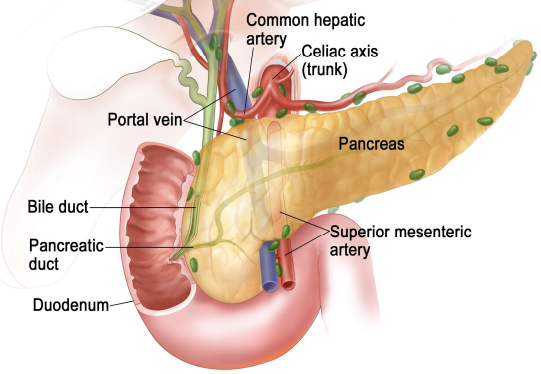
Pancreas 2024

NAACCR 2023-2024 Monthly Webinar Series



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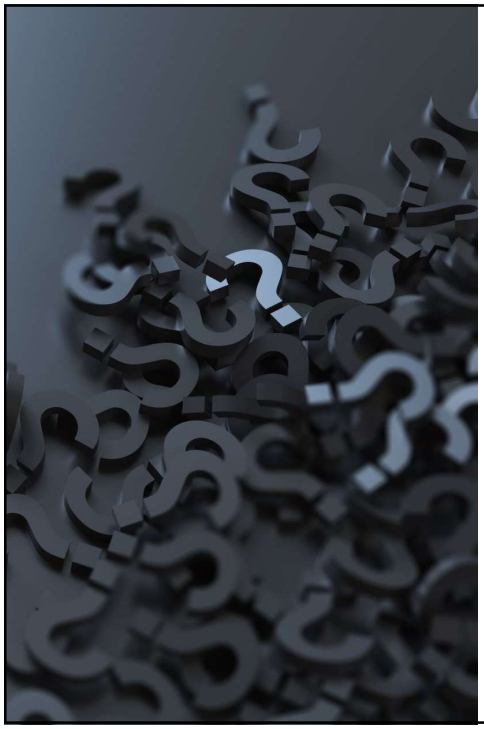

Q&A

Please submit all questions concerning the webinar content through the Q&A panel.

If you have participants watching this webinar at your site, please collect their names and emails.

We will be distributing a Q&A document in about one week. This document will fully answer questions asked during the webinar and will contain any corrections that we may discover after the webinar.

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Fabulous Prizes

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Guest Presenters

- Vicki Hawhee, MEd, CTR

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Facts about Pancreatic Cancer

- More than 90% of pancreatic cancer cases are pancreatic adenocarcinoma (PDAC). These tumors develop in the exocrine tissue of the pancreas, which makes digestive enzymes.
- The less common pancreatic neuroendocrine tumors (NETs), develop in hormone-producing endocrine cells, or islet cells. Neuroendocrine tumors often have a better prognosis and younger median age of diagnosis.
- Pancreatic cancer has the highest mortality rate of all major cancers. It is currently the 3rd leading cause of cancer-related death in the United States after lung and colon.
- In 2023 an estimated 64,050 Americans will be diagnosed with pancreatic cancer in the U.S., and more than 50,550 will die from the disease.
- For all stages combined, the 5-year relative survival rate is 12%.
- https://pancreatic.org/wp-content/uploads/2023/03/2023-Pancreatic-Cancer-Facts_PPL.pdf

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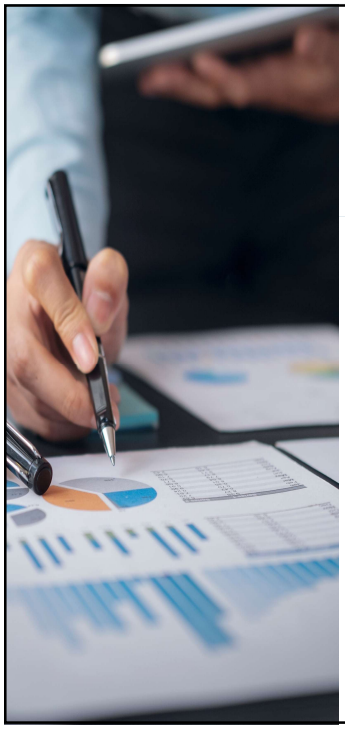

Statistics

- **How common is pancreatic cancer?**
  - The American Cancer Society's estimates for pancreatic cancer in the United States for 2023 are:
    - About 64,050 people (33,130 men and 30,920 women) will be diagnosed with pancreatic cancer.
    - About 50,550 people (26,620 men and 23,930 women) will die of pancreatic cancer.
    - Pancreatic cancer accounts for about 3% of all cancers in the US and about 7% of all cancer deaths.
    - It is slightly more common in men than in women.
    - https://www.cancer.org/cancer/types/pancreatic-cancer/about/key-statistics.html

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Risk Factors

- **Tobacco use**
- **Being overweight**
- **Diabetes**
- **Chronic pancreatitis**
- **Workplace exposure to certain chemicals**
- Pancreatic Cancer Risk Factors | American Cancer Society

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Survival Rates

5-year relative survival rates for pancreatic cancer

Based on people diagnosed with pancreatic cancer between 2012 and 2018.

SEER* Stage	5-year Relative Survival Rate
Localized	44%
Regional	15%
Distant	3%
All SEER stages combined	12%

* SEER = Surveillance, Epidemiology, and End Results

- Survival Rates for Pancreatic Cancer | American Cancer Society

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Famous Personalities with pancreatic cancer

- **April Fritz**
- Steve Jobs
- Ruth Bader Ginsburg
- Aretha Franklin
- John Hurt
- Luciano Pavarotti
- Sharon Jones (singer)
- Alan Rickman
- Jerry Springer
- Jack Benny
- Marcello Mastroianni
- Count Basie
- Fred Gwynne (Herman Munster)
- Ben Gazzara
- Alan Bates (Actor)
- Keenan Wynn (Actor)
- Alex Trebek
- Sally Ride
- Patrick Swayze
- Michael Landon
- Joan Crawford
- Gene Upshaw (football)
- Benjamin Orr (musician)
- Charlotte Rae (actress)
- Bill Hicks (Comedian)
- Donna Reed
- Dizzy Gillespie
- Pete Postlethwaite
- Syd Barrett (musician Pink Floyd)
- Rex Harrison
- Henry Mancini (composer)
- Fernando Lamas (actor)

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Clinical Trials

- Clinical trials are carefully controlled research studies that are done to get a closer look at promising new treatments or procedures. Clinical trials are one way to get state-of-the art cancer treatment. In some cases they may be the only way to get access to newer treatments. They are also the best way for doctors to learn better methods to treat cancer.
- https://www.cancer.org/cancer/types/pancreatic-cancer/treating.html
- National Comprehensive Cancer Network Recommendations

Note: All recommendations are category 2A unless otherwise indicated.
Clinical Trials: NCCN believes that the best management of any patient with cancer is in a clinical trial. Participation in clinical trials is especially encouraged.

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Current Clinical Trials for Pancreatic Cancer

- Testing the Use of the Usual Chemotherapy before and after Surgery for Removable Pancreatic Cancer
- Testing the Addition of Pembrolizumab, an Immunotherapy Cancer Drug to Olaparib Alone as Therapy for Patients with Pancreatic Cancer That Has Spread with Inherited BRCA Mutations
- APOLLO: A Randomized Phase II Double-Blind Study of Olaparib versus Placebo Following Curative Intent Therapy in Patients with Resected Pancreatic Cancer and a Pathogenic BRCA1, BRCA2 or PALB2 Mutation
- Palbociclib and Binimetinib in RAS-Mutant Cancers, A ComboMATCH Treatment Trial
- CA-4948 Added to Standard Chemotherapy to Treat Metastatic or Unresectable Pancreatic Cancer
- The PLATINUM Trial: Optimizing Chemotherapy for the Second-Line Treatment of Metastatic BRCA1/2 or PALB2-Associated Metastatic Pancreatic Cancer
- 23 011 A Phase 1b Study of Odetiglucan with CDX-1140 Immunotherapy to Treat Metastatic Pancreatic Cancer
- 16 261 A Phase I Study of MVT-5873 Alone or with Chemotherapy in Patients with Pancreatic Cancer and Other CA19-9 Positive Tumors
- 20-481 A Phase II Study of Pembrolizumab Immunotherapy and OLApaRib (POLAR) Maintenance Therapy for Patients with Metastatic Pancreatic Cancer
- First in Human Phase 1/2 Trial of ELI-002 7P Immunotherapy as Treatment for Subjects with Kirsten Rat Sarcoma (KRAS)/Neuroblastoma RAS viral oncogene homolog (NRAS) Mutated Pancreatic Ductal Adenocarcinoma (PDAC) and Other Solid Tumors

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Poll 1

- Clinical trials should always be coded under “other” therapy.

- 1. True
- 2. False

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Coding Clinical Trials

- If you KNOW the agents, code under that modality (i.e. chemotherapy, immunotherapy, hormone therapy, radiation).
- If the trial contains an agent not yet classified in SEER RX, then code it under Other therapy (1 or 2 other experimental)
- If it is double blind (neither the physician or the patient know what they are/are not receiving), then Other therapy 3.

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Overview

Anatomy, STR's, Staging, and Treatment

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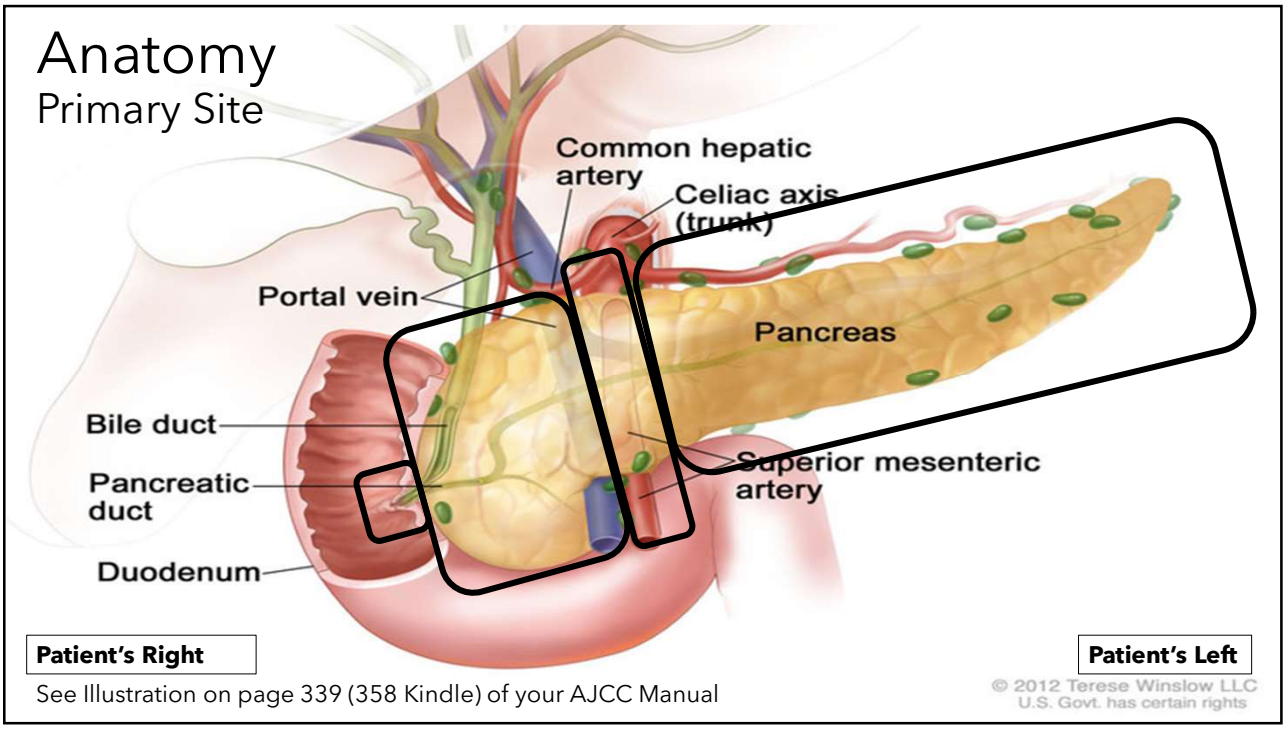
Anatomy
Primary Site



