Heart of the Matter: ICD-10-PCS Cardiac Coding

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A robust knowledge of anatomy and cardiac surgery techniques, a comprehensive understanding of coding guidelines, and an eye for precision are key components of correct ICD-10-PCS cardiac coding.

This article will review ICD-10-PCS Official Guidelines for Coding and Reporting and root operations as they relate to cardiac coding, describe the anatomy involved in assigning ICD-10-PCS codes to cardiac procedures, and provide cardiac procedure case studies. It is important to remember that the body part values for specifying procedures on the coronary arteries were revised from the number of sites to the number of arteries; this change impacts numerous procedure code tables, according to the American Hospital Association's *Coding Clinic*.

A review of the ICD-10-PCS Official Guidelines for Coding and Reporting, the foundation for correct coding, is an essential component of any discussion on inpatient procedure coding. The phrase "repetitio est mater studiorum (repetition is the mother of learning)" is applicable to our relatively new ICD-10 world. Since the guidelines continue to change and evolve, and will do so for years to come, it is wise to revisit them often.

ICD-10-PCS Official Guidelines Relevant for Coronary Bypass Procedures

Below are some official guidelines that pertain to coronary bypass procedures and are important for coders to know.

- B3.1b: Components of a procedure specified in the root operation definition and explanation 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. Example: Thoracotomy to access the operative site would not be coded separately.
- B3.6b: Coronary artery bypass procedures are coded differently than other bypass procedures as described in Guideline B3.6a. Rather than identifying the body part bypassed from, the body part identifies the number of coronary arteries bypassed to, and the qualifier specifies the vessel bypassed from. Example: Aortocoronary artery bypass of the left anterior descending coronary artery and the obtuse marginal coronary artery is classified in the body part axis of classification as two coronary arteries, and the qualifier specifies the aorta as the body part bypassed from.
- B3.6c: If multiple coronary arteries are bypassed, a separate procedure is coded for each coronary artery that uses a different device and/or qualifier. Example: Aortocoronary artery bypass and internal mammary artery bypass are coded separately.
- B3.9: If an autograft is obtained from a different body part in order to complete the objective of the procedure, a separate procedure is coded. Examples: Coronary bypass with excision of saphenous vein graft, excision of saphenous vein is coded separately.
- B4.4: The coronary arteries are classified as a single body part that is further specified by number of arteries treated. One procedure code specifying multiple arteries is used when the same procedure is performed, including the same device and qualifier values. Examples: Angioplasty of two distinct coronary arteries with placement of two stents is coded as Dilation of Coronary Artery, Two Arteries with Two Intraluminal Devices. Angioplasty of two distinct coronary arteries, one with stent placed and one without, is coded separately as Dilation of Coronary Artery, One Artery with Intraluminal Device, and Dilation of Coronary Artery, One Artery with no device.

Root operations common to coronary artery bypass graft (CABG) procedures include:

- **Bypass:** This root operation is defined as "altering the route of passage of the contents of a tubular body part." A bypass can reroute the contents of a body part to a downstream area of the normal route, to a similar route and body

part, or to an abnormal route and dissimilar body part. Bypass includes one or more anastomoses, with or without the use of a device. This root operation is most commonly used for CABG procedures.
- **Performance:** Defined as completely taking over a physiological function by extracorporeal means. This root operation is used to identify cardiopulmonary bypass in cardiovascular procedures. Cardiopulmonary bypass is commonly used in CABG procedures because of the relative difficulty of operating on a beating heart. The code table for this procedure can be found in the "Extracorporeal Assistance and Performance" section of the ICD-10-PCS code book.

Some selected relevant definitions include:

- **Autologous vein:** a vein that originates from the patient, such as the saphenous vein graft in the leg that is used to create a bypass in the coronary artery.
- **Autologous artery:** an artery that originates from the patient, such as an internal mammary artery graft that is used to create a bypass in the coronary artery.
- **Non-autologous biological:** grafting material that does not originate from the patient.

CABG Case Study

The following is a case study illustrating how to code a Coronary Artery Bypass Graft (CABG) x 3 using ICD-10-PCS.

Procedures Performed:

1. Reverse saphenous vein graft from the aorta to the obtuse marginal and posterior descending artery
2. Left internal mammary artery to the left anterior descending artery
3. Cardiopulmonary bypass

Right greater saphenous vein was harvested from lower extremity with percutaneous endoscopic harvesting technique. Sternotomy was performed. Left internal mammary artery was taken down with electrocautery and fine Hemoclips. Pericardium was opened. The patient was placed on cardiopulmonary bypass. The LIMA was dissected as a pedicle. The saphenous vein graft was placed end-to-end with the posterior descending artery, then a separate graft was placed to obtuse marginal. The LIMA was subsequently placed end-to-side with the left anterior descending artery. Patient weaned from cardiopulmonary bypass. Incision closed and patient was taken to recovery in good condition.

