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MAY 8–11, 2023



Hepatobiliary and Pancreatic Procedures

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Presented By



Laura M. Anderson, BSN, RN, CCDS, senior CDI specialist and educator, began her CDI career in 2007 at a Level I trauma facility in St. Paul, Minnesota, after working as a floor RN on step-down, short-stay, postoperative, and telemetry units. She also serves as a co-chair for the Minnesota ACDIS chapter.

Presented By



Anita Schmidt, BS, RHIA, is senior capability manager for Optum in St. Paul, Minnesota. She has expertise in ICD-10-CM/ICD-10-PCS, DRG, and CPT® with more than 15 years' experience in coding in multiple settings, including inpatient, observation, and same-day surgery. She has conducted training for ICD-10-CM/ICD-10-PCS and the electronic health record. She has also collaborated with CDI specialists to identify documentation needs and potential areas for physician education. Schmidt is an AHIMA-approved ICD-10-CM/PCS trainer.

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Learning Outcomes

- At the completion of this educational activity, the learner will be able to:
 - Recall basic anatomy of the Liver, gallbladder, and pancreas
 - Identify common procedures of the Liver, gallbladder, and pancreas
 - Identify post-procedural complications and conditions



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Hepatobiliary System

Medical Diagnostic Category (MDC) 7

- Diseases and Disorders of the Hepatobiliary System and Pancreas
 - Surgical DRGs: 405-425
 - Medical DRGs: 432-446

ICD-10-CM Chapter 11

- Diseases of the Digestive System
 - Diseases of Liver: K70-K77
 - Diseases of Gallbladder, Biliary Tract, and Pancreas: K80-K87

ICD-10-PCS

- Gastrointestinal System (0D1-0DY)
- Hepatobiliary System (0F1-0FY)
- Lower Veins (061-06W)

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Surgical DRGs

- 405-407: Pancreas, liver and shunt procedures with MCC, CC, without CC/MCC
- 408-410: Biliary tract procedures except only cholecystectomy with or without CDE with MCC, CC, without CC/MCC
- 411-413: Cholecystectomy with CDE with MCC, CC, without CC/MCC
- 414-416: Cholecystectomy except by Laparoscope without CDE with MCC, CC, without CC/MCC
- 417-419: Laparoscopic cholecystectomy without CDE with MCC, CC, without CC/MCC
- 420-422: Hepatobiliary Diagnostic Procedures with MCC, CC, without CC/MCC
- 423-425: Other Hepatobiliary or pancreas OR procedures with MCC, CC, without CC/MCC

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Medical DRGs

- 432-434: Cirrhosis and Alcoholic Hepatitis with MCC, CC, without CC/MCC
- 435-437: Malignancy of Hepatobiliary System or Pancreas with MCC, CC, without CC/MCC
- 438-440: Disorders of Pancreas Except Malignancy with MCC, CC, without CC/MCC
- 441-443: Disorders of Liver Except Malignancy, Cirrhosis, Alcoholic Hepatitis with MCC, CC, without CC/MCC
- 444-446: Disorders of the Biliary Tract with MCC, CC, without CC/MCC

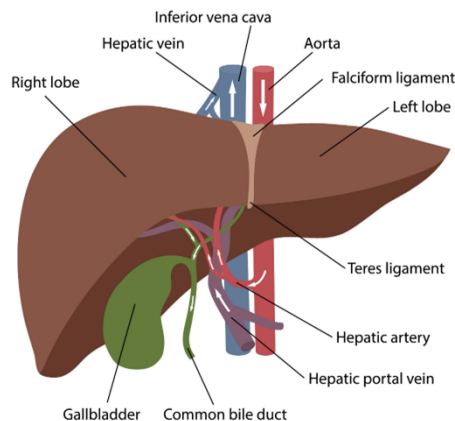
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Liver & Related Procedures

Liver

- Sits beneath diaphragm; above the stomach, right kidney, and intestines
- **Lobes:** right, left, caudate, quadrate
- Functional units → **Lobules**
 - Composed of hepatocytes
 - Held together with layer of connective tissue
- **Hepatic artery** – delivers O₂-rich blood from the aorta
- **Portal vein** – carries blood with digestive content from the GI tract, spleen, and pancreas to the liver