See Illustration on page 339 (358 Kindle) of your AJCC Manual

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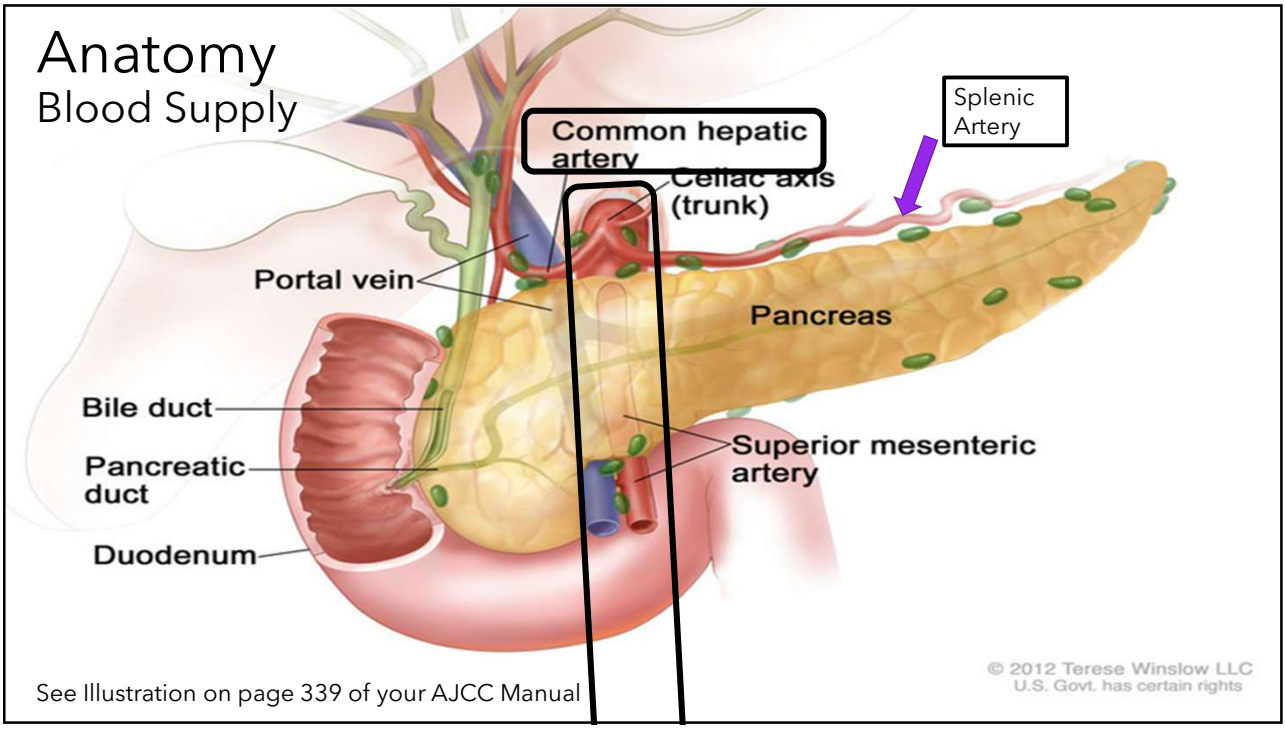
Anatomy
Blood Supply



See Illustration on page 339 of your AJCC Manual

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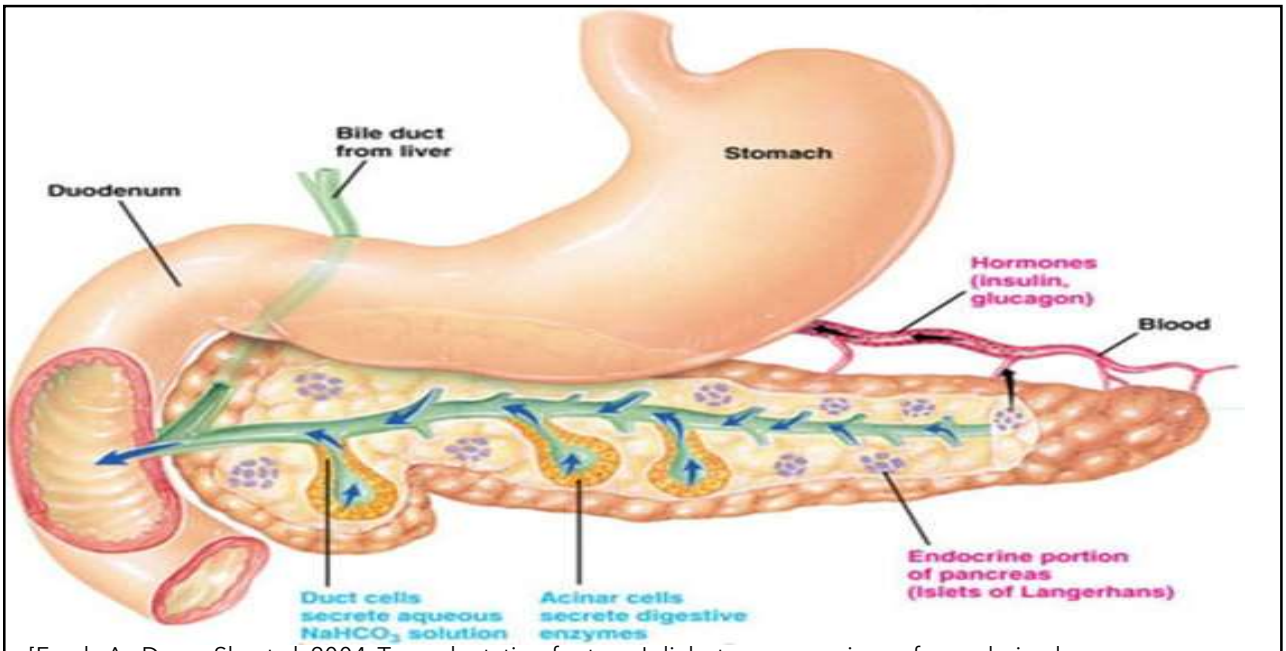

[Frank, A., Deng, Sh. et al. 2004, Transplantation for type I diabetes: comparison of vascularized whole-organ pancreas with isolated pancreatic islets. 240: 631-643.]

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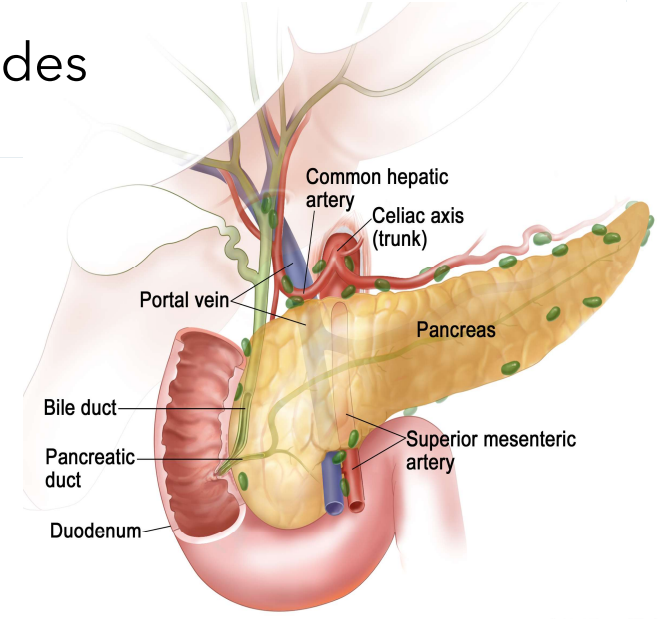
Regional Lymph Nodes

- Head and neck
  - Common bile duct
  - Common hepatic artery
  - Portal vein
  - Pyloric
  - Superior mesenteric vein
  - Superior mesenteric artery
- Body and tail
  - Common hepatic artery
  - Celiac axis
  - Splenic artery
  - Splenic hilum



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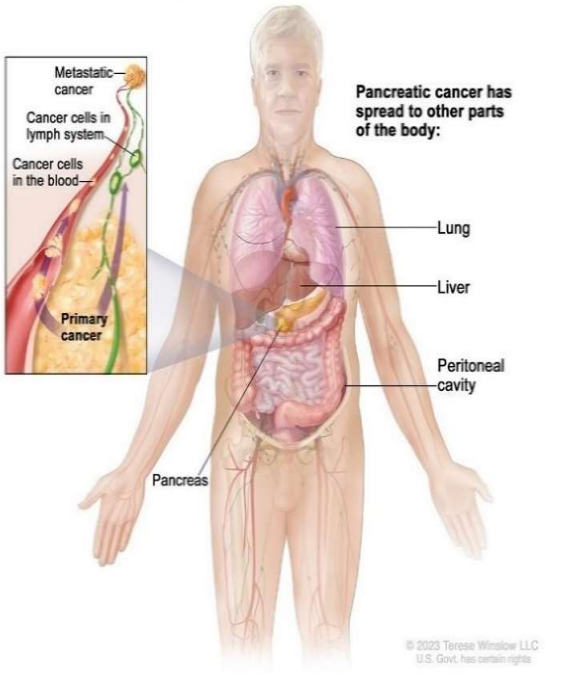
Distant Metastasis

