Terminology referring to regional lymph nodes draining the region





- N2 and N3 categories were removed, and new categories of N1a, N1b, and N1c are defined.
- Stage groups were revised to accommodate the new N categories.

#### Regional Lymph Nodes (N)

- NX Regional lymph nodes cannot be assessed
- N0 No regional lymph node metastasis
- N1 Metastasis in perirectal lymph node(s) (Figure 15.8)
- N2 Metastasis in unilateral internal iliac and/or inguinal lymph node(s) (Figure 15.9A, B)
- N3 Metastasis in perirectal and inguinal lymph nodes and/or bilateral internal iliac and/or inguinal lymph nodes (Figure 15.10A–C)

| N Category | N Criteria  |
|------------|---|
| NX         | Regional lymph nodes cannot be assessed                                     |
| NO         | No regional lymph node metastasis   |
| N1         | Metastasis in inguinal, mesorectal, internal iliac, or external iliac nodes |
| N1a        | Metastasis in inguinal, mesorectal, or internal iliac lymph nodes           |
| N1b        | Metastasis in external iliac lymph nodes                                    |
| N1c        | Metastasis in external iliac with any N1a nodes                             |



#### Liver

Definition of Primary Tumor (T) T1 is now divided into two subcatgories: T1a, solitary tumor ≤2 cm; and T1b, solitary tumor without vascular invasion, >2 cm

## AJCC 7<sup>TH</sup> EDITION T1 Solitary tumor without vascular invasion

| AJCC 8 <sup>TH</sup> EDITION |  |
|------------------------------|--|
| T1a                          | Solitary tumor less than or<br>equal to 2 cm in greatest<br>dimension with or without<br>vascular invasion |
| T1b                          | Solitary tumor more than 2<br>cm in greatest dimension<br>without vascular invasion                        |



#### Liver

Definition of Primary Tumor (T) T2 now includes solitary tumor with vascular invasion >2 cm, or multiple tumors, none >5 cm

#### AJCC 7<sup>TH</sup> EDITION

Solitary tumor with vascular invasion or multiple tumors none more than 5 cm

#### AJCC 8<sup>TH</sup> EDITION

T2

T2

Solitary tumor >2 cm with vascular invasion, or multiple tumors, none >5 cm





Definition of Primary Tumor (T) T3a is now recategorized as T3

| AJCC 7 <sup>TH</sup> EDITION |   |
|------------------------------|---|
| ТЗа                          | Multiple tumors more than 5 cm  |
| T3b                          | Single tumor or multiple<br>tumors of any size<br>involving a major branch of<br>the portal vein or hepatic<br>vein |

| AJCC 8 <sup>TH</sup> EDITION |   |
|------------------------------|---|
| Т3                           | Multiple tumors, at least one of which is >5 cm |



#### Liver

Definition of Primary Tumor (T) T3b: Tumors involving a major branch of the portal vein or hepatic vein formerly were categorized as T3b and are now categorized as T4.

## AJCC 7<sup>TH</sup> EDITIONT3bSingle tumor or multiple tumors<br/>of any size involving a major<br/>branch of the portal vein or<br/>hepatic veinT4Tumor(s) with direct invasion of<br/>adjacent organs other than the<br/>gallbladder or with perforation<br/>of visceral peritoneum

#### AJCC 8<sup>TH</sup> EDITION

T4

Single tumor or multiple tumors of any size involving a major branch of the portal vein or hepatic vein, or tumor(s) with direct invasion of adjacent organs other than the gallbladder or with perforation of visceral peritoneum



#### Liver

Definition of Primary Tumor (T) T3b: Tumors involving a major branch of the portal vein or hepatic vein formerly were categorized as T3b and are now categorized as T4.

## AJCC 7<sup>TH</sup> EDITIONT3bSingle tumor or multiple tumors<br/>of any size involving a major<br/>branch of the portal vein or<br/>hepatic veinT4Tumor(s) with direct invasion of<br/>adjacent organs other than the<br/>gallbladder or with perforation<br/>of visceral peritoneum

#### AJCC 8<sup>TH</sup> EDITION

T4

Single tumor or multiple tumors of any size involving a major branch of the portal vein or hepatic vein, or tumor(s) with direct invasion of adjacent organs other than the gallbladder or with perforation of visceral peritoneum



Intrahepatic Bile Ducts

**Definition of Primary** Tumor (T) The T1 category was revised to account for the prognostic impact of tumor size (T1a: ≤5 cm vs. T1b: >5 cm).