Codes Assigned

The following ICD-10-PCS codes are assigned for this case study:

- 021109W – Coronary artery bypass, two arteries, from aorta with autologous venous tissue, open approach
- 02100Z9 – Coronary artery bypass, one artery from LIMA, open approach
- 06BP4ZZ – Excision of right greater saphenous vein, percutaneous endoscopic approach
- 5A1221Z – Cardiopulmonary bypass

Root Operations Common to Valve Procedures with Examples

- Replacement: This root operation is defined as "putting in or on a biological or synthetic material that physically takes the place and/or function of all or a portion of a body part." This root operation is applicable to valve replacement procedures; the device character in this root operation identifies the type of graft utilized, such as autologous tissue substitute and non-autologous tissue substitute. Examples include:
    - Replacement of aortic valve using porcine tissue, open approach, with cardiopulmonary bypass: 02RF08Z, 5A1221Z
    - Replacement of mitral valve (bicuspid valve) using St. Jude prosthesis, open approach: 02RG0JZ
    - TAVR (transcatheter aortic valve replacement), percutaneous approach, with synthetic substitute, transapical: 02RF3JH

- Supplement: This root operation is defined as "putting in or on biological or synthetic material that physically reinforces and/or augments the function of a portion of a body part." Examples include:
    - MitraClip® implant (without excision of leaflet): 02UG3JZ
    - Annuloplasty (with ring placement) of aortic valve, open approach: 02UF0JZ
- Repair: This root operation is defined as "restoring, to the extent possible, a body part to its normal anatomic structure and function," such as a suture repair to reshape a heart valve. Examples include:
    - Suture repair of mitral (bicuspid) valve, percutaneous: 02QG3ZZ
    - Suture repair of aortic valve, open: 02QF0ZZ

New Technology

A new ICD-10-PCS code has been introduced for fiscal year 2017: X2RF332, Replacement of Aortic Valve using Zooplastic Tissue, Rapid Deployment Technique, Percutaneous Approach, New Technology Group 2. The delivery system, Edwards Intuity Elite, is an aortic valve prosthesis which replaces the diseased valve. The device is comprised of a Zooplastic bovine pericardial bioprosthetic valve with a balloon expandable stent of stainless steel and textured sealing cloth. The balloon stent delivery technology allows rapid deployment of the valve and permits the new valve to be precisely positioned in the correct location.

Aortic Valve Case Study

The following is a case study on how to code a Transcatheter Aortic Valve Replacement (TAVR) using ICD-10-PCS.

Procedures Performed:

1. Small left thoracotomy
2. Ascending aortography
3. Transapical transcatheter aortic valve replacement with a number 26 Sapien XT valve
4. Closure of ventricular apex
5. Closure of thoracotomy

Small lateral thoracotomy was performed though the sixth intercostal space on the right, exposing the apex. The left femoral artery and vein were approached with microneedle, and Platinum Plus wires were left in place for possible establishment of cardiopulmonary bypass. The left femoral artery was then approached with a microneedle, and a 6-French radial sheath was placed, though which a pigtail catheter was placed into the right coronary sinus and aortography was performed for proper valve alignment. Under rapid ventricular pacing, two mattress sutures of 2-0 Prolene were placed with pledgets. The patient was fully heparinized, and the apex was then punctured with a Cook needle. A J-wire was then placed across the aortic valve and directed around the aortic arch with a JR4 catheter and placed into the descending thoracic aorta. This was replaced with a Super Stiff Amplatz wire. Over the Amplatz wire, the ascender introducer was then placed at 3.5 cm mark and directed toward the valve. A number 26 Sapien XT valve was then placed on the delivery device and was inspected from proper orientation. This was then placed through the sheath into the ventricle. The valve was de-sheathed and placed across the valve, and under rapid ventricular pacing, the valve was deployed in proper position. A mild paravalvular leak was noted, and therefore, the valve was re-ballooned with an extra milliliter of saline. This ameliorated the paravalvular leak issue. The delivery device was then placed again across the valve. The wire was retrieved. The delivery device was then removed from the sheath, and under rapid ventricular pacing the sheath was removed from the patient. The thoracotomy was then closed in anatomic layers with Vicryl in the subcutaneous tissue and Dermabond on the skin. Blake drain was used for intercostal drainage. Exparel was used for analgesia. The patient was returned to the cardiothoracic intensive care unit.

Code Assigned

The following ICD-10-PCS code is assigned for this case study:

- 02RF38H – Replacement of Aortic Valve with Zooplastic Tissue, Transapical, Percutaneous Approach

Quality Documentation is Essential

Accurate coding in ICD-10-PCS is largely dependent upon precise documentation and the coding professional's ability to conceptualize and visualize the steps by which procedures are performed. A review of the ICD-10-PCS tables is a good method of familiarizing oneself with the building blocks of ICD-10-PCS codes. It is advisable not to rely solely upon an encoder for code building. A periodic analysis of documentation quality is just as important as periodic coding quality reviews. It is essential that coding professionals have quality documentation with which to work.

References

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