- Liver
- Peritoneal Cavity
- Lungs



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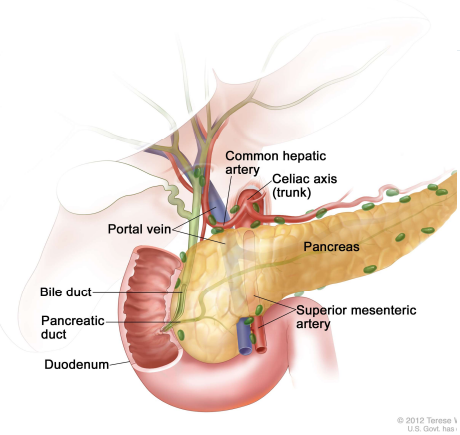
Histology-Exocrine Pancreas

- Adenocarcinoma, NOS (8140/3)
- Ductal adenocarcinoma (8500/3)
  - Most frequently occurs in head of pancreas
  - Arises in association with precursor lesions: PanIN, IPMN or MCN
- Acinar carcinoma (8550/3) or acinar cell cystadenocarcinoma (8551/3)
- Adenosquamous (8560/3)
- Neuroendocrine carcinoma (8246/3)



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Histology-NET Endocrine Pancreas

- Neuroendocrine tumor (8240/3)
  - Neuroendocrine tumor, grade 1
  - Neuroendocrine tumor, well differentiated
- Neuroendocrine tumor, grade 2 (8249/3)
- Neuroendocrine tumor, grade 3 (8249/3)

- Reportable as of 1/1/2021
  - Pancreatic neuroendocrine tumor, non-functioning (8150/3)
  - Insulinoma (8151/3)
  - Glucagonoma (8152/3)

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Solid Tumor Rules-Multiple Primary Rules

- **Rule M2** Abstract a single primary when there is a single tumor.
- **Rule M12** Abstract multiple primaries when the patient has a subsequent tumor after being clinically disease-free for greater than *one year* after the original diagnosis or recurrence.
- **Rule M17** Abstract multiple primaries when separate/non-contiguous tumors are two or more different *subtypes/variants in Column 3,* Table 3-23 in the Equivalent Terms and Definitions.
- **Rule M18** Abstract a single primary when synchronous, separate/non-contiguous tumors are on the *same row* in Table 3-23 in the Equivalent Terms and Definitions.
- **Rule M19** Abstract multiple primaries when separate/non-contiguous tumors are on *multiple rows* in Table 2-23 in the Equivalent Terms and Definitions. Timing is irrelevant
- **Rule M20** Abstract multiple primaries when an invasive tumor occurs more than *60 days* after an in situ tumor.
- **Rule M21** Abstract a *single primary* when there are multiple tumors that do not meet any of the above criteria.

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Solid Tumor Rules Histology

- Rule H2 Code the histology when only one histologic type is identified.
  - Note 1: Do not code terms that do not appear in the histology description.
  - Note 2: Use Tables 3-23 (11) to code histology.

Specific and NOS Terms and Code	Synonyms	Subtypes/Variants
Adenocarcinoma, NOS 8140/3		Acinar cell carcinoma 8550/3 Colloid carcinoma/mucinous carcinoma 8480/3 Ductal adenocarcinoma/pancreatic ductal adenocarcinoma 8500/3 Hepatoid carcinoma 8576/3 Invasive micropapillary carcinoma 8265/3 Medullary carcinoma 8510/3 Mixed acinar-ductal carcinoma 8552/3 Mixed acinar neuroendocrine carcinoma/ mixed acinar-ductal neuroendocrine carcinoma 8154/3 Signet-ring cell (poorly cohesive) carcinoma 8490/3
Adenosquamous carcinoma 8560/3		

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Solid Tumor Rules – Coding Histology

- Rule H14 Code the subtype/variant for pancreas primaries when the diagnosis is

Ductal carcinoma/adenocarcinoma

AND

- Adenosquamous carcinoma 8560/3
- Colloid/mucinous carcinoma/adenocarcinoma 8480/3
- Hepatoid carcinoma 8576/3
- Large cell carcinoma with rhabdoid phenotype 8014/3
- Medullary carcinoma 8510/3
- Signet-ring/poorly cohesive carcinoma/adenocarcinoma 8490/3
- Undifferentiated carcinoma 8020/3
- Undifferentiated carcinoma with osteo-clast-like giant cells 8035/3

Specific and NOS Terms and Code	Synonyms	Subtypes/Variants
Adenocarcinoma, NOS 8140/3		Acinar cell carcinoma 8550/3 Colloid carcinoma/mucinous carcinoma 8480/3 Ductal adenocarcinoma/pancreatic ductal adenocarcinoma 8500/3 Hepatoid carcinoma 8576/3 Invasive micropapillary carcinoma 8265/3 Medullary carcinoma 8510/3 Mixed acinar-ductal carcinoma 8552/3 Mixed acinar neuroendocrine carcinoma/ mixed acinar-ductal neuroendocrine carcinoma 8154/3 Signet-ring cell (poorly cohesive) carcinoma 8490/3
Adenosquamous carcinoma 8560/3		

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Grade I and II-8148/0
Grade III-8148/2

PanIN, NOS is not reportable

Do NOT use STR to Determine Reportability!

Glandular intraepithelial neoplasia, high grade **8148/2**	Intestinal pancreatic intraepithelial neoplasia Oncocytic pancreatic intraepithelial neoplasia Pancreatic intraepithelial neoplasia (PanIN)
Intraductal oncocytic papillary neoplasm **8455**	Intraductal oncocytic papillary neoplasm with associated invasive carcinoma **8455/3** Intraductal oncocytic papillary neoplasm, NOS **8455/2**

Intraductal oncocytic papillary neoplasm is reportabel!

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Do NOT use STR to Determine Reportability!

Specific and NOS Terms and Code	Synonyms
Intraductal papillary mucinous neoplasm **8453**	Intraductal papillary mucinous neoplasm with high grade-dysplasia **8453/2** High-grade IPMN **8453/2** Intraductal papillary mucinous carcinoma, non-invasive **8453/2** Intraductal papillary mucinous carcinoma, invasive **8453/3** Intraductal papillary mucinous neoplasm with associated invasive carcinoma **8453/3**
Intraductal tubulopapillary neoplasm **8503**	Intraductal tubulopapillary neoplasm **8503/2** Intraductal tubulopapillary neoplasm with associated invasive carcinoma **8503/3**

IPMN, NOS is not reportable

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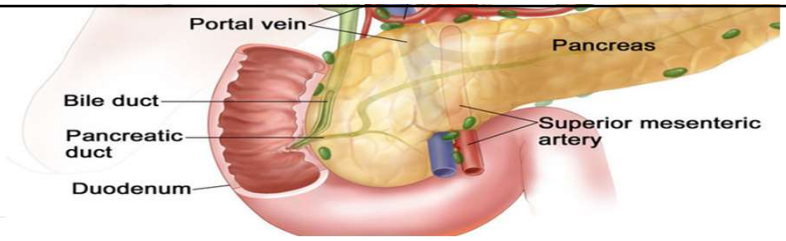
IPMN



- Provider office:
  - Patient underwent cholecystectomy in 2019.
  - Presents with abdominal pain, scans showed new onset of dilation of the pancreatic duct (we do not have scans).
  - Needs EUS.
- EUS:
  - Pancreas parenchyma was homogenous but appeared atrophic.
  - Pancreatic duct was dilated throughout the pancreas, up to 15 mm in the neck. Did not see a fish mouth sign.
  - There was a cystic change in the head of the pancreas 27 mm but think that was dilation of the pancreatic duct.
  - Did an EUS guided FNA but fluid was too thick and could only obtain a very small amount of fluid, did not see a mass.
  - Impression: IPMN (Intraductal papillary mucinous neoplasm)

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Fish Mouth Sign

- Patulous duodenal papilla with extrusion of mucus on endoscopic evaluation is a "fish mouth sign" and is reported with main duct and mixed IPMN
- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6849671
- Patulous – wide open or distended

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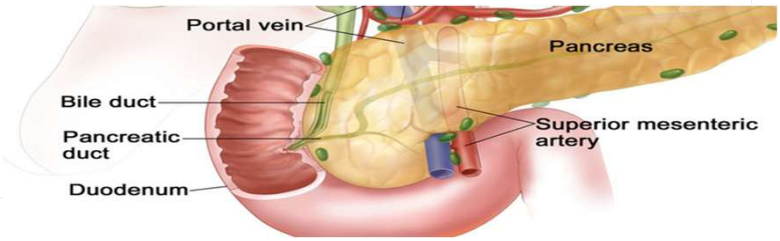
Poll 2



- Whipple procedure
  - Cystic tumor replacing the head of the pancreas, tumor involving the main pancreatic duct which was dilated.
  - Pathology: Intraductal papillary mucinous neoplasm, involving margins, no high-grade dysplasia is present. Size is difficult to assess due to communication of cystic areas.
  - One benign lymph node/19 collected

Is this case reportable?

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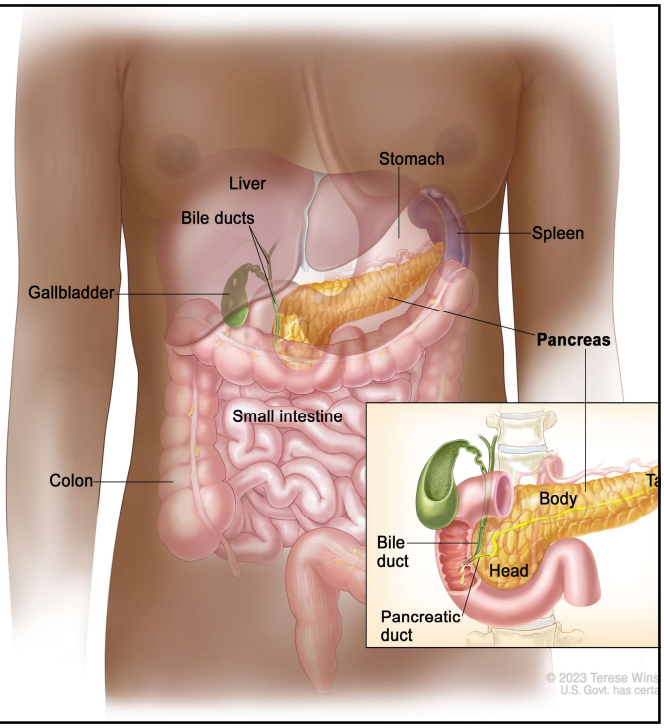
Work-up

- Pancreatic protocol CT
- Magnetic Resonance (MR) imaging or MR cholangiopancreatography (MRCP)
- Endoscopic ultrasound (EUS)
- Endoscopic retrograde cholangiopancreatography (ERCP)
- Biopsy
  - CT guided
  - EUS guided (preferred)
- Laparoscopy