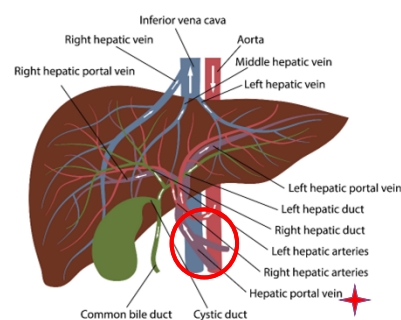


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Portal Hypertension

- Increased pressure in the portal venous system
- In normal anatomy...
 - Portal vein receives blood from: stomach, intestine, spleen, pancreas, gallbladder
 - Portal vein distributes blood in the liver via smaller branches
- In portal hypertension...
 - Fluids back up into vessels; collateral vessels develop and bypass normal liver circulation (esophageal and gastric varices)
- S/S: Ascites, abdominal pain, splenomegaly, bleeding in digestive tract, hepatic encephalopathy
- Treatment: Meds, TIPS procedure, liver transplant



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Portal HTN is a CC (K76.6)

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Trans-jugular Intrahepatic Portosystemic Shunt (TIPS)

- Treatment for portal hypertension
- Normal blood flow: From intestines and spleen into portal vein and entry into liver
- TIPS procedure creates shunt or channel (bypass) through liver parenchyma to connect hepatic vein to portal vein in the center of the liver
 - Changes the blood route through the liver from the portal vein directly into the hepatic vein
 - Provides alternate flow to prevent back-up in the portal vein

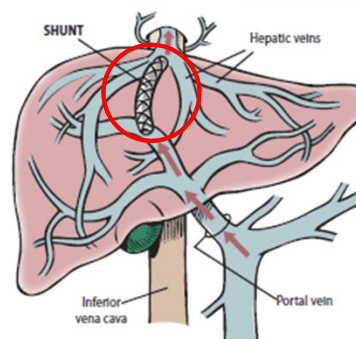


Illustration from ICD-10 Essentials: Applying ICD-10-PCS Guidelines, 2022, p 353 (Optum)

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TIPS Case Study

The patient with portal hypertension was brought into the interventional radiology suite, and sedation was administered. Skin and subcutaneous tissues were anesthetized with 1% buffered lidocaine.

Under fluoroscopic guidance, the left internal jugular vein was accessed, and a wire and catheter were passed down to the level of the hepatic vein. The needle was run to the identified portal vein, and a balloon was inflated. A stent was advanced across the liver to the portal vein. The catheter was exchanged for a 5-French pigtail catheter. With this in the portal vein, hemodynamic pressure monitoring was performed.

After ensuring portal pressure decrease, the catheter was withdrawn, and a bandage applied with pressure to the insertion site in the left neck.

PCS Codes:

- 06183J4, Bypass Portal Vein to Hepatic Vein With Synthetic Substitute, Percutaneous Approach
- 4A043B2, Measurement of Venous Pressure, Portal, Percutaneous Approach

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TIPS Case Study

- Review of PCS Code:
 - 06183J4, Bypass Portal Vein to Hepatic Vein With Synthetic Substitute, Percutaneous Approach
 - PCS Table 061: Medical and Surgical, Lower Veins, Bypass
 - Root operation Bypass = Altering the route of passage of the contents of a tubular body part
 - Body part: Portal vein (8)
 - Approach: Percutaneous (3)
 - Device: Stent/tube placed for re-routing, central to the procedure and intended to stay in place (J)
 - Qualifier: Hepatic vein (4)
 - See AHA Coding Clinics: Q3, 2014, P25; Q4, 2017, p64; Q1, 2018, P10

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ICD-10-PCS Official Guidelines for Coding and Reporting 2023

Bypass procedures

B3.6a

Bypass procedures are coded by identifying the body part bypassed “from” and the body part bypassed “to.” The fourth character body part specifies the body part bypassed from, and the qualifier specifies the body part bypassed to.