#### Intrahepatic Bile Ducts

Definition of Primary Tumor (T)

The T2 category is modified to reflect the equivalent prognostic value of vascular invasion and tumor multifocality

#### AJCC 7<sup>TH</sup> EDITION

| T2a | Solitary tumor with vascular invasion              |
|-----|--|
| T2b | Multiple tumors, with or without vascular invasion |

| AJCC 8 <sup>TH</sup> EDITION |   |
|------------------------------|---|
| Τ2                           | Solitary tumor with intrahepatic<br>vascular invasion or multiple<br>tumors, with or without<br>vascular invasion |



#### Intrahepatic Bile Ducts

Definition of Primary Tumor (T)

The AJCC Cancer Staging Manual, 7th Edition T4 category describing the tumor growth pattern was eliminated from staging but is still recommended for data collection.



#### AJCC 7<sup>TH</sup> EDITION

| Т3 | Tumor perforating the visceral<br>peritoneum or involving the<br>local extra hepatic structures by<br>direct invasion |
|----|---|
| Τ4 | Tumor with periductal invasion  |

| AJCC 8 <sup>TH</sup> EDITION |  |
|------------------------------|--|
| Т3                           | Tumor perforating the visceral peritoneum                              |
| Τ4                           | Tumor involving local<br>extrahepatic structures by<br>direct invasion |



#### AJCC 7<sup>TH</sup> EDITION

T2

T2

T2a

T2b

Tumor invades perimuscular connective tissue; no extension beyond serosa or into liver

#### AJCC 8<sup>TH</sup> EDITION

Tumor invades the perimuscular connective tissue on the peritoneal side, without involvement of the serosa (visceral peritoneum) Or tumor invades the perimuscular connective tissue on the hepatic side, with no extension into the liver Tumor invades the perimuscular connective tissue on the peritoneal side, without involvement of the serosa (visceral peritoneum) Tumor invades the perimuscular connective tissue on the hepatic side, with no extension into the liver

## Gall Bladder

#### Definition of Regional Lymph Node (N)

Changed from location-based definitions to number-based N category assessment. N categories have been revised to define N1 as one to three positive nodes and N2 as four or more positive nodes. The recommendation that six or more nodes be harvested and evaluated has been added.

# AJCC 7TH EDITIONN1Metastases to nodes along the cystic<br/>duct, common bile duct, hepatic<br/>artery, and/or portal veinN2Metastases to periaortic, pericaval,<br/>superior mesenteric artery, and/or<br/>celiac artery lymph nodes

| AJCC 8 <sup>TH</sup> EDITION |   |
|------------------------------|---|
| N1                           | Metastases to one to three regional lymph nodes |
| N2                           | Metastases to four or more regional lymph nodes |



Perihilar Bile Ducts **Definition of Primary** Tumor (T) The definition of Tis has been expanded to include high-grade biliary intraepithelial neoplasia (Billn-3). Highgrade dysplasia (Billn-3), a noninvasive neoplastic process, is synonymous with carcinoma in situ at this site.



| AJCC 7 <sup>TH</sup> EDITION |   |
|------------------------------|---|
| Tis                          | Carcinoma in situ                         |
|                              |   |
| AJCC 8 <sup>TH</sup> EDITION |   |
| Tis                          | Carcinoma in situ/high-grade<br>dysplasia |

#### Perihilar Bile Ducts **Definition of Primary** Tumor (T) Bilateral secondorder biliary radical invasion (Bismuth– Corlette type IV) has been removed from T4 category.

#### AJCC 7<sup>TH</sup> EDITION

Tumor invades main portal vein or its branches bilaterally; or the common hepatic artery; or the second-order biliary radicals bilaterally; or unilateral secondorder biliary radicals with contralateral portal vein or hepatic artery involvement

#### AJCC 8<sup>TH</sup> EDITION

T4

T4

Tumor invades the main portal vein or its branches bilaterally, or the common hepatic artery; or unilateral second-order biliary radicals with contralateral portal vein or hepatic artery involvement



Perihilar Bile Ducts **Definition of Regional Lymph** Node (N) N category was reclassified based on number of positive nodes to N1 (one to three positive nodes) and N2 (four or more positive nodes)



| AJCC 7 <sup>TH</sup> EDITION |  |
|------------------------------|--|
| N1                           | Regional lymph node metastasis<br>(including nodes along the cystic<br>duct, common bile duct, hepatic<br>artery, and portal vein  |
| N2                           | Metastasis to periaortic, pericaval,<br>superior mesenteric artery, and/or<br>celiac artery lymph nodes  |
| AJCC 8 <sup>TH</sup> EDITION |  |
| N1                           | One to three positive lymph nodes<br>typically involving the hilar, cystic<br>duct, common bile duct, hepatic<br>artery, posterior<br>pancreatoduodenal, and portal vein |

N2

Four or more positive lymph nodes from the sites described for N1

lymph nodes
Perihilar Bile Ducts

AJCC Prognostic Stage Groups The stage group for T4 tumors was changed from Stage IVA to Stage IIIB.