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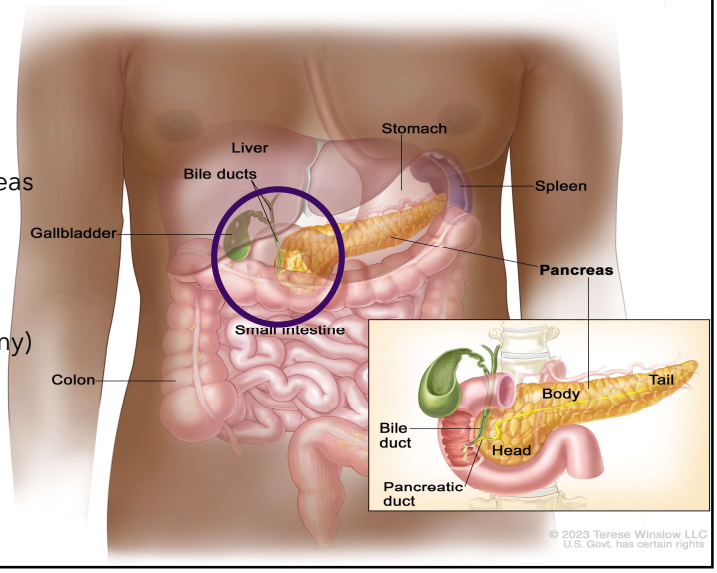
Pancreatoduodenectomy (Whipple procedure)

- Removal of:

  Head and part of the body of the pancreas
  Portion of:
  - Duodenum
  - Jejunum
  - Common Bile
  - Distal half of the stomach (antrectomy)

  Gallbladder and its cystic duct (cholecystectomy)
  Regional lymph nodes



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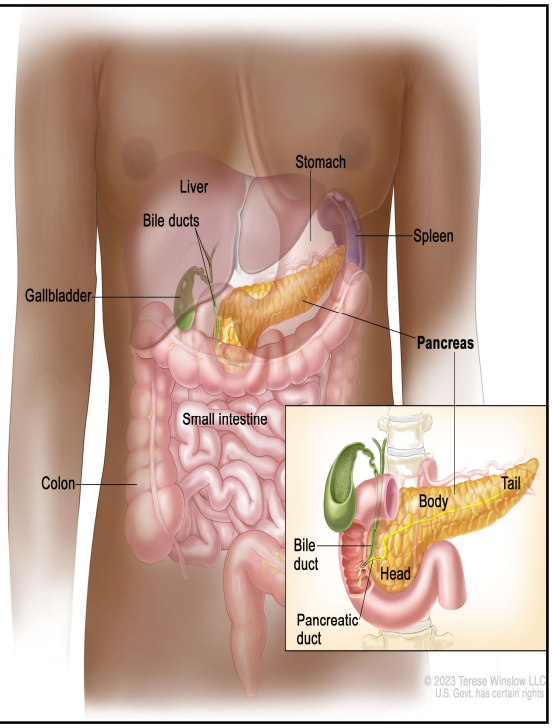
Surgical Coding (2024)

- B300 Partial pancreatectomy, NOS; example: Distal pancreatectomy or subtotal pancreatectomy
- B350 Local or partial pancreatectomy and duodenectomy; example: Pancreaticoduodenectomy (Whipple Procedure)
  - B351 WITHOUT distal/partial gastrectomy, **pylorus preserving Whipple**
  - B352 WITH partial gastrectomy, Classic Whipple
  - *Note: Use code B350 when it is not specified where the stomach was cut.*
- B400 Total pancreatectomy
- B600 Total pancreatectomy and subtotal gastrectomy and/or duodenectomy, extended pancreatoduodenectomy



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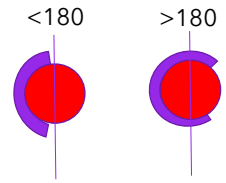
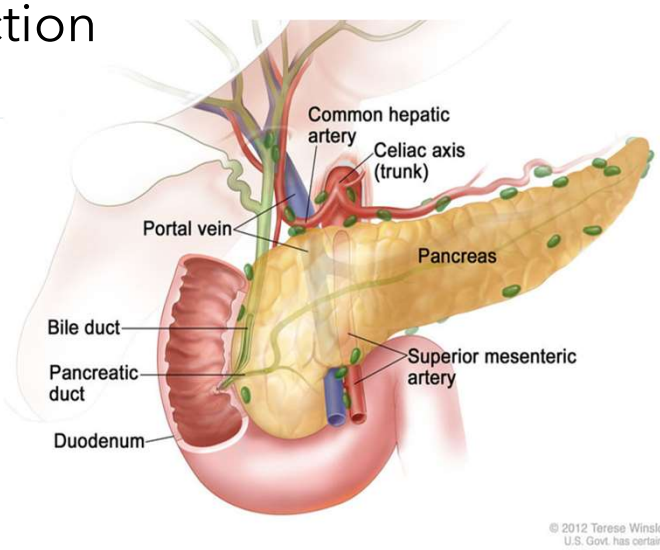
Eligibility for resection

- Resectable
- Borderline resectable
- Unresectable





Criteria for Defining Resectability Status at Diagnosis
https://www.nccn.org/guidelines/guidelines-detail?category=1&id=1455

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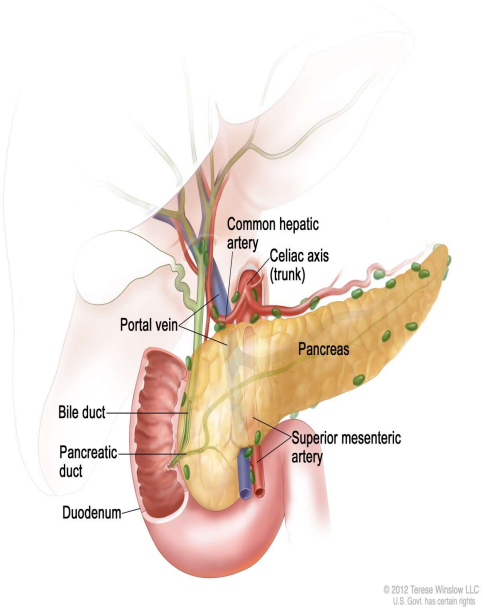
Palliative Surgery

- Stent
  - ERCP
  - Percutaneous transhepatic cholangiography (PTC)
- Bypass Surgery
  - Common bile duct is rerouted directly into the small intestine



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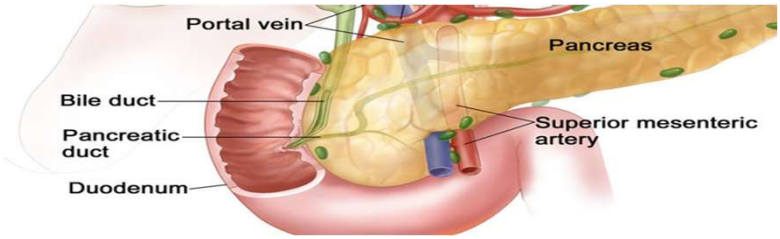
Poll 3

- A patient is taken to the OR for a Whipple procedure. Most likely the cancer is in what part of the pancreas?
- 1. Head
- 2. Body
- 3. Tail



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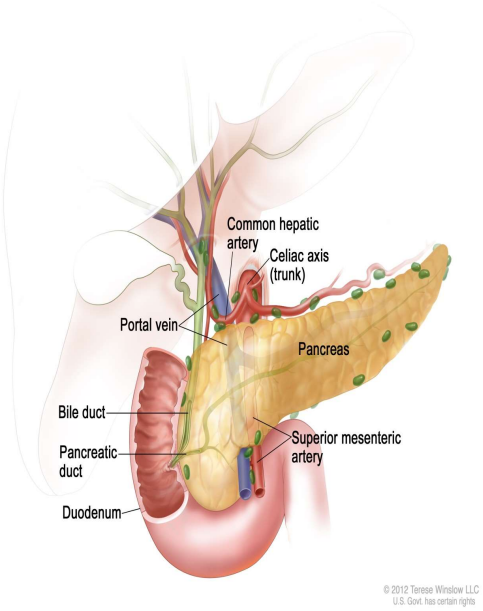
Poll 4

- Nodes located along the portal vein would be regional for what part of the pancreas?
- 1. Head/Neck
- 2. Body/Tail
- 3. Both



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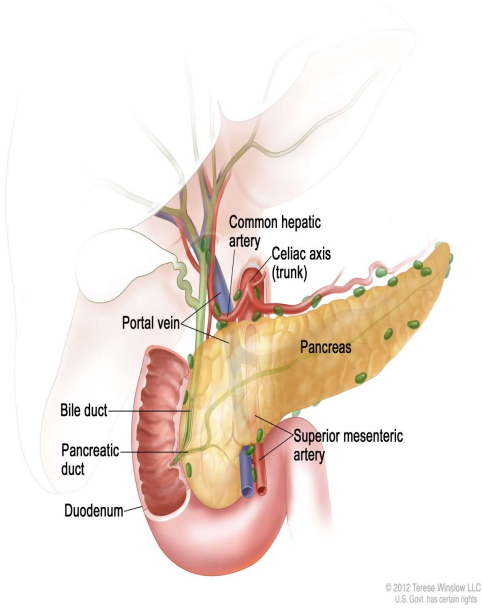
Staging

AJCC, Summary Stage, EOD



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New AJCC Version 9 Protocols

- 5.6 AJCC Version 9 Protocols AJCC Cancer Staging System will release seven Version 9 Protocols to go into effect with cases diagnosed January 1, 2024, and forward:
  - Vulva Version 9
  - Neuroendocrine Tumors of the Stomach Version 9
  - Neuroendocrine Tumors of the Duodenum and Ampulla of Vater Version 9
  - Neuroendocrine Tumors of the Jejunum and Ileum Version 9
  - Neuroendocrine Tumors of the Appendix Version 9
  - Neuroendocrine Tumors of the Colon and Rectum Version 9
  - Neuroendocrine Tumors of the Pancreas Version 9
- 2024-Implementation-Guidelines_20230727.pdf (naaccr.org)

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Changes to Staging/Grade 2024 (v3.1)

NET Pancreas Version 9	2024+	AJCC's NET Pancreas, Version 9, will be used with 2024+ diagnosis. There are now two EOD NET Pancreas schemas in SEER*RSA • EOD NET Pancreas 8th: 2018-2023 (Schema ID: 00340) • EOD NET Pancreas V9: 2024+ (Schema ID: 09340) Software will automatically take you to the correct NET Pancreas schema based on the date of diagnosis Histology 8272 with primary sites for Pancreas (C250-C259) is currently in the Pancreas Schema and is not eligible for AJCC staging. For NET Pancreas Version 9, this histology will be moved to the NET Pancreas Schema and will be eligible for AJCC staging.