Example: Bypass from stomach to jejunum, stomach is the body part and jejunum is the qualifier

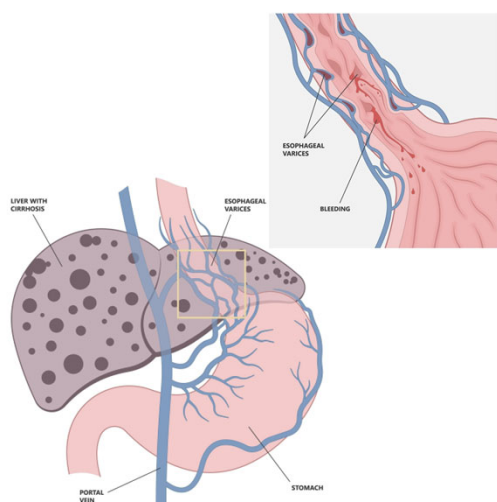
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Distal Splenorenal Shunt (DSRS)

- AKA splenorenal shunt procedure, Warren shunt
- Treats portal hypertension and relieves pressure on esophageal varices; more cost effective than TIPS
- Procedure:
 - Distal splenic vein is detached from portal vein and reattached to top of left renal vein
 - Left gastric vein is detached from portal vein and tied off
 - Blood now flows from varices to splenic vein → left renal vein → empties into inferior vena cava
 - Blood supply to the liver continues from the portal vein

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Esophageal Varices



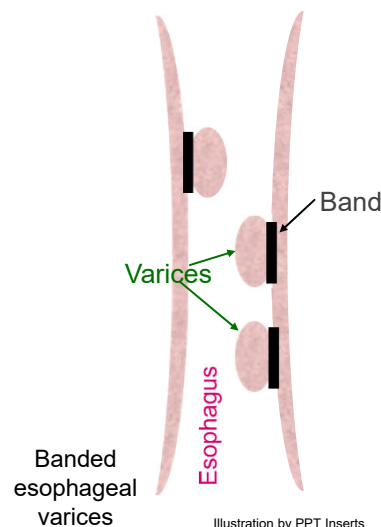
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- Enlarged (often tortuous) veins that develop as a result of altered blood flow to the liver
- Seen in portal hypertension
- Treatment: Beta blockers, ligation/banding
- Documentation Needs:
 - Clarify **cause of varices** (portal hypertension, cirrhosis, etc.)
 - With or without **bleeding**

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Variceal Banding

- Ligation of abnormally enlarged esophageal veins
- Targets the **lumen of the esophageal vein** (not the whole esophagus)
- Elastic band is placed around the varix, cutting off (occluding) blood flow
- **Elastic bands** are central to the procedure and intended to stay in place



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Variceal Banding Case Study

The patient was admitted for bleeding esophageal varices with the decision to perform ligation.

The patient was brought to the endoscopy suite, sedated, and placed supine on the table. The physician passed a flexible esophagoscope through the patient's mouth and into the esophagus to visualize the esophageal varices. The endoscopic band delivery device was positioned, and the rubber band was secured at the base of the varix. This was repeated until all varices had been banded. The esophagoscope was removed from the patient.

PCS Code:

- **06L38CZ, Occlusion of esophageal vein with extraluminal device, via natural or artificial opening endoscopic**

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Variceal Banding Case Study

- Review of PCS code:
 - 06L38CZ, Occlusion of Esophageal Vein With Extraluminal Device, Via Natural or Artificial Opening Endoscopic
 - PCS Table 06L: Medical and Surgical, Lower Veins, Occlusion
 - Root operation **Occlusion** = Completely closing an orifice or the lumen of a tubular body part
 - Approach: **Via Natural or Artificial Opening Endoscopic** (8)
 - Qualifier: **None** (Z)
 - See *AHA Coding Clinic*: Q4, 2013, P112

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Hepatorenal Syndrome (HRS)

- Functional renal failure in patients with advanced liver disease and circulatory dysfunction
- Patient may have no history of previous underlying kidney condition(s)
- Two types:
 - Type 1: Rapid & progressive renal failure, may develop hepatic encephalopathy, seen in SBP
 - Type 2: Steady & slow course, moderate renal failure, seen with refractory ascites & jaundice
- **Hepatorenal Syndrome = MCC (K76.7)**
- Treatment: Liver transplant

Look for:

- ↑ sodium
- ↑ SCr
- oliguria
- edema/ascites
- abdominal pain
- fatigue/malaise
- absence of shock or previous renal condition
- no improvement in renal function even after plasma volume expansion
- Hallmark of HRS: **severe renal vasoconstriction**

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Transplant



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- Post-transplant care requires:
 - Anti-rejection medication
 - Monitoring of organ function
- Root operation **transplantation**
 - Putting in or on all or a portion of a living body part taken from another individual or animal to physically take the place and/or function of all or a portion of a similar body part
 - The native body part may or may not be taken out, and the transplanted body part may take over all or a portion of its function.

