ICD-10-PCS Reference Manual

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Preface

The International Classification of Diseases Tenth Revision Procedure Coding System (ICD-10-PCS) is a new system for coding inpatient procedures that was developed for the Centers for Medicare and Medicaid Services (CMS).

This manual is written as a general introduction for data managers, payers, administrators, and medical record coders. For readers who do not need a detailed understanding of ICD-10-PCS but would like a general introduction, the material in chapter 1 and the appendices is recommended.

Manual organization

The manual is organized into the following chapters and appendices. A glossary also provides a list of terms introduced in the manual.

Chapter 1 - Overview

Includes a general introduction to ICD-10-PCS, a brief history of its development, and a presentation of the code structure, organization, and characteristics. The first part of the overview contains basic information; the second and third parts discuss structure, characteristics, and applications in more detail.

Chapter 2 - Procedures in the Medical and Surgical section

Provides reference material for each root operation in the Medical and Surgical section (0), with the full definition, additional explanation as needed, a code example, and coding exercises for each root operation.

Chapter 3 - Procedures in the Medical and Surgical-related sections

Provides reference material for each of the Medical and Surgical-related sections (1 through 9), with definitions, additional explanation as needed, a code example, and coding exercises for each section.

Chapter 4 - Procedures in the ancillary sections

Provides reference material for each of the ancillary sections (B through D, F through H), with definitions, additional explanation as needed, a code example, and coding exercises for each section.

Appendix A - ICD-10-PCS definitions

Tables listing the full definitions of all root operations and approaches in the Medical and Surgical section.

Appendix B - ICD-10-PCS device and substance classification

Discusses the distinguishing features of device, substance and equipment as classified in ICD-10-PCS.

Conventions used

This manual uses several conventions throughout, as described below.

Root operation descriptions

Root operation descriptions present the full definition of root operations in the Medical and Surgical section, including explanation and examples. A root operation description is shown below. They are used in Procedures in the Medical and Surgical section (page 35).

Drainage—Root operation 9

Definition: Taking or letting out fluids and/or gases from a body part

Explanation; The fluids or gases may be normal or abnormal

Examples: Incision and drainage, thoracentesis

Table excerpts

Table excerpts present a single code in the ICD-10-PCS Table format, identifying all components of the code. Text descriptions are truncated as needed to fit the compressed format, as in the example below.

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Medical and Surgical	Respiratory	Excision	Lower Lobe Bronchus, Rt	Open	No Device	Diagnostic
0	B	B	6	0	Z	X

Chapter 1: ICD-10-PCS overview

The International Classification of Diseases Tenth Revision Procedure Coding System (ICD-10-PCS) was created to accompany the World Health Organization's (WHO) ICD-10 diagnosis classification. The new procedure coding system was developed to replace ICD-9-CM procedure codes for reporting inpatient procedures.

Unlike the ICD-9-CM classification, ICD-10-PCS was designed to enable each code to have a standard structure and be very descriptive, and yet flexible enough to accommodate future needs. Information about the structure, organization, and application of ICD-10-PCS codes, along with reference material for coding with ICD-10-PCS, is provided in this manual.

This chapter contains the following parts:

- What is ICD-10-PCS?
- ICD-10-PCS code structure
- ICD-10-PCS system organization
- ICD-10-PCS design
- ICD-10-PCS additional characteristics
- ICD-10-PCS applications

More specific information on coding with ICD-10-PCS is found in chapters 2 through 4 of this manual.

What is ICD-10-PCS?

ICD-10-PCS is a procedure coding system that will be used to collect data, determine payment, and support the electronic health record for all inpatient procedures performed in the United States.

History of ICD-10-PCS

The World Health Organization has maintained the International Classification of Diseases (ICD) for recording cause of death since 1893. It has updated the ICD periodically to reflect new discoveries in epidemiology and changes in medical understanding of disease.

The International Classification of Diseases Tenth Revision (ICD-10), published in 1992, is the latest revision of the ICD. The WHO authorized the National Center for Health Statistics (NCHS) to develop a clinical modification of ICD-10 for use in the United States. This version of ICD-10 is called ICD-10-CM. ICD-10-CM is intended to replace the previous U.S. clinical modification, ICD-9-CM, that has been in use since 1979. ICD-9-CM contains a procedure classification; ICD-10-CM does not.

The Centers for Medicare and Medicaid Services, the agency responsible for maintaining the inpatient procedure code set in the U.S., contracted with 3M Health Information Systems in 1993 to design and then develop a procedure classification system to replace Volume 3 of ICD-9-CM. ICD-10-PCS is the result.

ICD-10-PCS was initially released in 1998. It has been updated annually since that time.

ICD-9-CM Volume 3 compared with ICD-10-PCS

With ICD-10 implementation, the U.S. clinical modification of the ICD will not include a procedure classification based on the same principles of organization as the diagnosis classification. Instead, a separate procedure coding system has been developed to meet the rigorous and varied demands that are made of coded data in the healthcare industry. This represents a significant step toward building a health information infrastructure that functions optimally in the electronic age.

The following information highlights some of the basic differences between ICD-9-CM Volume 3 and ICD-10-PCS:

ICD-9-CM Volume 3

- Follows ICD structure (designed for diagnosis coding)
- Codes available as a fixed/finite set in list form
- Codes are numeric
- Codes are 3 through 4 digits long

ICD-10-PCS

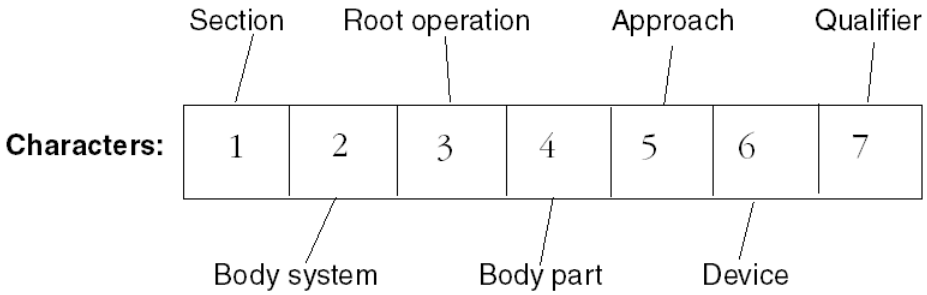
- Designed/developed to meet healthcare needs for a procedure code system
- Codes constructed from flexible code components (values) using tables
- Codes are alphanumeric
- All codes are seven characters long

ICD-10-PCS code structure

Undergirding ICD-10-PCS is a logical, consistent structure that informs the system as a whole, down to the level of a single code. This means that the process of constructing codes in ICD-10-PCS is also logical and consistent: individual letters and numbers, called "values," are selected in sequence to occupy the seven spaces of the code, called "characters."