8272/3 GH-producing neuroendocrine tumor

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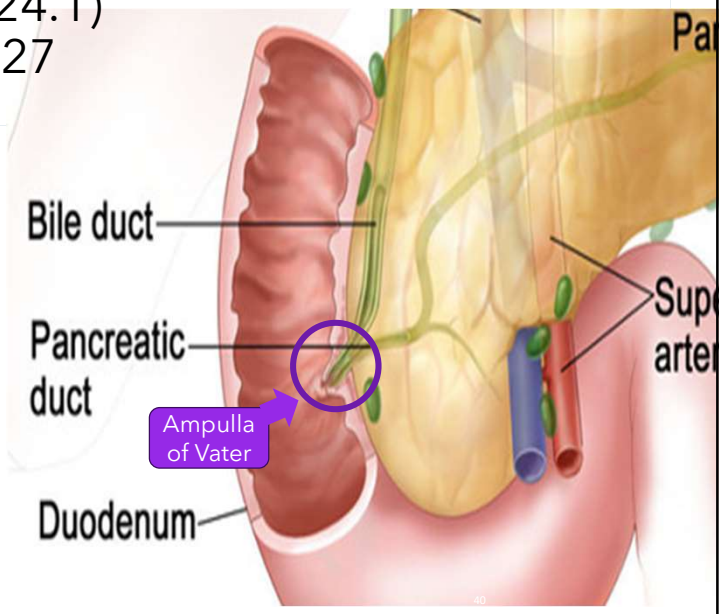
Ampulla of Vater (C24.1) Chapter 27, page 327

- Highlights
  - Primary site can be difficult to determine
  - Histology table
    - 8144-Adenocarcinoma, intestinal type
    - 8163 Adenocarcinoma, pancreatobiliary type



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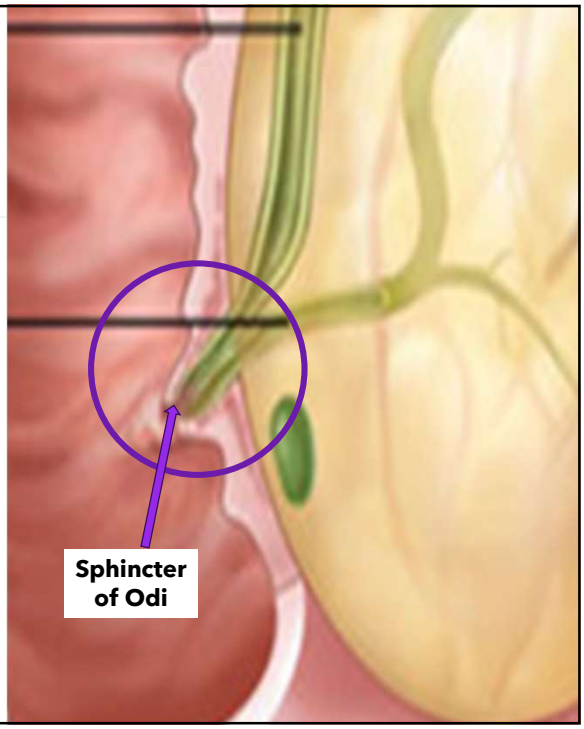
Ampulla of Vater (C24.1) Chapter 27, page 327

- T Values
  - Has the tumor spread beyond to ampulla of vater/sphincter of odi?
  - Has the tumor invaded into the duodenum?
    - How **deep** has the tumor penetrated the duodenum?
  - Has the tumor invaded into the pancreas?
    - How **far** has it invaded?
  - Is there invasion of major blood vessels?



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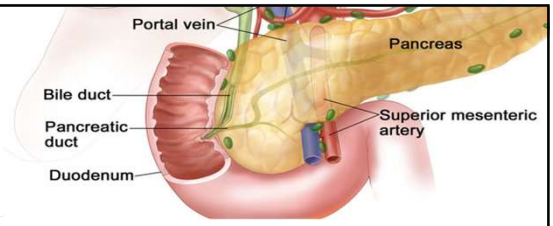
Exocrine Pancreas Chapter 28, page 337



- Clinical Classification
  - Preoperative biopsy (pg 340 top of left column)
  - Abutment vs Encasement (pg 341 second paragraph)
  - Suggested Radiology Report Format
- Pathological Classification
  - Surgical Resection of the primary tumor and regional lymph nodes (pg 342)
  - Review of T categories (pg 342 right column, first full paragraph)
  - Review of N categories (pg 343, left column, second full paragraph)

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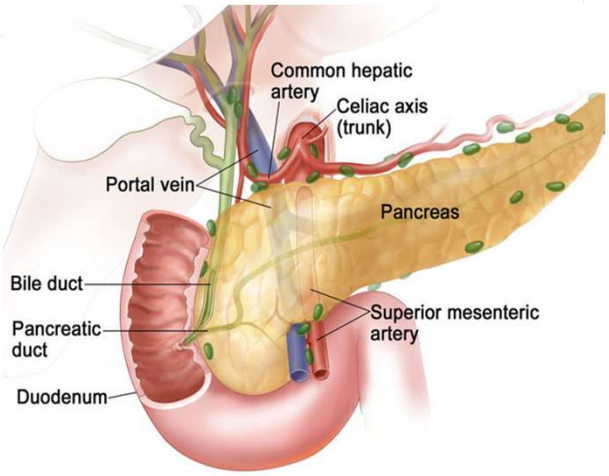
Exocrine Pancreas
Chapter 28, see page 344

- Assigning a T value
  - Is invasive tumor present?
  - Is the tumor microinvasive?
    - See page 342
  - Is the tumor larger than 2cm?
  - Is the tumor larger than 4cm?
  - Is there involvement of a major blood vessel?



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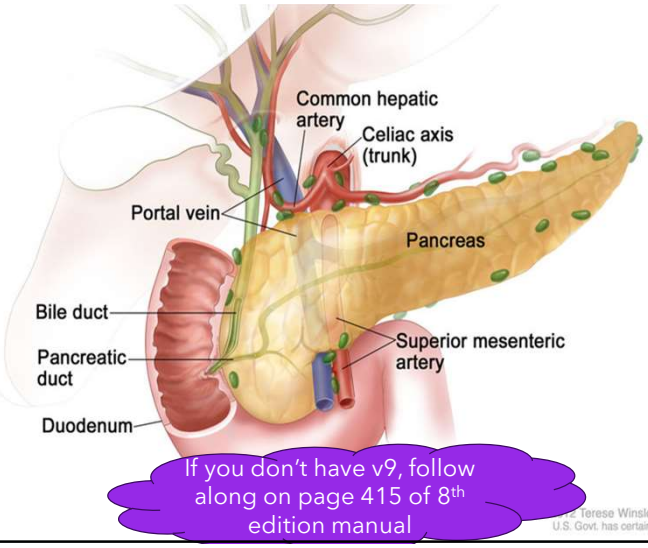
Neuroendocrine Tumors of the Pancreas
v9 Protocol

- Assigning a T Value
  - Is there extension beyond the pancreas?
  - Is the tumor larger than 2cm?
  - Is the tumor larger than 4cm?
  - If there is extension beyond the pancreas, what is involved?
  - Are main vessels involved?



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PANCREAS

Summary Stage 2018

SS2018	Description
0	In situ, intraepithelial, noninvasive › High-grade pancreatic intraepithelial neoplasia (PanIn-3) › Intraductal papillary mucinous neoplasm with high grade dysplasia › Intraductal tubulopapillary neoplasm with high grade neoplasm › Mucinous cystic neoplasm with high-grade dysplasia
1	Localized only (localized, NOS) › Confined to pancreas
2	Regional by direct extension only › All sites › Ampulla of Vater › Blood vessel(s) (major) › Aortic artery › Celiac artery › Common hepatic artery › Further contiguous extension to other major arteries › Portal vein › Superior mesenteric artery/vein › Duodenum › Extrahepatic bile duct(s) › Fixation to adjacent structure(s), NOS › Peripancreatic tissue, NOS › Stomach › Pancreas Head (C250) › Adjacent stomach › Blood vessel(s) (major) › Gastroduodenal artery › Transverse colon, including hepatic flexure › Pancreas Body Tail (C251, C252) › Spleen › Splenic artery/vein › Splenic flexure

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PANCREAS

Summary Stage 2018

Distant site(s)/lymph node(s) involved

› Distant site(s) (including further contiguous extension to other organs)
› All sites
› Adrenal gland/suprarenal gland
› Gallbladder
› Kidney
› Liver, including porta hepatis
› Mesenteric fat
› Mesentery
› Mesocolon
› Peritoneum
› Retroperitoneum
› Small intestine (excluding duodenum)
› Ureter
› Pancreas Head (C250)
› Colon (other than transverse colon including hepatic flexure)
› Omentum
› Spleen
› Pancreas Body Tail (C251, C252)
› Colon (other than splenic flexure)
› Diaphragm
› Distant lymph node(s), NOS
› Pancreas Head (C250)
› Celiac
› Gastroepiploic (gastro-omental), left
› Pancreaticosplenic (pancreaticolienal)
› Splenic (artery, hilum, lineal)
› Suprapancreatic
› Pancreas Body Tail (C251, C252)
› Celiac
› Common bile duct (pericholedochal)
› Lateral wall (right)
› Porta hepatic
› Portal vein
› Pyloric (infrapyloric, retropyloric, subpyloric, suprapyloric, NOS)
› Distant metastasis, NOS
› Carcinomatosis
› Distant metastasis except distant lymph node(s)

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NET Pancreas

Summary Stage 2018

SS2018	Description
0	In situ, intraepithelial, noninvasive › High-grade pancreatic intraepithelial neoplasia (PanIn-3) › Intraductal papillary mucinous neoplasm with high grade dysplasia › Intraductal tubulopapillary neoplasm with high grade neoplasm › Mucinous cystic neoplasm with high-grade dysplasia
1	Localized only (localized, NOS) › Confined to pancreas
2	Regional by direct extension only › All sites › Ampulla of Vater › Blood vessel(s) (major) › Aortic artery › Celiac artery › Common hepatic artery › Further contiguous extension to other major arteries › Portal vein › Superior mesenteric artery/vein › Duodenum › Extrahepatic bile duct(s) › Fixation to adjacent structure(s), NOS › Peripancreatic tissue, NOS › Stomach › Pancreas Head (C250) › Adjacent stomach › Blood vessel(s) (major) › Gastroduodenal artery › Transverse colon, including hepatic flexure › Pancreas Body Tail (C251, C252) › Spleen › Splenic artery/vein › Splenic flexure

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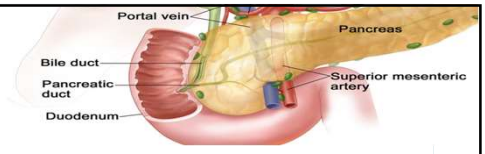
Poll 5



- Imaging shows a 3.2cm malignant appearing tumor in the body of pancreas.
  - The tumor encases the superior mesenteric artery.
  - No enlarged lymph nodes or metastasis identified.
- An exploratory laparotomy showed metastatic nodules on the surface of the liver.
- A biopsy of a metastatic nodule showed metastatic ductal carcinoma.