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Liver Transplant Case Study

A patient with liver failure due to cirrhosis from alcoholic liver disease presented for a liver transplant. A midline incision was made in the abdomen and the native liver was resected. This included division of the common bile duct, hepatic artery, hepatic vein, portal vein, and all ligaments attached to the liver. The retro-hepatic portion of the inferior vena cava was also removed.

The organ bank liver, from a deceased donor, was placed in the right side of the upper abdomen in the same position as the native liver. Anastomoses of the hepatic artery, portal vein, and inferior vena cava was performed. Blood flow was established through the new liver, followed by bile duct anastomosis to the native bile duct.

PCS Code:

- 0FY00Z0, Transplantation of Liver, Allogeneic, Open Approach

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Liver Transplant Case Study

- Review of PCS code:
 - 0FY00Z0 Transplantation of Liver, Allogeneic, Open Approach
 - PCS Table 0FY: Medical and Surgical, Hepatobiliary System and Pancreas, Transplantation
 - Root operation **Transplantation** = Putting in or on all or a portion of a living body part taken from another individual or animal to physically take the place and/or function of all or a portion of a similar body part
 - Approach: **Open** (0)
 - Qualifier: **Allogeneic** (0)
 - See *AHA Coding Clinic*: Q3, 2014, P13
 - *Anastomoses are considered components of the procedure and are not reported separately

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ICD-10-PCS Official Guidelines for Coding and Reporting 2023

General guidelines

B3.1a

In order to determine the appropriate root operation, the full definition of the root operation as contained in the PCS Tables must be applied.

B3.1b

Components of a procedure specified in the root operation definition or explanation as integral to that root operation are not coded separately. Procedural steps necessary to reach the operative site and close the operative site, including anastomosis of a tubular body part, are also not coded separately.

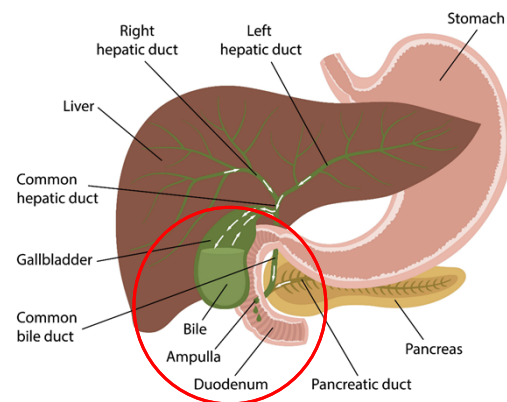
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Gallbladder & Related Procedures

Gallbladder (GB)

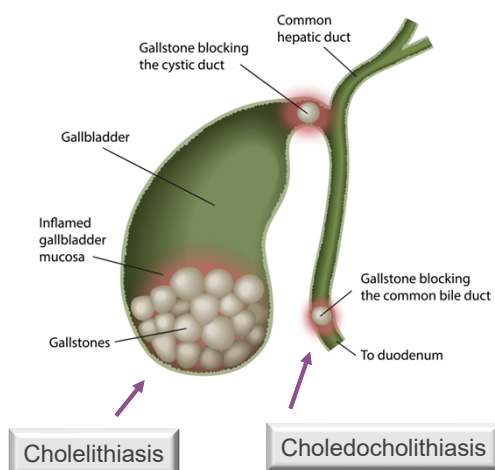
- Stores and releases bile/gall
- Anatomy: Fundus, body, neck, Hartmann's pouch, cystic duct
- **Normal bile flow**
 - From liver via left and right hepatic ducts, to the common hepatic duct through cystic duct into GB
 - GB concentrates bile by removing H₂O and electrolytes
 - Bile is released from GB via common bile duct into duodenum



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The gallbladder sits up under the liver and is pear-shaped

Gallbladder: Stones and Inflammation



Cholecystitis

- gallbladder inflammation

Cholelithiasis

- gallstones in the gallbladder

Choledocholithiasis

- gallstones in bile ducts

Cholangitis

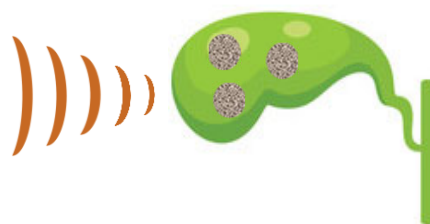
- infection and inflammation of bile ducts

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Lithotripsy

- Extracorporeal Shockwave Lithotripsy (ESWL)
 - Shock waves delivered from **outside** the body
- Direct Intracorporeal
 - Shock waves delivered from **inside** the body
- Shock waves pulverize stones into smaller pieces that can pass through the body
- May involve stent insertion to facilitate fragment passage
- Documentation Needs:
 - With fragment removal → **Extirpation**
 - Without fragment removal → **Fragmentation**
 - Site of stones: CBD, cystic duct, GB, etc.