Characters

All codes in ICD-10-PCS are seven characters long. Each character in the seven-character code represents an aspect of the procedure, as shown in the following diagram of characters from the main section of ICD-10-PCS, called Medical and Surgical.



An ICD-10-PCS code is best understood as the result of a process rather than as an isolated, fixed quantity. The process consists of assigning values from among the valid choices for that part of the system, according to the rules governing the construction of codes.

Values

One of 34 possible values can be assigned to each character in a code: the numbers 0 through 9 and the alphabet (except I and O, because they are easily confused with the numbers 1 and 0). A finished code looks like the example below.

02103D4

This code is derived by choosing a specific value for each of the seven characters. Based on details about the procedure performed, values for each character specifying the section, body system, root operation, body part, approach, device, and qualifier are assigned.

Because the definition of each character is a function of its physical position in the code, the same value placed in a different position in the code means something different. The value 0 in the first character means something different than 0 in the second character, or 0 in the third character, and so on.

Code structure: Medical and Surgical section

The following pages define each character using the code 0LB50ZZ, "Excision of right lower arm and wrist tendon, open approach" as an example. This example comes from the Medical and Surgical section of ICD-10-PCS.

Character 1: Section

The first character in the code determines the broad procedure category, or section, where the code is found. In this example, the section is Medical and Surgical. 0 is the value that represents Medical and Surgical in the first character.

For definitions of characters used in the Medical and Surgical section, please refer to the Glossary.

The sample code looks like this so far:

Character 1 Section
Medical and Surgical
0

Character 2: Body system

The second character defines the body system—the general physiological system or anatomical region involved. Examples of body systems include Lower Arteries, Central Nervous System, and Respiratory System. In this example, the body system is Tendons, represented by the value L.

Character 1 Section	Character 2 Body System
Medical and Surgical	Tendons
0	L

Character 3: Root operation

The third character defines the root operation, or the objective of the procedure. Some examples of root operations are Bypass, Drainage, and Reattachment. In the sample code below, the root operation is Excision. When used in the third character of the code, the value B represents Excision.

Character 1 Section	Character 2 Body System	Character 3
Medical and Surgical	Tendons	Excision
0	L	B

For the complete list of root operations and their definitions, please refer to ICD-10-PCS definitions (page 117).

Character 4: Body part

The fourth character defines the body part, or specific anatomical site where the procedure was performed. The body system (second character) provides only a general indication of the procedure site. The body part and body system values together provide a precise description of the procedure site.

Examples of body parts are Kidney, Tonsils, and Thymus. In this example, the body part value is 5, Lower Arm and Wrist, Right. When the second character is L, the value 5 when used in the fourth character of the code represents the right lower arm and wrist tendon.

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part
Medical and Surgical	Tendons	Excision	Lower Arm and Wrist, Right
0	L	B	5

Character 5: Approach

The fifth character defines the approach, or the technique used to reach the procedure site. Seven different approach values are used in the Medical and Surgical section to define the approach. Examples of approaches include Open and Percutaneous Endoscopic.

In the sample code below, the approach is Open and is represented by the value 0.

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part	Character 5 Approach
Medical and Surgical	Tendons	Excision	Lower Arm and Wrist, Right	Open
0	L	B	5	0

For the complete list of approaches and their definitions, please refer to ICD-10-PCS definitions (page 117).

Character 6: Device

Depending on the procedure performed, there may or may not be a device left in place at the end of the procedure. The sixth character defines the device. Device values fall into four basic categories:

- Grafts and Prostheses
- Implants
- Simple or Mechanical Appliances
- Electronic Appliances

In this example, there is no device used in the procedure. The value Z is used to represent No Device, as shown below.

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part	Character 5 Approach	Character 6 Device
Medical and Surgical	Tendons	Excision	Lower Arm and Wrist, Right	Open	No Device
0	L	B	5	0	Z

Character 7: Qualifier

The seventh character defines a qualifier for the code. A qualifier specifies an additional attribute of the procedure, if applicable.

Examples of qualifiers include Diagnostic and Stereotactic. Qualifier choices vary depending on the previous values selected. In this example, there is no specific qualifier applicable to this procedure, so the value is No Qualifier, represented by the letter Z.

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Medical and Surgical	Tendons	Excision	Lower Arm and Wrist, Right	Open	No Device	No Qualifier
0	L	B	5	0	Z	Z

0LB50ZZ is the complete specification of the procedure "Excision of right lower arm and wrist tendon, open approach."

ICD-10-PCS system organization

ICD-10-PCS is composed of 16 sections, represented by the numbers 0 through 9 and the letters B through D and F through H. The broad procedure categories contained in these sections range from surgical procedures to substance abuse treatment.

Medical and Surgical section

The first section, Medical and Surgical, contains the great majority of procedures typically reported in an inpatient setting. As shown in the previous section discussing ICD-10-PCS code structure, all procedure codes in the Medical and Surgical section begin with the section value 0.

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Medical and Surgical	Tendons	Excision	Lower Arm and Wrist, Right	Open	No Device	No Qualifier
0	L	B	5	0	Z	Z

More complete information on coding procedures in the Medical and Surgical section is found in Procedures in the Medical and Surgical section (page 35).

Medical and Surgical-related sections

Sections 1 through 9 of ICD-10-PCS comprise the Medical and Surgical-related sections. These sections include obstetrical procedures, administration of substances, measurement and monitoring of body functions, and extracorporeal therapies, as listed below.

- Section 1: Obstetrics
- Section 2: Placement
- Section 3: Administration
- Section 4: Measurement and Monitoring
- Section 5: Extracorporeal Assistance and Performance
- Section 6: Extracorporeal Therapies
- Section 7: Osteopathic
- Section 8: Other Procedures
- Section 9: Chiropractic

In sections 1 and 2, all seven characters define the same aspects of the procedure as in the Medical and Surgical section.