- "Encasement" identified on imaging indicates…
  - The tumor is near major artery and a clear margin of healthy tissue can be seen around the artery.
  - There is no space between the tumor and less than half the artery.
  - There is no space between the tumor and more than half the artery
  - None of the above.
- For staging purposes "Encasement" identified on imaging indicates…
  - The artery is involved
  - The artery is not involved

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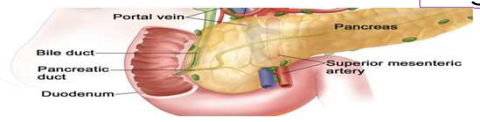
Pop Quiz 1

- Imaging shows a 3.2cm malignant appearing tumor in the body of pancreas.
  - The tumor encases the superior mesenteric artery.
  - No enlarged lymph nodes or metastasis identified.
- An exploratory laparoscopy showed metastatic nodules on the surface of the liver.
- A biopsy of a metastatic nodule showed metastatic ductal carcinoma.

Data Item	Value
Clinical T	**cT4**
Clinical N	**cN0**
Clinical M	**pM1**
Stage	**4**
Path T	**cT4**
Path N	**cN0**
Path M	**pM1**
Stage	**4**
Summary Stage	**7**



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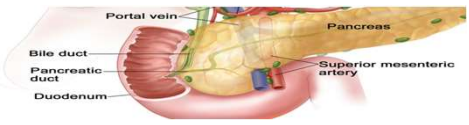
Pop Quiz 2

- Imaging shows a 1.4 cm tumor in the head of the pancreas.
  - The tumor abuts the superior mesenteric artery. There is less than 180° of involvement. No additional arterial or celiac axis involvement.
  - No enlarged lymph nodes or metastasis identified.
- An EUS-FNA confirms poorly differentiated ductal adenocarcinoma
- The patient is treated with neoadjuvant chemoradiation.

Data Item	Values
Clinical T	**cT4**
Clinical N	**cN0**
Clinical M	**cM0**
Stage	**3**
Pathological T	**blank**
Pathological N	**blank**
Pathological M	**blank**
Pathological Stage	**99**
Summary Stage	**2**



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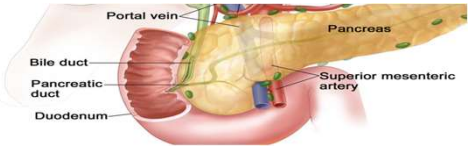
Pop Quiz 2 (cont)

- Imaging post chemoradiation showed the tumor was slightly larger (1.8cm).
  - The tumor still abuts the superior mesenteric artery.



Data Item	8th ed
yc T	***ycT4***
yc N	***ycN0***
yc M	***ycM0***
yc Stage	***88***
yp T	
yp N	
yp M	
yp Stage	**2**
Summary Stage	

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Case Scenarios

Case 1, 2, and 3

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Case #1

52 year old female went to the ER after an episode of hypotension, generalized abdominal pain and vomiting. She is otherwise in good health.

- CT abdomen/pelvis:
  - Well-circumscribed hypoenhancing 2.9 x 2.7 cm proximal pancreatic body mass, without upstream pancreatic ductal dilation or atrophy, possibly serous cystadenoma.
  - Neuroendocrine tumor considered less likely.
- MRI Abdomen:
  - Enhancing mass identified in the pancreatic neck and proximal aspect of the pancreatic body measuring up to 2.7 cm.
  - The lesion is not characteristic of an adenocarcinoma due to the lack of upstream dilatation of the main pancreatic duct and pancreatic atrophy. The pattern of enhancement is nonspecific. Correlation with an endoscopic ultrasound and tissue biopsy is advised.
  - Differential diagnostic possibilities would include a neuroendocrine tumor and a pancreatic lymphoma although this is less likely due to the absence of lymphadenopathy and splenomegaly. No definitive evidence of liver metastases.
- PET Scan:
  - The focal lesion located in the pancreatic neck does not demonstrate significant somatostatin receptors radiotracer uptake, SUV 3.4 and measures approximately 2.4 x 2.4 cm.
  - There is likely physiologic radiotracer activity in the pancreatic uncinate process with SUV 8.6

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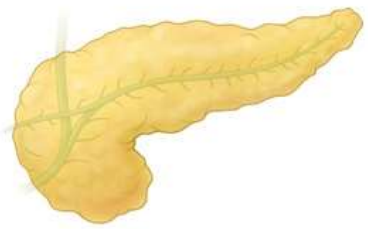
Case #1

Primary Site – what to do with conflicting information



- CT abdomen/pelvis: Well-circumscribed hypoenhancing 2.9 x 2.7 cm proximal pancreatic body mass
- MRI Abdomen: Enhancing mass identified in the pancreatic neck and proximal aspect of the pancreatic body measuring up to 2.7 cm.
- PET Scan: The focal lesion located in the pancreatic neck
- Operative Findings: Large mass at pancreatic head/neck overlying celiac axis
- Path report: Tumor location – pancreatic body

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Case #1

Primary Site - conflicting information

For Pancreatic Primaries:

- The "other" solid tumor rules do not provide guidance in coding primary site. The "general" STR do not provide guidance in coding primary site.
- The STORE manual refers you to ICD-O-3 to code primary site. Rules A through K do not provide information on what to do with conflicting information.
- SEER Program and Staging Manual does not provide information on what to do when there is conflicting information.

Must make your best judgement call based on all available information (including the type of surgery performed). Sometimes you may have an overlapping tumor (.8 subsite) or have very little information (.9 subsite).

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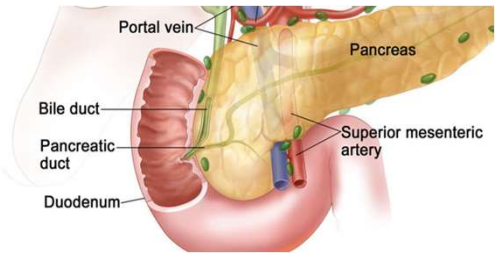
Case #1

- EUS:
  - An irregular subtle poorly defined mass was identified in the genu of the pancreas.
  - The mass was heterogeneous and solid. The echotexture was only slightly different compared to the pancreas parenchyma.
  - The mass measured 33 mm x 24 mm in maximal cross-sectional diameter.
  - The endosonographic borders were poorly defined.
- FNA:
  - Pancreas neck mass fine-needle, biopsy. ***Solid pseudopapillary neoplasm***.
  - Note: Immunohistochemical stains supporting the diagnosis.



Per the Solid Tumor Rules and confirmed by SINQ (20140058), ***Solid pseudopapillary neoplasm of the pancreas*** *is reportable.*

Pancreatoblastoma 8971/3	
Solid pseudopapillary neoplasm of pancreas 8452/3	Solid pseudopapillary carcinoma Solid pseudopapillary neoplasm with high-grade carcinoma
Squamous cell carcinoma 8070/3	

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Case #1

Treatment Recommendations

- Second opinion at our facility:
  - Had a long discussion with the patient about her diagnosis, including pertinent anatomy, pathophysiology, differential diagnoses, treatment options.
  - Discussed differentials of pancreatic lesions including benign cysts, premalignant lesions, and malignant lesions.
  - I agreed with the other surgeon's evaluation in that she should undergo surgery.
  - However, I mentioned to the patient I would likely offer a laparoscopic subtotal pancreatectomy and splenectomy.
  - Discussed risks and benefits of both procedures, including among other things risk of pancreatic leak, diabetes, post splenectomy sepsis, bleeding, infection.

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Case #1

Surgery

Operative Procedure Performed:

- Laparoscopic subtotal pancreatectomy and splenectomy, intraoperative ultrasound
- Findings:
  - Large mass at pancreatic head/neck overlying celiac axis with associated desmoplasia, neovascularization, and distortion of tissue planes.
  - Ultrasound used to delineate medial edge, which was to the left of the GDA (gastroduodenal artery).
  - Subtotal pancreatectomy and splenectomy performed without complication.

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Case #1

Pathology

GROSS DESCRIPTION:
A. Specimen labeled distal pancreas and spleen is received fresh, excision and formalin time 1346/1404, cold ischemic time less than 1 hour and consists of a subtotal, left sided pancreas, 12 x 4 x 2.1 cm with a small, attached, fatty tissue at the tail and an impact spleen, 7.7 x 4.6 x 2.8 cm.

* SYNOPTIC REPORT:	Pancreas Exocrine tumor, invasive
* Procedure:	Subtotal pancreactectomy
* Tumor location:	Pancreatic body
* Tumor size:	Up to 2.7 cm
* Type:	Solid-pseudopapillary neoplasm
* Grade:	Not applicable
* Extent:	Tumor is limited to pancreas
* Margins, invasive tumor:	Free 0.5 cm from the proximal resection margin
* Margins, dysplasia/intraepithelial neoplasia:	Free
* Treatment effect, primary site:	Not applicable
* Lymphovascular invasion:	None
* Perineural invasion:	Focally present
* Lymph nodes, # total:	19
* Lymph nodes, # involved:	0
* Distant metastases:	Not applicable
* Stage (AJCC 8):	p T2 N0 M (not applicable)
* MSI IHC and Interpretation:	Not applicable
* Tumor block(s) for possible future studies:	A4

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Case #1

Grade Solid pseudopapillary neoplasm

Code	Grade Description
1	G1: Well differentiated
2	G2: Moderately differentiated
3	G3: Poorly differentiated
9	Grade cannot be assessed (GX); Unknown

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Case #1

Additional Treatment

- Patient can follow-up with surveillance MRI in 6 months

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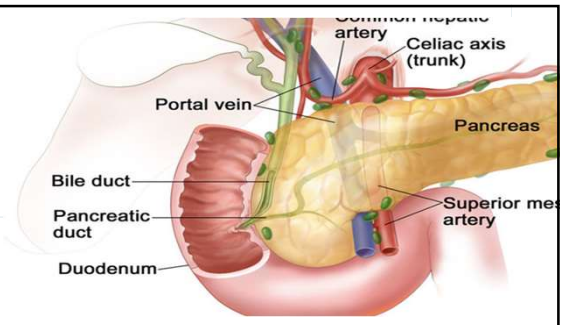
Pancreas Case #2



- Patient presented to the emergency department with complaints of diarrhea, abdominal pain, bloody urine, shortness of breath, and chest discomfort.
- Patient has a long-standing history of coronary artery disease with multiple stents as well as hypertension and hyperlipidemia status post angioplasty of the left anterior descending currently on aspirin. In addition, patient has a history of obstructive sleep apnea, COPD, diabetes and obesity as well as COVID in 2020.
- CT the abdomen performed on admission showed a subtle hypodense *lesion in the pancreatic head measuring 2.8 cm suspicious for neoplasm.*
- Intraductal biliary ductal dilatation with gallbladder distention was noted. Recommend outpatient follow-up with PET scan.