Gall Bladder Free Stock Photo -
Public Domain Pictures

“litho-” = of stone
“-tripsis” = rubbing

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ESWL Case Study

A patient with right upper quadrant abdominal pain, indigestion, nausea, and vomiting was diagnosed with gallstones via ultrasound. The provider recommended extracorporeal shock wave lithotripsy (ESWL) for treatment.

The patient was brought to a radiology suite. Radiological guidance was used to determine the sites and sizes of the calculi. The patient was placed on a treatment table. A series of shock waves were directed through a water cushion placed against the patient's body at the location of the stones. Each shock wave was directed to the stone for a fraction of a second, with the entire procedure lasting 30 minutes. The treatment table was equipped with video x-ray so the physician could view the pulverization process. Stone fragments were expected to pass through the digestive system over the next few days/weeks.

PCS Code:

- 0FF4XZZ, Fragmentation in Gallbladder, External Approach

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ESWL Case Study

- Review of PCS code:
 - 0FF4XZZ, Fragmentation in Gallbladder, External Approach
 - PCS Table 0FF: Medical and Surgical, Hepatobiliary System and Pancreas, Fragmentation
 - Root operation Fragmentation = Breaking solid matter in a body part into pieces
 - Approach: External (X)
 - Qualifier: None (Z)
 - See AHA Coding Clinics: Q2, 2015, P7; Q4, 2013, P122

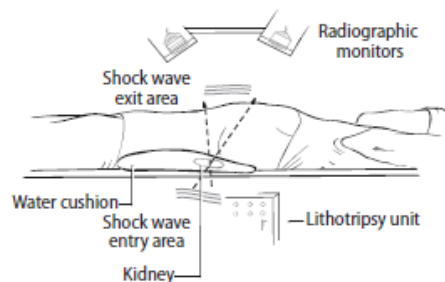


Illustration from Coders' Desk Reference for ICD-10-PCS Procedures, 2023, p288 (Optum)

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ICD-10-PCS Official Guidelines for Coding and Reporting 2023

General guidelines

B3.1a

In order to determine the appropriate root operation, the full definition of the root operation as contained in the PCS Tables must be applied.

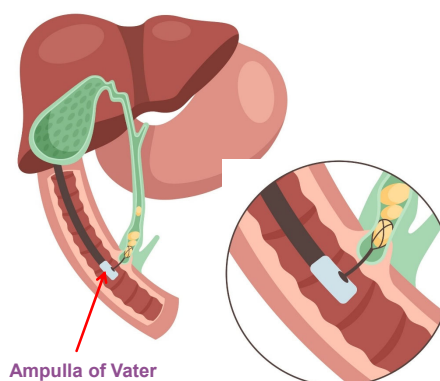
B3.1b

Components of a procedure specified in the root operation definition or explanation as integral to that root operation are not coded separately. Procedural steps necessary to reach the operative site and close the operative site, including anastomosis of a tubular body part, are also not coded separately.

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Endoscopic Retrograde Cholangiopancreatography (ERCP)

- Imaging procedure using a lighted endoscope and fluoroscopy to visualize the bile and pancreatic ducts
- May be used for:
 - Inspection, Ablation, Biopsy, Lithotripsy approach, Sphincterotomy/Papillotomy
 - **Dilation** (with/without stent)
 - Ex. Biliary stent placement
 - **Drainage** (with/without device)
 - Ex: Pancreatic cyst or pseudocyst



Ampulla of Vater: located at the major duodenal papilla, joins pancreatic and common bile ducts

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Sphincterotomy With ERCP Drainage Case Study

A 42-year-old female with a family history of gallstones presented with jaundice and ongoing right upper abdominal pain. A HIDA scan confirmed cholangitis and choledocholithiasis. An urgent ERCP for sludge and stone drainage was ordered. Following administration of anesthesia, the physician passed the endoscope through the patient's oropharynx, esophagus, stomach, and into the small intestine. The ampulla of Vater was cannulated and filled with contrast. The common bile duct and the whole biliary tract, including the gallbladder, were visualized. The sphincter was cannulated using a sphincterotome. The sphincter was divided by making a small cut, allowing bile and sludge to drain. No stent was placed, as satisfactory drainage was achieved. The endoscope was removed from the patient.