Codes in sections 3 through 9 are structured for the most part like their counterparts in the Medical and Surgical section, with a few exceptions. For example, in sections 5 and 6, the fifth character is defined as duration instead of approach, as in this code for intra-aortic balloon pump (IABP):

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body System	Character 5 Duration	Character 6 Function	Character 7 Qualifier
Extracorp. Assist. and Performance	Physiological Systems	Assistance	Cardiac	Continuous	Output	Balloon Pump
5	A	0	2	2	1	0

Additional differences include these uses of the sixth character:

- Section 3 defines the sixth character as substance.
- Sections 4 and 5 define the sixth character as function.
- Sections 7 through 9 define the sixth character as method.

More complete information on coding procedures in the Medical and Surgical-related sections is found in Procedures in the Medical and Surgical-related sections (page 83).

Ancillary sections

Sections B through D and F through H comprise the ancillary sections of ICD-10-PCS. These six sections include imaging procedures, nuclear medicine, and substance abuse treatment, as listed in the following table.

- Section B: Imaging
- Section C: Nuclear Medicine
- Section D: Radiation Therapy
- Section F: Physical Rehabilitation and Diagnostic Audiology
- Section G: Mental Health
- Section H: Substance Abuse Treatment

The definitions of some characters in the ancillary sections differs from that seen in previous sections. In the Imaging section, the third character is defined as type, and the fifth and sixth characters define contrast and contrast/qualifier respectively, as in the CT scan example below.

Character 1 Section	Character 2 Body System	Character 3 Type	Character 4 Body Part	Character 5 Contrast	Character 6 Qualifier	Character 7 Qualifier
Imaging	Central Nervous	Computerized Tomography	Brain	High Osmolar	Unenhanced and Enhanced	None
B	0	2	0	0	0	Z

Additional differences include:

- Section C defines the fifth character as radionuclide.
- Section D defines the fifth character as modality qualifier and the sixth character as isotope.

- Section F defines the fifth character as type qualifier and the sixth character as equipment.
- Sections G and H define the third character as a type qualifier.

More complete information on coding procedures in the ancillary sections is found in Procedures in the ancillary sections (page 101).

Tables

The complete ICD-10-PCS is presented in three parts: the Tables, the Index, and the Definitions.

The Tables are organized in a series, beginning with section 0, Medical and Surgical, and body system 0, Central Nervous, and proceeding in numerical order. Sections 0 through 9 are followed by sections B through D and F through H. The same convention is followed within each table for the second through the seventh characters—numeric values in order first, followed by alphabetical values in order.

The following examples use the Medical and Surgical section to describe the organization and format of the ICD-10-PCS Tables.

The Medical and Surgical section (first character 0) is organized by its 31 body system values. Each body system subdivision in the Medical and Surgical section contains tables that list the valid root operations for that body system. These are the root operation tables that form the system. These tables provide the valid choices of values available to construct a code.

The root operation tables consist of four columns and a varying number of rows, as in the following example of the root operation Bypass, in the Central Nervous body system.

The values for characters 1 through 3 are provided at the top of each table.

0: MEDICAL AND SURGICAL (Section)

0: CENTRAL NERVOUS (Body system)

1: BYPASS: Altering the route of passage of the contents of a tubular body part (Root operation)

Four columns contain the applicable values for characters 4 through 7, given the values in characters 1 through 3.

Body Part Character 4	Approach Character 5	Device Character 6	Qualifier Character 7
6 Cerebral Ventricle	0 Open	7 Autologous Tissue Substitute J Synthetic Substitute K Nonautologous Tissue Substitute	0 Nasopharynx 1 Mastoid Sinus 2 Atrium 3 Blood Vessel 4 Pleural Cavity 5 Intestine 6 Peritoneal Cavity 7 Urinary Tract 8 Bone Marrow B Cerebral Cisterns
U Spinal Canal	0 Open	7 Autologous Tissue Substitute J Synthetic Substitute K Nonautologous Tissue Substitute	4 Pleural Cavity 6 Peritoneal Cavity 7 Urinary Tract 9 Fallopian Tube

A table may be separated into rows to specify the valid choices of values in characters 4 through 7. A code built using values from more than one row of a table is not a valid code.

Index

The ICD-10-PCS Index can be used to access the Tables. The Index mirrors the structure of the Tables, so it follows a consistent pattern of organization and use of hierarchies.

The Index is organized as an alphabetic lookup. Two types of main terms are listed in the Index:

- Based on the value of the third character
- Common procedure terms

Main terms

For the Medical and Surgical and related sections, the root operation values are used as main terms in the Index. In other sections, the values representing the general type of procedure performed, such as nuclear medicine or imaging type, are listed as main terms.

For the Medical and Surgical and related sections, values such as Excision, Bypass, and Transplantation are included as main terms in the Index. The applicable body system entries are listed beneath the main term, and refer to a specific table. For the ancillary sections, values such as Fluoroscopy and Positron Emission Tomography are listed as main terms.

In the example below, the index entry "Bypass" refers to the Medical and Surgical section tables for all applicable body systems, including Anatomical Regions and Central Nervous System.

Bypass

```
by Body System
            Anatomical Regions 0W1....
```

```
Central Nervous System 001....
```

The body system listings may be followed by entries for specific body parts, as in the excerpt below. In the root operations Change, Insertion, Removal, and Revision, the device entries follow the body system listings.

```
by Body Part
      Artery

            Aorta, Abdominal 0410...
            Aorta, Thoracic 021W...
            Axillary 031....
            Brachial 031....
            Common Carotid 031....
```

Common procedure terms

The second type of term listed in the Index uses procedure names, such as "appendectomy" or "fundoplication." These entries are listed as main terms, and refer to a table or tables from which a valid code can be constructed, as shown in the following example.

Cholecystectomy

- see Excision, Hepatobiliary System & Pancreas 0FB....
- see Resection, Hepatobiliary System & Pancreas 0FT....

Definitions

The ICD-10-PCS Definitions contain the official definitions of ICD-10-PCS values in characters 3 through 7 of the seven-character code, and may also provide additional explanation or examples. The definitions are arranged in section order and designate the section and the character within the section being defined.

The Medical and Surgical section body part value definitions refer from the body part value to corresponding anatomical terms. The Medical and Surgical section device definitions refer from the device value to corresponding device terms or manufacturer's names. The Substance value definitions in the Administration section refer from the substance value to a common substance name or manufacturer's substance name. These definitions are also sorted by common term and listed separately as the Body Part Key, Device Key, and Substance Key respectively.