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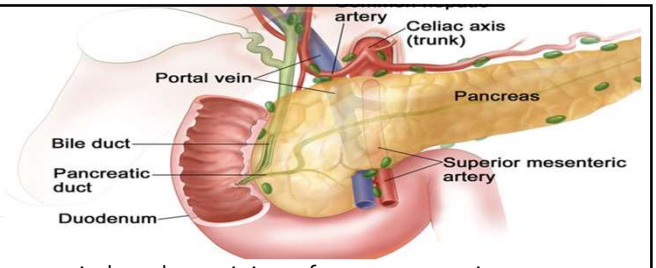
Imaging



CT ABDOMEN/PELVIS

- 2.4 x 2.8 cm hypodense lesion in the pancreatic head suspicious for a pancreatic neoplasm. Further evaluation with MRI with contrast recommended.
- Intrahepatic biliary ductal dilatation and gallbladder distention.

MRI Abdomen:

- 3.7 x 2.8 x 3.6 cm mass in the superior pancreatic head/neck resulting in stricture in the common bile duct, inferior aspect situated approximately 2.7 cm from the level of the ampulla and spanning 1.2 cm in length; early narrowing of the main pancreatic duct.
- The mass abuts superior mesenteric vein, extrahepatic main portal vein, and gastroduodenal artery. No encasement of these vascular structures.
- No definitive intrahepatic metastases.

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Case #2

Poll 6

- For PANCREAS primaries - Does abut mean involved or not involved for Summary Stage?
- 1. Involved
- 2. Not involved
- 3. Not enough information

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Case #2

Summary Stage Manual (ambiguous terms)

Not Involved	
Abuts	Extension to without invasion/involvement of
Approaching	Kiss/kissing
Approximates	Matted (except for lymph nodes)
Attached	Possible
Cannot be excluded/ruled out	Questionable
Efface/effacing/effacement	Reaching
Encased/encasing	Rule out
Encompass(ed)	Suggests
Entrapped	Very close to
Equivocal	Worrisome

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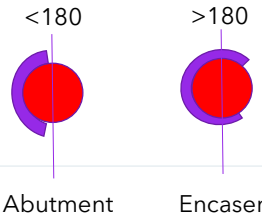
Case #2

Summary Stage



- **General Instructions (ambiguous terms)**
- ***Note 1*:** Terminology in the chapter takes priority over this list. Some chapters interpret certain words as involvement; such as 'encasing' the carotid artery for a head and neck site or "abutment," "encases," or "encasement" for pancreas primaries.

- **Pancreas Chapter**
- **Note 4:** The terms "abutment," "abut(s)," "encases," or "encasement" of the major blood vessels can be interpreted as involvement of these structures.

- Note: Major blood vessels are ones that have a name.

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Case #2

Pathology report

- DIAGNOSIS:
  - Pancreatic head mass fine needle biopsy:
    - Invasive adenocarcinoma, moderately to poorly differentiated.

Cancer-Type Relevant Biomarkers

Biomarker	Method	Analyte	Result
KRAS	Seq	DNA-Tumor	Pathogenic Variant Exon 2 | p.G12D
SMAD4	Seq	DNA-Tumor	Pathogenic Variant Exon 12 | p.W524C
	CNA-Seq	DNA-Tumor	Deletion Not Detected
BRAF	Seq	DNA-Tumor	Mutation Not Detected
		RNA-Tumor	Fusion Not Detected
MSI	Seq	DNA-Tumor	Stable
Mismatch Repair Status	IHC	Protein	Proficient
NTRK1/2/3	Seq	RNA-Tumor	Fusion Not Detected
Tumor Mutational Burden	Seq	DNA-Tumor	Low, 5 mut/Mb
ATM	CNA-Seq	DNA-Tumor	Deletion Not Detected
	Seq	DNA-Tumor	Mutation Not Detected
BRCA1	CNA-Seq	DNA-Tumor	Deletion Not Detected
	Seq	DNA-Tumor	Mutation Not Detected
BRCA2	CNA-Seq	DNA-Tumor	Deletion Not Detected
	Seq	DNA-Tumor	Mutation Not Detected
MTAP	CNA-Seq	DNA-Tumor	Deletion Not Detected
NRG1	Seq	RNA-Tumor	Fusion Not Detected
PALB2	CNA-Seq	DNA-Tumor	Deletion Not Detected
	Seq	DNA-Tumor	Mutation Not Detected
OTHER FINDINGS (See below for additional results)			
PD-L1 (SP142)	IHC	Protein	Negative | 0%
CDKN2A	Seq	DNA-Tumor	Likely Pathogenic Variant Exon 2 | p.M52_L64 delinsLM
TP53	Seq	DNA-Tumor	Pathogenic Variant Exon 8 | p.E285K

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Case #2

Laboratory /SSDI CA 19-9

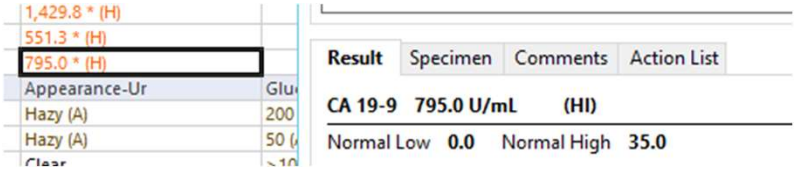
Description

Carbohydrate Antigen (CA) 19-9 Pretreatment Lab Value records the CA 19-9 value prior to treatment.

CA 19-9 is a tumor marker that has prognostic significance for pancreatic cancer.

Rationale

CA 19-9 Pretreatment Lab Value is a strong predictor of resectability in the absence of metastatic disease. It is a new data item **for cases diagnosed 1/1/2021+.**



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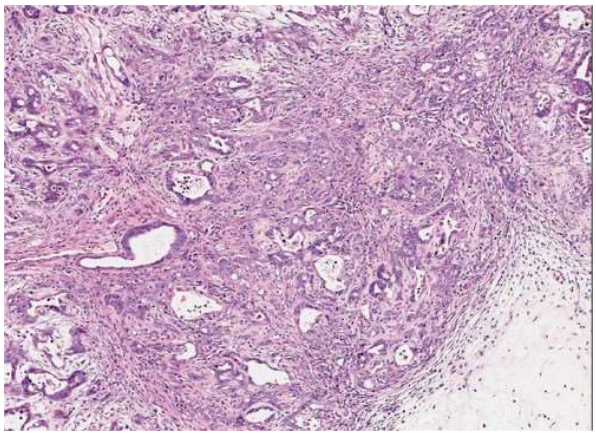
Case #2

Grade Adenocarcinoma



Code	Grade Description
1	G1: Well differentiated
2	G2: Moderately differentiated
3	G3: Poorly differentiated
9	Grade cannot be assessed (GX); Unknown

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Case #2

Multi-disciplinary Tumor Board

- Oncology History:
  - Patient admitted with cholestasis found to have a mass on the head of the pancreas. EUS biopsy was performed and confirmed it to be adenocarcinoma, and a fully covered stent was placed. Admitted later with chest pain, and was found to have a subsegmental PE, also right inferior frontal gyrus infarction, now on Xarelto.
  - Underwent neoadjuvant chemotherapy with FOLFIRINOX and completed 7 cycles, which also lead to cardiotoxicity. Ejection fraction is 25%, cardio cleared for surgery with a moderate risk and recommended intraoperative Swan-Ganz and fluid restriction.
- Tumor Board Treatment:
  - Plan: Tumor board recommendation was to speak to the patient about ablative radiation therapy as a potential option. They also recommend speaking to risk management to be involved in the case, if needed.
- Discussion with Patient:
  - I explained to him that our typical institutional pathway for borderline resectable pancreas cancer includes induction chemotherapy followed by SBRT and then reassessment for surgery although given his high risk for surgery I would not recommend radiation therapy if he in fact did proceed with surgery as radiation could increase the risk of surgical complexity which would be detrimental to him given his cardiac condition.
  - He agreed to receive definitive ablative MR-guided SBRT instead of surgery.

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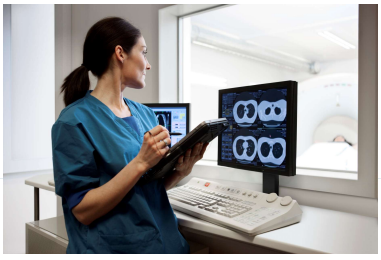
Case #2

Treatment



- **Treatment Summary – Course #** 1:
- Treatment was delivered to the pancreas, with photons and a(n) MR-guided SBRT technique on the MRIdian MRLinac (treatment unit). A total of 50 Gy was delivered at 10 Gy per fraction (treatment session). A total number of 5 fractions were delivered from the start date of XX/XX/XX to end date XX/XX/XX over 8 elapsed days.

Treatment Site	Energy	Dose/Fx (Gy)	#Fx	Total Dose (Gy)	Start Date	End Date	Elapsed Days
Pancreas	6XFFF	10	5 / 5	50	12/27/2022	1/4/2023	8

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Case #2

Additional Treatment Following FOLFIRINOX and SBRT

- ABDOMEN MRI W WO CON:
  - No significant change in pancreatic head mass with similar involvement of the GDA and common hepatic artery.
  - Multiple new rim-enhancing hepatic lesions with poorly defined margins favor to represent small abscesses over new metastatic disease.
  - Additional wedge-shaped regions of restricted diffusion in the liver may represent cholangitis. Consider short-term MRI after cholangitis treatment.
  - Unless otherwise specified, incidental findings in the body of the report may not need additional follow-up imaging.
- Tumor board: Reviewed liver lesions, given significantly elevated tumor marker 11,000 with new appearance of liver lesions, tumor board recommendations likely this is metastatic disease to liver now.
- Patient recommended to resume systemic treatment, but chose Hospice

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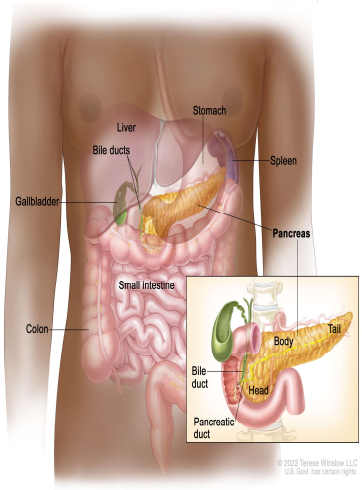
Case #2

Poll 7 Progression yes/no

- If the patient had chosen more treatment, would you code it?
  - Tumor board: Reviewed liver lesions, given significantly elevated tumor marker 11,000 with new appearance of liver lesions, tumor board recommendations likely this is metastatic disease to liver now.
    - Remember the ambiguous terms list is only for histology and date of diagnosis – not for staging, treatment, etc.
    - To determine progression, look for statement from treating physician, change in treatment, and consider all available information, not just a particular ambiguous term.