N1 category was changed from Stage IIIB to IIIC, and N2 category is classified as Stage IVA.



# Perihilar Bile Ducts

## (AJCC 7<sup>th</sup> Ed)

#### Tis Stage 0 N0 M0 Stage I N0 M0 T1 Stage II T2a-b N0 M0 N0 Stage IIIA T3 M0 Stage IIIB T1-3 N1 • M0 Stage IVA T4 N0-1 M0 Stage IVB Any T M0 N2 -Any T Any N M1

**ANATOMIC STAGE/PROGNOSTIC GROUPS** 



## Perihilar Bile Ducts

# (AJCC 8<sup>th</sup> Ed)

| When T is | And N is | And M is | Then the stage group is |
|-----------|----------|----------|-------------------------|
| Tis       | N0       | M0       | 0                       |
| T1        | N0       | M0       | Ι                       |
| T2a–b     | N0       | M0       | II                      |
| T3        | N0       | M0       | IIIA                    |
| T4        | N0       | M0       | IIIB —                  |
| Any T     | N1       | M0       | IIIC —                  |
| Any T     | N2       | M0       | IVA —                   |
| Any T     | Any N    | M1       | IVB                     |



Distal Bile Duct **Definition of Primary** Tumor (T) The definition of Tis has been expanded to include high-grade biliary intraepithelial neoplasia (Billn-3). Highgrade dysplasia (Billn-3), a noninvasive neoplastic process, is synonymous with carcinoma in situ at this site.





#### Distal Bile Duct Definition of Primary Tumor (T)

Definitions of T1, T2, and T3 have been revised based on measured depth of invasion (<5 mm, 5–12 mm, >12 mm). The descriptive extent of invasion also should still be reported. Depth of tumor invasion is better than the descriptive extent of tumor invasion at predicting patient outcome.



| AJCC 7 <sup>TH</sup> EDITION |   |
|------------------------------|---|
| T1                           | Tumor confined to the bile duct histologically  |
| T2                           | Tumor invades beyond the wall of the bile duct  |
| Τ3                           | Tumor invades the gallbladder,<br>pancreas, duodenum, or other<br>adjacent organs without<br>involvement of the celiac axis, or the<br>superior mesenteric artery |
| AJCC 8 <sup>TH</sup> EDITION |   |
| T1                           | Tumor invades the bile duct wall with a depth less than 5 mm  |
| Τ2                           | Tumor invades the bile duct wall with a depth of 5–12 mm  |
| Т3                           | Tumor invades the bile duct wall with a depth greater than 12 mm  |

### Distal Bile Duct

**Definition of Regional** Lymph Node (N) N categories have been expanded (N1, one to three positive lymph nodes; N2, four or more positive lymph nodes). The number of involved lymph nodes appears to be useful in predicting patient outcomes



| AJCC 8 <sup>TH</sup> EDITION |   |
|------------------------------|---|
| NO                           | No regional lymph node metastasis               |
| N1                           | Metastasis in one to three regional lymph nodes |
| N2                           | Metastasis in four or more regional lymph nodes |



Ampulla of Vater **Definition of Primary** Tumor (T) T1 tumors have been subdivided into T1a and T1b. T1a: tumor limited to ampulla of Vater or sphincter of Oddi T1b: tumor invades beyond the sphincter of Oddi (perisphincteric invasion) and/or into the duodenal submucosa



| AJCC 7 <sup>TH</sup> EDITION |  |
|------------------------------|--|
| T1                           | Tumor limited to ampulla of Vater or sphincter of Oddi   |
|                              |  |
| AJCC 8 <sup>TH</sup> EDITION |  |
| T1                           | Tumor limited to ampulla of Vater or<br>sphincter of Oddi or tumor invades<br>beyond the sphincter of Oddi<br>(perisphincteric invasion) and/or<br>into the duodenal submucosa |
| T1a                          | Tumor limited to ampulla of Vater or sphincter of Oddi   |
| T1b                          | Tumor invades beyond the sphincter<br>of Oddi (perisphincteric invasion)<br>and/or into the duodenal submucos  |

Ampulla of Vater **Definition of Primary** Tumor (T) The T2 definition has been revised to define T2 as invasion into the muscularis propria of the duodenum

| AJCC 7 <sup>™</sup> EDITION  | Tumor invades duodenal wall                               |
|------------------------------|---|
|                              |   |
| AJCC 8 <sup>TH</sup> EDITION |   |
| -2                           | Tumor invades into the muscularis propria of the duodenum |
|                              |   |



Definition of Primary Tumor (T)