The ICD-10-PCS Device Aggregation Table contains entries that correlate a specific ICD-10-PCS device value with a general device value to be used in tables containing only general device values.

Tabular Order File

The ICD-10-PCS Order file contains a unique "order number" for each valid code or table "header," a flag distinguishing valid codes from headers, and both long and abbreviated title descriptions combined in a single file.

The code descriptions are generated using rules that produce standardized, complete, and easy-to-read code descriptions.

ICD-10-PCS design

ICD-10-PCS is fundamentally different from ICD-9-CM in its structure, organization, and capabilities. It was designed and developed to adhere to recommendations made by the National Committee on Vital and Health Statistics (NCVHS). It also incorporates input from a wide range of organizations, individual physicians, healthcare professionals, and researchers.

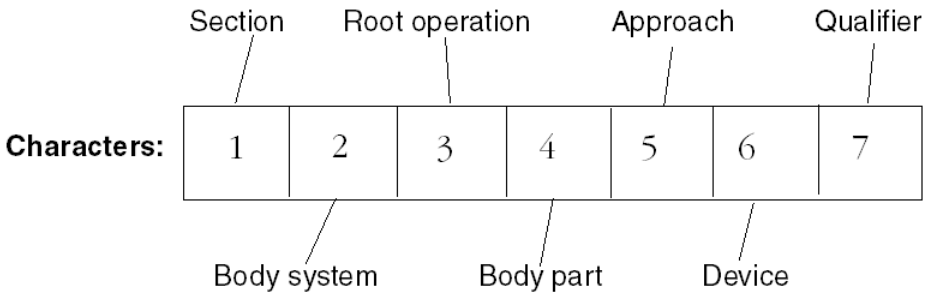
Several structural attributes were recommended for a new procedure coding system. These attributes include

- Multiaxial structure
- Completeness
- Expandability

Multiaxial structure

The key attribute that provides the framework for all other structural attributes is multiaxial code structure. Multiaxial code structure makes it possible for the ICD-10-PCS to be complete, expandable, and to provide a high degree of flexibility and functionality.

As mentioned earlier, ICD-10-PCS codes are composed of seven characters. Each character represents a category of information that can be specified about the procedure performed. A character defines both the category of information and its physical position in the code.



A character's position can be understood as a semi-independent axis of classification that allows different specific values to be inserted into that space, and whose physical position remains stable. Within a defined code range, a character retains the general meaning that it confers on any value in that position. For example, the fifth character retains the general meaning "approach" in sections 0 through 4 and 7 through 9 of the system. Any specific value in the fifth character will define a specific approach, such as Open.

Each group of values for a character contains all of the valid choices in relation to the other characters of the code, giving the system completeness. In the fifth character, for example, each significantly distinct approach is assigned its own approach value and all applicable approach values are included to represent the possible versions of a procedure.

Each group of values for a character can be added to as needed, giving the system expandability. If a significantly distinct approach is used to perform procedures, a new approach value can be added to the system.

Each group of values is confined to its own character, giving ICD-10-PCS a stable, predictable readability across a wide range of codes. In sections 0 through 4 and 7 through 9 of the system, for example, the fifth character always represents the approach.

ICD-10-PCS' multiaxial structure houses its capacity for completeness, expandability, and flexibility, giving it a high degree of functionality for multiple uses.

Completeness

Completeness is considered a key structural attribute for a new procedure coding system. The specific recommendation for completeness includes these characteristics:

- A unique code is available for each significantly different procedure.
- Each code retains its unique definition. Codes are not reused.

In Volume 3 of ICD-9-CM, procedures performed on many different body parts using different approaches or devices may be assigned to the same procedure code. In ICD-10-PCS, a unique code can be constructed for every significantly different procedure.

Within each section, a character defines a consistent component of a code, and contains all applicable values for that character. The values define individual expressions (open, percutaneous) of the character's general meaning (approach) that are then used to construct unique procedure codes.

Because all approaches by which a procedure is performed are assigned a separate approach value in the system, every procedure which uses a different approach will have its own unique code. This is true of the other characters as well. The same procedure performed on a different body part has its own unique code, the same procedure performed using a different device has its own unique code, and so on.

Coronary bypass example

In the case of the coronary artery bypass graft (CABG), ICD-9-CM contains a total of nine codes to describe different versions of the procedure. These codes specify the version based on one aspect of the procedure, and the aspect defined is not consistent for all nine codes. Four of the codes specify the number of coronary arteries bypassed, four specify the source of the new blood flow, and one is an "unspecified" choice.

By contrast, ICD-10-PCS components can be combined to produce 34 unique codes defining all significantly different versions of the comparable CABG procedure. All 34 codes specify the same four aspects of the procedure: the number of coronary artery sites bypassed, the approach to the procedure site, the type of graft if used, and the origin of the bypass (source of the new blood flow). The differences are summarized below.

Table 1. Comparison of CABG procedure codes

ICD-9-CM Volume 3	ICD-10-PCS
36.11 Aortocoronary Bypass of One Coronary Artery (1 of 4)	021009W Bypass Coronary Artery, One Site to Aorta with Autologous Venous Tissue, Open Approach (1 of 8)
36.15 Single Internal Mammary- Coronary Artery Bypass (1 of 2)	02100Z8 Bypass Coronary Artery, One Site to Right Internal Mammary, Open Approach (1 of 16)
36.17 Abdominal-Coronary Artery Bypass (1 of 2)	02100AF Bypass Coronary Artery, One Site to Abdominal Artery with Autologous Arterial Tissue, Open Approach (1 of 10)
36.10 Aortocoronary Bypass for Heart Revascularization, Not Otherwise Specified (1 of 1)	No Equivalent ICD-10-PCS codes all contain a minimum level of specificity

Unique definitions

Because ICD-10-PCS codes are constructed of individual values rather than lists of fixed codes and text descriptions, the unique, stable definition of a code in the system is retained. New values may be added to the system to represent a specific new approach or device or qualifier, but whole codes by design cannot be given new meanings and reused.

Expandability

Expandability was also recommended as a key structural attribute. The specific recommendation for expandability includes these characteristics:

- Accommodate new procedures and technologies
- Add new codes without disrupting the existing structure

ICD-10-PCS is designed to be easily updated as new codes are required for new procedures and new techniques. Changes to ICD-10-PCS can all be made within the existing structure, because whole codes are not added. Instead, one of two possible changes is made to the system:

- A new value for a character is added as needed to the system.
- An existing value for a character is added to a table(s) in the system.