PCS Code:

- 0F9C8ZZ, Drainage of Ampulla of Vater, via Natural or Artificial Opening

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Sphincterotomy With ERCP Drainage Case Study

- Review of PCS code:
 - 0F9C8ZZ, Drainage of Ampulla of Vater, Via Natural or Artificial Opening
 - PCS Table 0F9: Medical and Surgical, Hepatobiliary System and Pancreas, Drainage
 - Root operation **Drainage** = Taking or letting out fluids and/or gases from a body part
 - Approach: **Via Natural or Artificial Opening Endoscopic (8)**
 - Qualifier: **None (Z)**
 - See *AHA Coding Clinics*: Q3, 2016, P27
 - *When ERCP is used to help perform a specific therapy, it is considered inherent in the procedure and not coded separately

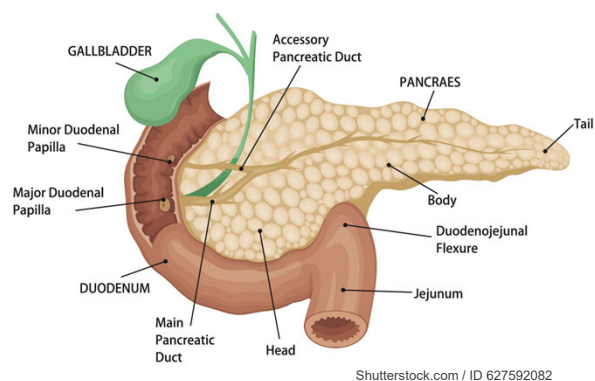
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Pancreas & Related Procedures

Pancreas

- Functions:
 - Aid food digestion
 - Manage blood sugar
- Most common conditions:
 - Cysts/pseudocysts
 - Pancreatitis
 - Neoplasms



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The pancreas (a gland) sits below the liver and behind the stomach

Pancreatic Cysts and Pseudocysts



<https://commons.wikimedia.org/wiki/File:Pancreaticpseudocyst.png>
James Heilman, MD, CC BY-SA 3.0

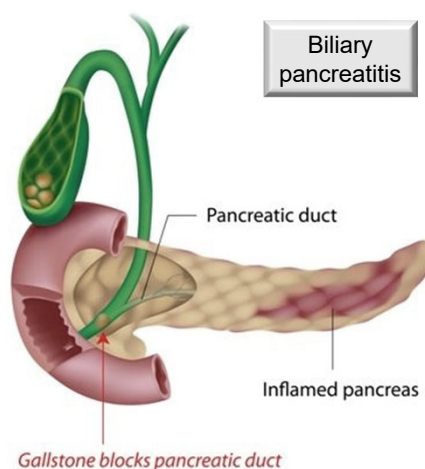
Pancreatic cysts and pseudocysts are both **CCs**

- **Pancreatic Cyst** – Closed sac lined with epithelium and is in or on the pancreas
- **Pancreatic Pseudocyst** – Forms within cavity of pancreas and is surrounded by fibrous tissue; lacks epithelial or endothelial cells
- Treatment may include **drainage via ERCP with/without stent**
- See *AHA Coding Clinics*: Q3, 2020, P34; Q3, 2014, P15

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Pancreatitis

- Inflammation of the pancreas
- Diagnostics
 - Labs (amylase or lipase 3x normal)
 - Imaging (US, EUS, MRCP, CT)
- Treatment: IVFs, pain meds, antibiotics, bowel rest, NG tube, Whipple for chronic pancreatitis
- See *AHA Coding Clinic*: Q4, 2016, P34
- Documentation Needs:
 - Acute vs. chronic
 - Cause: Stones, alcohol, drugs/meds, idiopathic
 - Presence of necrosis or infection



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Pancreas: Neoplasms

- Poor prognosis
- May affect endocrine or exocrine tissue
- S/S: Present at advanced stages, abdominal pain, weight loss, jaundice
- Treatment: Surgical removal, palliative care
- Documentation Needs:
 - Behavior (malignant primary, malignant secondary, in situ, benign, uncertain, unspecified)
 - Any presence of exocrine pancreatic insufficiency
 - Secondary or metastatic sites
 - Complications
 - Where treatment is directed



https://commons.wikimedia.org/wiki/File:Pancreatic_Cancer.jpg
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Most common type: adenocarcinoma