T3 tumors have been subdivided into T3a and T3b. T3a: tumor directly invades the pancreas (up to 0.5 cm) T3b: tumor extends more than 0.5 cm into the pancreas or extends into peripancreatic or periduodenal tissue or duodenal serosa, but without involvement of the celiac axis or superior mesenteric artery

| AJCC 7 <sup>TH</sup> EDITION |  |
|------------------------------|--|
| Т3                           | Tumor invades pancreas   |
|                              |  |
| AJCC 8 <sup>TH</sup> EDITION |  |
| ТЗа                          | Tumor directly invades pancreas (up to 0.5 cm)   |
| T3b                          | Tumor extends more than 0.5 cm<br>into the pancreas, or extends into<br>peripancreatic tissue or<br>periduodenal tissue or duodenal<br>serosa without involvement of the<br>celiac axis or superior mesenteric<br>artery |



#### Definition of Primary Tumor (T)

The T4 definition has been revised to be consistent with the staging system for exocrine pancreas: tumor with vascular involvement of the superior mesenteric artery, celiac axis, and/or common hepatic artery (consistent with pancreas staging)



T4

Tumor involves the celiac axis, superior mesenteric artery, and/or common hepatic artery, irrespective of size



#### Definition of Primary Tumor (T)

The T4 definition has been revised to be consistent with the staging system for exocrine pancreas: tumor with vascular involvement of the superior mesenteric artery, celiac axis, and/or common hepatic artery (consistent with pancreas staging)



T4

Tumor involves the celiac axis, superior mesenteric artery, and/or common hepatic artery, irrespective of size



Definition of Regional Lymph Node (N) N1 is defined as one to three positive regional lymph nodes

| AJCC 7 <sup>TH</sup> EDITION |   |
|------------------------------|---|
| NO                           | No regional lymph node metastasis               |
| N1                           | Regional lymph node metastasis                  |
|                              |   |
| AJCC 8 <sup>TH</sup> EDITION |   |
| NO                           | No regional lymph node metastasis               |
| N1                           | Metastasis to one to three regional lymph nodes |



Definition of Regional Lymph Node (N) N2 is defined as metastasis to four or more regional lymph nodes



| AJCC 7 <sup>TH</sup> EDITION |                                   |
|------------------------------|-----------------------------------|
| NO                           | No regional lymph node metastasis |
| N1                           | Regional lymph node metastasis    |

| AJCC 8 <sup>TH</sup> EDITION |   |
|------------------------------|---|
| NO                           | No regional lymph node metastasis               |
| N1                           | Metastasis to one to three regional lymph nodes |
| N2                           | Metastasis to four or more regional lymph nodes |

#### Exocrine Pancreas **Definition of Primary** Tumor (T) T1 are subcategorized into T1a, T1b, and T1c based on size. Rationale: Size-based categorization of small invasive tumors that have been characterized as "minimally invasive" and have better outcome.





#### Exocrine Pancreas Definition of Primary Tumor (T)

T2 and T3 categories are now based on size of invasive tumor; extrapancreatic extension is no longer part of the definition. Rationale: Size-based definitions are more objective as it is difficult to determine extrapancreatic extension. These definitions show better correlation with survival

#### AJCC 7<sup>TH</sup> EDITION

| T2 | Tumor limited to the pancreas, more than 2 cm in greatest dimension   |
|----|---|
| Τ3 | Tumor extends beyond the pancreas<br>but without involvement of the<br>celiac axis or the superior<br>mesenteric artery |

| AJCC 8 <sup>TH</sup> EDITION |   |
|------------------------------|---|
| Т2                           | Tumor >2 cm and ≤4 cm in greatest dimension |
| Т3                           | Tumor >4 cm in greatest dimension           |



#### Exocrine Pancreas Definition of Primary Tumor (T)

T4 categorization is now based on involvement of arteries; resectability has been removed from the definition.

Rationale: Resectability is subjective, and the T category is better defined by extent of invasion



| AJCC 7 <sup>TH</sup> EDITION |   |
|------------------------------|---|
| Τ4                           | Tumor involves the celiac axis or the superior mesenteric artery (unresectable primary tumor) |
|                              |   |

Τ4

Tumor involves celiac axis, superior mesenteric artery, and/or common hepatic artery, regardless of size

#### Exocrine Pancreas **Definition of Regional** Lymph Node (N) Node-positive disease N1 has been subdivided into N1 and N2, based on number of positive lymph nodes. Rationale: Better prognostic stratification is provided based on number of positive lymph nodes.

| AJCC 7 <sup>TH</sup> EDITION |                                   |
|------------------------------|-----------------------------------|
| NO                           | No regional lymph node metastasis |
| N1                           | Regional lymph node metastasis    |

| AJCC 8 <sup>TH</sup> EDITION |   |
|------------------------------|---|
| NO                           | No regional lymph node metastasis               |
| N1                           | Metastasis in one to three regional lymph nodes |
| N2                           | Metastasis in four or more regional lymph nodes |



## THANK YOU