ICD-10-PCS update: PICVA

An example of how the updating of ICD-10-PCS works can be seen in the coronary artery bypass procedure called Percutaneous in-situ coronary venous arterialization (PICVA). This procedure is no more invasive than a percutaneous coronary angioplasty, but achieves the benefits of a bypass procedure by placing a specialized stent into the diseased coronary artery, through its wall into the adjacent coronary vein, and diverting blood flow through the stent into the artery past the blockage.

ICD-10-PCS was updated in 2004 to include an appropriate range of codes for the PICVA procedure (16 possible codes). This was accomplished simply by adding another row to the relevant table (as shown in the example below) containing two approach values for the non-invasive approach, two device values for the possible types of stent, and a single qualifier defining the coronary vein as the source of the new blood flow, as in the example below.

The values for characters 1 through 3 at the top of each table are

0: MEDICAL AND SURGICAL (Section)

2: HEART AND GREAT VESSELS (Body system)

1: BYPASS: Altering the route of passage of the contents of a tubular body part

Body Part Character 4	**Approach Character 5**	**Device Character 6**	**Qualifier Character 7**
0 Coronary Artery, One Site 1 Coronary Artery, Two Sites 2 Coronary Artery, Three Sites 3 Coronary Artery, Four or More Sites	3 Percutaneous 4 Percutaneous Endoscopic	4 Drug-eluting Intraluminal Device D Intraluminal Device	D Coronary Vein

Structural integrity

As shown in the previous example, ICD-10-PCS can be easily expanded without disrupting the structure of the system.

In the PICVA example, one new value—the qualifier value Coronary Vein—was added to the system to effect this change. All other values in the new row are existing values used to create unique, new codes.

This type of updating can be replicated anywhere in the system when a change is required. ICD-10-PCS allows unique new codes to be added to the system because values for the seven characters that make up a code can be combined as needed. The system can evolve as medical technology and clinical practice evolve, without disrupting the ICD-10-PCS structure.

ICD-10-PCS additional characteristics

ICD-10-PCS possesses several additional characteristics in response to government and industry recommendations. These characteristics are

- Standardized terminology within the coding system
- Standardized level of specificity
- No diagnostic information
- No explicit "not otherwise specified" (NOS) code options
- Limited use of "not elsewhere classified" (NEC) code options

Standardized terminology

Words commonly used in clinical vocabularies may have multiple meanings. This can cause confusion and result in inaccurate data. ICD-10-PCS is standardized and self-contained. Characters and values used in the system are defined in the system.

For example, the word "excision" is used to describe a wide variety of surgical procedures. In ICD-10-PCS, the word "excision" describes a single, precise surgical objective, defined as "Cutting out or off, without replacement, a portion of a body part."

For the complete list of root operations and their definitions, please refer to ICD-10-PCS definitions (page 117).

No eponyms or common procedure names

The terminology used in ICD-10-PCS is standardized to provide precise and stable definitions of all procedures performed. This standardized terminology is used in all ICD-10-PCS code descriptions.

As a result, ICD-10-PCS code descriptions do not include eponyms or common procedure names. Two examples from ICD-9-CM are 22.61, "Excision of lesion of maxillary sinus with Caldwell-Luc approach," and 51.10, "Endoscopic retrograde cholangiopancreatography [ERCP]." In ICD-10-PCS, physicians' names are not included in a code description, nor are procedures identified by common terms or acronyms such as appendectomy or CABG. Instead, such procedures are coded to the root operation that accurately identifies the objective of the procedure.

The procedures described in the preceding paragraph by ICD-9-CM codes are coded in ICD-10-PCS according to the root operation that matches the objective of the procedure. Here the ICD-10-PCS equivalents would be Excision and Inspection respectively. By relying on the universal objectives defined in root operations rather than eponyms or specific procedure titles that change or become obsolete, ICD-10-PCS preserves the capacity to define past, present, and future procedures accurately using stable terminology in the form of characters and values.

No combination codes

With rare exceptions, ICD-10-PCS does not define multiple procedures with one code. This is to preserve standardized terminology and consistency across the system. Procedures that are typically performed together but are distinct procedures may be defined by a single "combination code" in ICD-9-CM. An example of a combination code in ICD-9-CM is 28.3, "Tonsillectomy with adenoidectomy."

A procedure that meets the reporting criteria for a separate procedure is coded separately in ICD-10-PCS. This allows the system to respond to changes in technology and medical practice with the maximum degree of stability and flexibility.

Standardized level of specificity

In ICD-9-CM, one code with its description and includes notes may encompass a vast number of procedure variations while another code defines a single specific procedure. ICD-10-PCS provides a standardized level of specificity for each code, so that each code represents a single procedure variation.

The ICD-9-CM code 39.31, "Suture of artery," does not specify the artery, whereas the code range 38.40 through 38.49, "Resection of artery with replacement," provides a fourth-digit subclassification for specifying the artery by anatomical region (thoracic, abdominal, etc.).

In ICD-10-PCS, the codes identifying all artery suture and artery replacement procedures possess the same degree of specificity. The ICD-9-CM examples above coded to their ICD-10-PCS equivalents would use the same artery body part values in all codes identifying the respective procedures.

In general, ICD-10-PCS code descriptions are much more specific than their ICD-9-CM counterparts, but sometimes an ICD-10-PCS code description is actually less specific. In most cases this is because the ICD-9-CM code contains diagnosis information. The standardized level of code specificity in ICD-10-PCS cannot always take account of these fluctuations in ICD-9-CM level of specificity. Instead, ICD-10-PCS provides a standardized level of specificity that can be predicted across the system.

Diagnosis information excluded

Another key feature of ICD-10-PCS is that information pertaining to a diagnosis is excluded from the code descriptions.

ICD-9-CM often contains information about the diagnosis in its procedure codes. Adding diagnosis information limits the flexibility and functionality of a procedure coding system. It has the effect of placing a code "off limits" because the diagnosis in the medical record does not match the diagnosis in the procedure code description. The code cannot be used even though the procedural part of the code description precisely matches the procedure performed.

Diagnosis information is not contained in any ICD-10-PCS code. The diagnosis codes, not the procedure codes, will specify the reason the procedure is performed.