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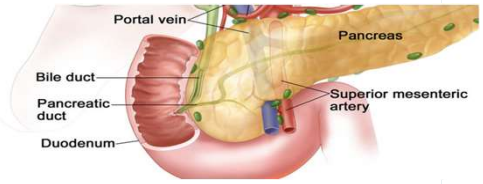
Pancreas Case #3



- 56-year-old man with diabetes mellitus had progressive weakness, nausea, occasional vomiting, constipation, poor appetite and a 15-pound weight loss over the last 6 weeks. He presented to his PCP and had an abdominal ultrasound that identified multiple liver lesions
- CT Chest:
  - Gross hepatomegaly with widespread hepatic metastatic disease.
  - 5.4 x 4.1 x 5.3 cm mass lesion within or adjacent to the tail of the pancreas.
  - Splenic vein not well visualized and involvement cannot be excluded.
  - Obvious abdominal or retroperitoneal adenopathy is not identified.
- Ultrasound of the spleen:
  - Spleen is enlarged 15.4 cm, splenic vein is patent, no discrete splenic masses are seen.
- MRI:
  - Pancreatic tail mass 5.9 x 5.1 x 3.8 cm, no adenopathy.
  - Innumerable hepatic masses favoring mets.

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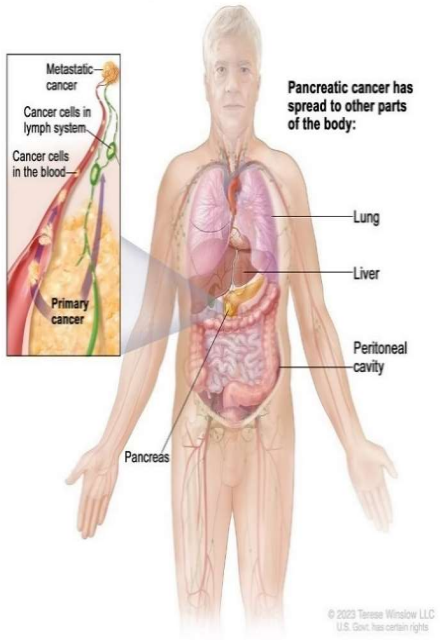

Case #3

Additional Work up

- AFP 3.8, CEA 1.7 and CA 19-9 6.8.
- MRCP:
  - The pancreatic tail mass
  - Innumerable hepatic mets.
    - (MRCP procedure injects a dye in the patient's vein and then takes MRI images)
- Biopsy of the liver:
  - Well-differentiated neuroendocrine tumor (NET) grade 3/3.
  - Ki-67 proliferative index 54%.

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Case #3

SSDI NET Pancreas

Code	Description
0.0-100.0	0.0 to 100.0 percent positive: enter percent positive
XXX.4	Ki-67 stated as less than 3%
XXX.5	Ki-67 stated as 3%-20%
XXX.6	Ki-67 stated as greater than 20%
XXX.7	Test done; actual percentage not stated
XXX.8	Not applicable: Information not collected for this case (If this item is required by your standard setter, use of code XXX.8 will result in an edit error.)
XXX.9	Not documented in medical record Ki-67 (MIB-1) not assessed or unknown if assessed
<Blank>	N/A-Diagnosis year is prior to 2021

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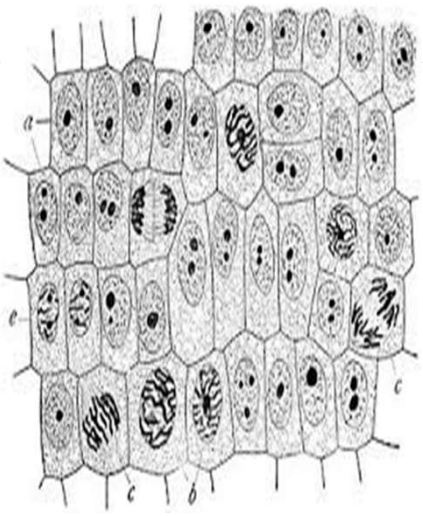
Case #3

Grade for NET of the pancreas

Code	Grade Description
1	G1: Mitotic count (per 10 HPF or 2mm2) less than 2 AND Ki-67 index (%) less than 3 Stated as WHO Grade 1
2	G2: Mitotic count (per 10 HPF or 2mm2) equal 2-20 OR Ki-67 index (%) equal 3-20 Stated as WHO Grade 2
3	G3: Mitotic count (per 10 HPF or 2mm2) greater than 20 OR Ki-67 index (%) greater than 20 Stated as WHO Grade 3

Code	Grade Description
A	Well differentiated
B	Moderately differentiated
C	Poorly differentiated
D	Undifferentiated, anaplastic
9	Grade cannot be assessed (GX); Unknown



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Case #3

Even though we do not collect BRCA2, note that many tumors now have genetic analysis to try and help guide treatment recommendations.

- Hepatic core biopsies: Metastatic well differentiated neuroendocrine tumor (NET) grade 3

BIOMARKER	METHOD	ANALYTE	RESULT	THERAPY ASSOCIATION	BIOMARKER LEVEL*
BRCA2	Seq	DNA-Tumor	Pathogenic Variant Exon 10 | p.K43fs	oxaliplatin olaparib A pathogenic or likely pathogenic BRCA2 mutation, and/or deletion, was detected in the tumor for which germline status is negative or unavailable for interpretation of therapy associations. The strongest evidence for DNA-damaging agents like PARP inhibitors or platinum compounds comes from studies that included predominantly germline mutations. Additionally, prescribing information and consensus guidelines (e.g. NCCN) for PARP inhibitors state a requirement for germline mutations. Therefore, the clinical benefit of these therapies in the context of tumor/somatic-only mutations (including deletions) remains to be fully determined.	

* Biomarker reporting classification: Level 1 – Companion diagnostic (CDx); Level 2 – Strong evidence of clinical significance or is endorsed by standard clinical guidelines; Level 3 – Potential clinical significance. Bolded benefit therapies, if present, highlight the most clinically significant findings.

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Case #3

Treatment discussion

- This well-differentiated neuroendocrine tumor of the tail of the pancreas had a Ki-67 proliferative index of 54% which indicates a more aggressive behavior than well differentiated NET G1 or G2 but a better prognosis than neuroendocrine carcinomas of the pancreas (NEC).
- Patients with advanced NET G3 often have a relatively poor response to platinum plus etoposide regimens, and for this reason platinum-based chemotherapy may not be the most appropriate first-line treatment.
- My recommendation is to initiate chemotherapy with the CAPTEM regimen as soon as possible as the patient is symptomatic and has bulky liver disease.
- He would receive capecitabine 750 mg/m2 twice daily on days 1–14 and temozolomide 200 mg/m2 daily on days 10–14 of a 28-day cycle.
- I also recommend to order a Gallium Dotatate PET/CT scan to evaluate the uptake of the NET G3.
  - If there is Dotatate avidity, for second line treatment consideration should be given to therapy with Lutathera (PRRT).
  - Other potential treatments for second line upon disease progression include platinum based chemotherapy and immunotherapy with ipilimumab plus nivolumab.
- Sandostatin 30 mg IM every 4 weeks ordered to start AFTER patient completed PET DOTATATE (currently delayed due to limited insurance coverage). Port flush q8 weeks.

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Case #3

Gallium Dotatate PET scan

- Somatostatin receptor positive neuroendocrine tumors – NET come from neuroendocrine cells, a large percentage of these cancers have receptors for somatostatin (a hormone). Octreotide is a protein that attaches to this somatostatin receptor.
- Gallium Dotatate – a radioactive material, attached to octreotide and injected prior to PET scan. The labeled octreotide will attach to somatostatin receptors and help to delineate many neuroendocrine tumors as well as mets from the tumors.

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Case #3

Explanation of treatment

- CAPTEM – This regimen is not in SEER RX
- GOOGLE – Per the NIH:
- Capecitabine and temozolomide (CAPTEM) regimen used for metastatic, well-differentiated neuroendocrine cancers
- Remember – do not just look for the agents in the chemo flowsheet, but make sure you know everything included in the regimen in case there is an oral medication OR hormone that needs to be coded.

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Case #3

Lutathera

- SEER RX - IMPORTANT INSTRUCTIONS: See STORE and SEER program manuals for coding instructions.
- Lutathera – lutetium Lu 177 dotatate – radioactive drug that attaches to the somatostatin receptors and the radiation helps to kill the cancer cells. (note: If the gallium dotatate PET scan indicates the cancer cells are taking the dye, then they are also likely to have the Lutathera attach and affect the cancer cells).
- Coded to isotopes NOS (13)
- Lutathera (lutetium LU 177) - CAnswer Forum (facs.org)

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Case #3

Sandostatin

- Code: Yes or No?

Will start Sandostatin for carcinoid syndrome. I spoke to patient and wife just now. I informed them of the resulted 24H urine 5HIAA, serotonin level, CgA level, all elevated and suggestive of carcinoid syndrome. Interestingly, patient does not have the classic carcinoid symptoms (flushing, wheezing, diarrhea, abdominal pain), however, is still at risk for carcinoid heart

Name
Octreotide Acetate

Alternate Names
L-Cysteinamide
Minisomatostatin
SMS-201-995
Sandostatin
Sandostatin LAR Depot
Somatostatin analog

Abbreviations
SMS

Category
Ancillary Agent
Hormones and hormonal mechanisms

Subcategory
Relief of symptoms

NSC Number
685403

Primary Site
None

Histology
None

Remarks
Remark added 11/18/2015: *Sandostatin* us usually prescribed to treat side-effects/symptoms from TSH-secreting pituitary adenomas. Studies show this may also shrink tumors or inhibit further growth. If the physician states this agent is being prescribed to shrink or prohibit growth of the tumor, then code as hormone treatment.

Please note: not all drugs classified as hormone treat malignant neoplasms.

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Case #3

Additional Treatment

- Following 5 months on CAPTEM, repeat PET scan was done:
  - There is extensive disseminated FDG avid metastatic liver disease throughout both the right and left lobes of the liver which appears to have mildly increased in size when compared to prior PET/CT from 04/15/2022.
  - Numerous new or larger FDG avid lesions are identified.
  - Increased FDG activity corresponding to a lucent bone region in the medial right iliac bone with an SUV max of 2.8 that on prior study had an SUV max of 1.5, new 2.3 cm lytic lesion in the spinous process of the L3 vertebral body with an SUV max of 3.5, and new left femur lesion has an SUV max of 3.3.
- CAPTEM stopped due to progression and need for second line therapy.
- Second line therapy was Everolimus.

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Fabulous Prizes

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Coming UP…

- Boot Camp 1
  - Juliet Wilkins, MA, CTR
- Boot Camp 2
  - Nancy Etzold, CTR

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CE Certificate Quiz/Survey

CE Phrase

- Exocrine

Link

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