Most common site: head of pancreas

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Pancreaticoduodenectomy (Whipple)

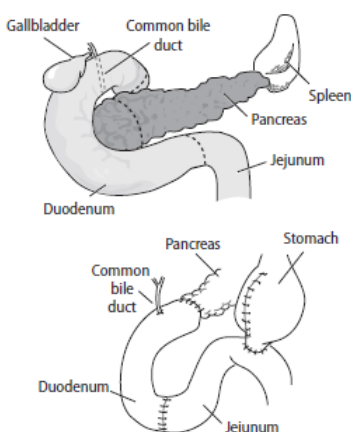


Illustration from Optum Book, Coders' Desk
Reference for ICD-10-PCS Procedures 2023

- Remove tumor(s) on head of pancreas; treat pancreatic or duodenal trauma; manage chronic pancreatitis
- Procedure:
 - Open vs. percutaneous endoscopic
 - Removal of head of pancreas, duodenum, gallbladder, and common bile duct
 - Remaining ducts, pancreas, and stomach are attached to the small intestine
 - May also accompany biopsy, gastrectomy, cholecystectomy, splenectomy (resections, excisions, inspections)
- See *AHA Coding Clinics*: Q1, 2019, P3; Q3, 2014, P32

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Pancreaticoduodenectomy (Whipple) Case Study

A 67-year-old male with cancer of the pancreatic head presents for a pancreaticoduodenectomy. Under general anesthesia and using an open approach, the surgeon made an abdominal incision for exploration. The duodenum, proximal pancreas, and bile duct were mobilized. The distal bile duct, distal stomach, and distal duodenum were divided. The pancreas was transected at the junction of the head and body, and the pancreatic head, duodenum, distal stomach, and distal bile duct were removed *en bloc*. The anatomy was reconstructed by performing sequential anastomoses between the proximal jejunum and the distal bile duct and distal stomach. The edge of the remaining distal pancreas was closed with staples. The surgical incision was closed.

PCS Codes:

- Multiple codes to report Excision & Resection (of common bile duct, duodenum, gallbladder, jejunum, pancreas, stomach)

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Pancreaticoduodenectomy (Whipple)

Root Operation Table	
0DB Gastrointestinal System, Excision	
0DT Gastrointestinal System, Resection	
0FB Hepatobiliary System and Pancreas, Excision	
0FT Hepatobiliary System and Pancreas, Resection	
Body Part	Approach
Common Bile Duct	Open
Duodenum	Percutaneous Endoscopic
Gallbladder	
Jejunum	
Pancreas	*Device and Qualifier values are usually "Z" in these procedures.
Stomach	

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Multiple procedures

B3.2

During the same operative episode, multiple procedures are coded if:

- a.** The same root operation is performed on different body parts as defined by distinct values of the body part character.

Examples: Diagnostic excision of liver and pancreas are coded separately.
Excision of lesion in the ascending colon and excision of lesion in the transverse colon are coded separately.

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Excision vs. Resection

B3.8

PCS contains specific body parts for anatomical subdivisions of a body part, such as lobes of the lungs or liver and regions of the intestine. Resection of the specific body part is coded whenever all of the body part is cut out or off, rather than coding Excision of a less specific body part.

Example: Left upper lung lobectomy is coded to Resection of Upper Lung Lobe, Left rather than Excision of Lung, Left.

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Postoperative Complications

- Wound infection
- Bleeding
- Retained gallstones
- Abscess formation and stenosis (narrowing) of the bile duct
- Hernia occurrence
- Post-op urinary retention
- Encephalopathy (post-TIPS)
- Accidental punctures or lacerations (possible PSI 15)

Postcholecystectomy Syndrome:

- S/S: Biliary colic with RUQ pain, dyspepsia
- Affects up to 10% post-op cholecystectomy patients
- ICD-10-CM Code K91.5

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Terminology

Angi(o)	• relating to a vessel
Chol(e)-	• of or pertaining to bile
Cholecyst(o)-	• of or pertaining to the GB
Hepat-, hepatic-	• of or pertaining to the liver
-iasis	• condition, formation, or presence of
-itis	• inflammation
Lith(o), -lith	• a stone, calculus, calcification

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Thank you. Questions?

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