NOS code options restricted

ICD-9-CM often designates codes as "unspecified" or "not otherwise specified" codes. By contrast, the standardized level of specificity designed into ICD-10-PCS restricts the use of broadly applicable NOS or unspecified code options in the system. A minimal level of specificity is required to construct a valid code.

In ICD-10-PCS, each character defines information about the procedure and all seven characters must contain a specific value obtained from a single row of a table to build a valid code. Even values such as the sixth-character value Z, No Device and the seventh-character value Z, No Qualifier, provide important information about the procedure performed.

Limited NEC code options

ICD-9-CM often designates codes as "not elsewhere classified" or "other specified" versions of a procedure throughout the code set. NEC options are also provided in ICD-10-PCS, but only for specific, limited use.

In the Medical and Surgical section, two significant "not elsewhere classified" options are the root operation value Q, Repair and the device value Y, Other Device.

The root operation Repair is a true NEC value. It is used only when the procedure performed is not one of the other root operations in the Medical and Surgical section.

Other Device, on the other hand, is intended to be used to temporarily define new devices that do not have a specific value assigned, until one can be added to the system. No categories of medical or surgical devices are permanently classified to Other Device.

ICD-10-PCS applications

ICD-10-PCS code structure results in qualities that optimize the performance of the system in electronic applications, and maximize the usefulness of the coded healthcare data. These qualities include

- Optimal search capability
- Consistent character definitions
- Consistent values wherever possible
- Code readability

Some have argued that, in the world of the electronic health record, the classification system as we know it is outmoded, that classification doesn't matter because a computer is able to find a code with equal ease whether the code has been generated at random or is part of a classification scheme. While this may be true from an IT perspective, assignment of randomly generated code numbers makes it impossible to aggregate data according to related ranges of codes. This is a critical capability for providers, payers, and researchers to make meaningful use of the data.

Optimal search capability

ICD-10-PCS is designed for maximum versatility in the ability to aggregate coded data. Values belonging to the same character as defined in a section or sections can be easily compared, since they occupy the same position in a code. This provides a high degree of flexibility and functionality for data mining.

For example, the body part value 6, Stomach, retains its meaning for all codes in the Medical and Surgical section that define procedures performed on the stomach. Because the body part value is dependent for its meaning on the body system in which it is found, the body system value D, Gastrointestinal, must also be included in the search.

A person wishing to examine data regarding all medical and surgical procedures performed on the stomach could do so simply by searching the code range below.

0D*6***

Consistent characters and values

In the previous example, the value 6 means Stomach only when the body system value is D, Gastrointestinal. In many other cases, values retain their meaning across a much broader range of codes. This provides consistency and readability.

For example, the value 0 in the fifth character defines the approach Open and the value 3 in the fifth character defines the approach Percutaneous across sections 0 through 4 and 7 through 9, where applicable. As a result, all open and percutaneous procedures represented by codes in sections 0-4 and 7-9 can be compared based on a single character—approach—by conducting a query on the code ranges below.

[0 through 4,7 through 9]***0** vs. [0 through 4,7through 9]***3**

Searches can be progressively refined by adding specific values. For example, one could search on a body system value or range of body system values, plus a body part value or range of body part values, plus a root operation value or range of root operation values.

To refine the search above, one could add the body system value for Gastrointestinal and the body part value for Stomach to limit the search to open vs. percutaneous procedures performed on the stomach:

0D*60** vs. 0D*63**

To refine the search even further and limit the comparison to open and percutaneous biopsies of the stomach, one could add the third-character value for the root operation Excision and the seventh-character qualifier Diagnostic, as below.

0DB60*X vs. 0DB63*X

Stability of characters and values across vast ranges of codes provides the maximum degree of functionality and flexibility for the collection and analysis of data. The search capabilities demonstrated above function equally well for all uses of healthcare data: investigating quality of care, resource utilization, risk management, conducting research, determining reimbursement, and many others.

Because the character definition is consistent, and only the individual values assigned to that character differ as needed, meaningful comparisons of data over time can be conducted across a virtually infinite range of procedures.

Code readability

ICD-10-PCS resembles a language in the sense that it is made up of semi-independent values combined by following the rules of the system, much the way a sentence is formed by combining words and following the rules of grammar and syntax. As with words in their context, the meaning of any single value is a combination of its position in the code and any preceding values on which it may be dependent.

For example, in the Medical and Surgical section, a body part value is always dependent for its meaning on the body system in which it is found. It cannot stand alone as a letter or a number and be meaningful. A fourth-character value of 6 by itself can mean 31 different things, but a fourth-character value of 6 in the context of a second-character value of D means one thing only—Stomach.

On the other hand, a root operation value is not dependent on any character but the section for its meaning, and identifies a single consistent objective wherever the third character is defined as root operation. For example, the third-character value T identifies the root operation Resection in both the Medical and Surgical and Obstetrics sections.

The approach value also identifies a single consistent approach wherever the fifth character is defined as approach. The fifth-character value 3 identifies the approach Percutaneous in the Medical and Surgical section, the Obstetrics section, the Administration section, and others.

The sixth-character device value or seventh-character qualifier value identifies the same device or qualifier in the context of the body system where it is found. Although there may be consistencies across body systems or within whole sections, this is not true in all cases.

Values in their designated context have a precise meaning, like words in a language. As seen in the code example which began this chapter, 0LB50ZZ represents the text description of the specific procedure "Excision of right lower arm and wrist tendon, open approach." Since ICD-10-PCS values in context have a single, precise meaning, a complete, valid code can be read and understood without its accompanying text description, much like one would read a sentence.

Chapter 2: Procedures in the Medical and Surgical section

This chapter provides reference material for the root operations in the Medical and Surgical section of ICD-10-PCS. The vast majority of codes reported in an inpatient setting are found in this section.

First, a table presents all root operations in the Medical and Surgical section, organized into logical groups. Following the table are definitions of each root operation, presented in the order shown in the table. Material on each root operation includes

- Definition, explanation, and examples of the root operation
- Coding notes as needed
- A representative procedure excerpt for each root operation, followed by the correct code for the procedure. The code is provided in table excerpt format, along with explanatory notes as needed.
- Coding exercises that provide example procedures and their corresponding ICD-10-PCS codes, with explanatory notes as needed

Root operation groups

The Medical and Surgical root operations are divided into groups that share similar attributes. These groups, and the root operations in each, are listed in the table below. Subsequent pages of this chapter provide a definition of each root operation in a group.

Root operation	What operation does	Objective of procedure	Procedure site	Example
Excision	Takes out some/all of a body part	Cutting out/off without replacement	Some of a body part	Breast lumpectomy
Resection	Takes out some/all of a body part	Cutting out/off without replacement	All of a body part	Total mastectomy
Detachment	Takes out some/all of a body part	Cutting out/off without replacement	Extremity only, any level	Amputation above elbow
Destruction	Takes out some/all of a body part	Eradicating without replacement	Some/all of a body part	Fulguration of endometrium
Extraction	Takes out some/all of a body part	Pulling out or off without replacement	Some/all of a body part	Suction D&C
Drainage	Takes out solids/fluids/gases from a body part	Taking/letting out fluids/gases	Within a body part	Incision and drainage
Extirpation	Takes out solids/fluids/gases from a body part	Taking/cutting out solid matter	Within a body part	Thrombectomy

Root operation	What operation does	Objective of procedure	Procedure site	Example
Fragmentation	Takes out solids/fluids/gases from a body part	Breaking solid matter into pieces	Within a body part	Lithotripsy
Division	Involves cutting or separation only	Cutting into/separating a body part	Within a body part	Neurotomy
Release	Involves cutting or separation only	Freeing a body part from constraint	Around a body part	Adhesiolysis
Transplantation	Puts in/puts back or move some/all of a body part	Putting in a living body part from a person/animal	Some/all of a body part	Kidney transplant
Reattachment	Puts in/puts back or move some/all of a body part	Putting back a detached body part	Some/all of a body part	Reattach severed finger
Transfer	Puts in/puts back or move some/all of a body part	Moving, to function for a similar body part	Some/all of a body part	Skin transfer flap
Reposition	Puts in/puts back or move some/all of a body part	Moving, to normal or other suitable location	Some/all of a body part	Move undescended testicle
Restriction	Alters the diameter/route of a tubular body part	Partially closing orifice/lumen	Tubular body part	Gastroesophageal fundoplication
Occlusion	Alters the diameter/route of a tubular body part	Completely closing orifice/lumen	Tubular body part	Fallopian tube ligation
Dilation	Alters the diameter/route of a tubular body part	Expanding orifice/lumen	Tubular body part	Percutaneous transluminal coronary angioplasty (PTCA)
Bypass	Alters the diameter/route of a tubular body part	Altering route of passage	Tubular body part	Coronary artery bypass graft (CABG)
Insertion	Always involves a device	Putting in non-biological device	In/on a body part	Central line insertion
Replacement	Always involves a device	Putting in device that replaces a body part	Some/all of a body part	Total hip replacement
Supplement	Always involves a device	Putting in device that reinforces or augments a body part	In/on a body part	Abdominal wall herniorrhaphy using mesh
Change	Always involves a device	Exchanging device w/out cutting/puncturing	In/on a body part	Drainage tube change
Removal	Always involves a device	Taking out device	In/on a body part	Central line removal
Revision	Always involves a device	Correcting a malfunctioning/displaced device	In/on a body part	Revision of pacemaker insertion
Inspection	Involves examination only	Visual/manual exploration	Some/all of a body part	Diagnostic cystoscopy

Root operation	What operation does	Objective of procedure	Procedure site	Example
Map	Involves examination only	Locating electrical impulses/functional areas	Brain/cardiac conduction mechanism	Cardiac mapping
Repair	Includes other repairs	Restoring body part to its normal structure	Some/all of a body part	Suture laceration
Control	Includes other repairs	Stopping/attempting to stop postprocedural bleed	Anatomical region	Post-prostatectomy bleeding
Fusion	Includes other objectives	Rendering joint immobile	Joint	Spinal fusion
Alteration	Includes other objectives	Modifying body part for cosmetic purposes without affecting function	Some/all of a body part	Face lift
Creation	Includes other objectives	Making new structure for sex change operation	Perineum	Artificial vagina/penis

Root operations that take out some or all of a body part

The following root operations represent procedures for taking out or otherwise eradicating some or all of a body part. These root operations are listed below and described in detail in the pages that follow.

Objective of procedure

- Excision: Cutting out/off without replacement
- Resection: Cutting out/off without replacement
- Detachment: Cutting out/off without replacement
- Destruction: Eradicating without replacement
- Extraction: Pulling out or off without replacement

Site of procedure

- Excision: Some of a body part
- Resection: All of a body part
- Detachment: Extremity only, any level
- Destruction: Some/all of a body part
- Extraction: Some/all of a body part

Example

- Excision: Breast lumpectomy
- Resection: Total mastectomy
- Detachment: Amputation above elbow
- Destruction: Fulguration of endometrium
- Extraction: Suction D&C

Excision—Root operation B

Definition: Cutting out or off, without replacement, a portion of a body part

Explanation: The qualifier Diagnostic is used to identify excision procedures that are biopsies

Examples: Partial nephrectomy, liver biopsy

Excision is coded when a portion of a body part is cut out or off using a sharp instrument. All root operations that employ cutting to accomplish the objective allow the use of any sharp instrument, including but not limited to

- Scalpel
- Wire
- Scissors
- Bone saw
- Electrocautery tip

Coding note: Bone marrow and endometrial biopsies

Bone marrow and endometrial biopsies are not coded to the root operation Excision. They are coded to Extraction, with the qualifier Diagnostic (page 45).

Example: Excision of sebaceous cyst (right buttock)

...the patient was brought in the room and placed on the table in jack knife, prone position and a spinal block was used for anesthesia. She was prepped and draped in the usual sterile manner. A digital rectal examination was performed and we did not notice any communication between mass and rectum. The mass was palpated and a radial transverse incision was made over the mass.

Using blunt and sharp dissection the top of the mass was identified and shown to be a sebaceous cyst. The sebaceous cyst was freed from the surrounding tissue using blunt dissection. The entire cyst was removed. Hemostasis was obtained and the skin was closed using 5-0 Dexon interrupted sutures...

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Medical and Surgical	Skin	Excision	Buttock	External	No Device	No Qualifier
0	H	B	8	X	Z	Z

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Excision of malignant melanoma from skin of right ear: 0HB2XZZ
2. Laparoscopy with excision of endometrial implant from left ovary: 0UB14ZZ
3. Percutaneous needle core biopsy of right kidney: 0TB03ZX
4. EGD with gastric biopsy: 0DB68ZX
5. Laparotomy with wedge resection of left lateral segment of liver: 0FB20ZZ
6. Excision of basal cell carcinoma of lower lip: 0CB1XZZ
7. Open excision of tail of pancreas; 0FBG0ZZ
8. Percutaneous biopsy of right gastrocnemius muscle: 0KBS3ZX
9. Sigmoidoscopy with sigmoid polypectomy: 0DBN8ZZ
10. Open excision of lesion from right Achilles tendon: 0LBN0ZZ
11. Laparoscopic vertical sleeve gastrectomy: 0DB64Z3

Resection—Root operation T

Definition: Cutting out or off, without replacement, all of a body part

Explanation: N/A

Examples: Total nephrectomy, total lobectomy of lung

Resection is similar to Excision (page 38), except Resection includes all of a body part, or any subdivision of a body part that has its own body part value in ICD-10-PCS, while Excision includes only a portion of a body part.

Coding note: Lymph nodes

When an entire lymph node chain is cut out, the appropriate root operation is Resection. When a lymph node(s) is cut out, the root operation is Excision.

Example: Right hemicolectomy

...a vertical midline incision was used to enter the abdominal cavity. There was noted to be a mass in the region of the cecum. The mass was easily mobilized and it was felt that a right hemicolectomy was indicated. The right colon was mobilized by incising the white line of Toldt and reflecting colon medially. The loose tissue was taken down bluntly with a hand and adhesions were taken down sharply.

The colon was mobilized to the left end up to the level of the hepatic flexure. The mesentery was incised sharply with a knife and down to the level of the root of the mesentery. The mesentery of the right colon and the distal ileum was then taken down between Kellys and tied with #2-0 silk, down to the level of the takeoff vessels.

After removing the right colon specimen off the field, a primary anastomosis was planned...

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Medical and Surgical	Gastrointest System	Resection	Large Intestine, Rt	Open	No Device	No Qualifier
0	D	T	F	0	Z	Z

Coding note: Anastomotic technique

Adjunct information about the anastomotic technique used to complete a colectomy procedure (e.g., side to end) is not specified in ICD-10-PCS. Only the specific Excision or Resection code is assigned.

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Open resection of cecum: 0DTH0ZZ
2. Total excision of pituitary gland, open: 0GT00ZZ
3. Explantation of left failed kidney, open: 0TT10ZZ
4. Open left axillary total lymphadenectomy: 07T60ZZ (Resection is coded for cutting out a chain of lymph nodes.)
5. Laparoscopic-assisted vaginal hysterectomy, supracervical resection: 0UT9FZZ
6. Right total mastectomy, open : 0HTT0ZZ
7. Open resection of papillary muscle: 02TD0ZZ (The papillary muscle refers to the heart and is found in the Heart and Great Vessels body system.)
8. Total retropubic prostatectomy, open: 0VT00ZZ
9. Laparoscopic cholecystectomy : 0FT44ZZ
10. Endoscopic bilateral total maxillary sinusectomy: 09TQ4ZZ, 09TR4ZZ

Detachment—Root operation 6

Definition: Cutting off all or part of the upper or lower extremities

Explanation: The body part value is the site of the detachment, with a qualifier if applicable to further specify the level where the extremity was detached

Examples: Below knee amputation, disarticulation of shoulder

Detachment represents a narrow range of procedures; it is used exclusively for amputation procedures. Detachment procedure codes are found only in body systems X Anatomical Regions, Upper Extremities and Y Anatomical Regions, Lower Extremities, because amputations are performed on the extremities, across overlapping body layers, and so could not be coded to a specific musculoskeletal body system such as the bones or joints.

Detachment qualifiers

The specific qualifiers used for Detachment are dependent on the body part value in the upper and lower extremities body systems. The table information below defines the meaning of the qualifiers used in both the upper and lower extremities.

Upper arm and upper leg

- Qualifier 1 High: Amputation at the proximal portion of the shaft of the humerus or femur
- Qualifier 2 Mid: Amputation at the middle portion of the shaft of the humerus or femur
- Qualifier 3 Low: Amputation at the distal portion of the shaft of the humerus or femur

Hand and foot

Complete: Amputation through the carpometacarpal joint of the hand, or through the tarsal-metatarsal joint of the foot

Partial: Amputation anywhere along the shaft or head of the metacarpal bone of the hand, or of the metatarsal bone of the foot

- Qualifier 0 Complete
- Qualifier 4 Complete 1st Ray
- Qualifier 5 Complete 2nd Ray
- Qualifier 6 Complete 3rd Ray
- Qualifier 7 Complete 4th Ray
- Qualifier 8 Complete 5th Ray
- Qualifier 9 Partial 1st Ray
- Qualifier B Partial 2nd Ray
- Qualifier C Partial 3rd Ray
- Qualifier D Partial 4th Ray
- Qualifier F Partial 5th Ray

Thumb, finger, or toe

- Qualifier 0 Complete: Amputation at the metacarpophalangeal/metatarsal-phalangeal joint
- Qualifier 1 High: Amputation anywhere along the proximal phalanx
- Qualifier 2 Mid: Amputation through the proximal interphalangeal joint or anywhere along the middle phalanx
- Qualifier 3 Low: Amputation through the distal interphalangeal joint or anywhere along the distal phalanx

Example: Fifth toe ray amputation

...a semi-elliptical incision was made around the base of the left toe with a #15 blade without difficulty. Careful sharp dissection was made down to the bone, and care was taken to avoid the fourth toe's neurovascular bundle. There was obvious osteomyelitis of the proximal phalanx of the fifth toe and the toe itself was disarticulated, the proximal head of the fifth lower extremity metatarsal, without difficulty. Specimens were sent to pathology for culture and examination.

Next, both sharp and blunt dissection were used to adequately expose the head of the fifth metatarsal, and this was done without difficulty. A small rongeur was then used to remove the head of the fifth metatarsal, and soft spongy bone was felt beneath this area.

Examination of the patient's x-rays revealed that there was an area of cortical lucency at the base of the head of the fifth metatarsal, and the decision was made to extend the amputation to the midshaft of the fifth metatarsal, and this was done without difficulty using a rongeur. The wound was then flushed with normal saline, and bleeding viable tissue was observed throughout the wound. There was adequate flap coverage of the remaining fifth metatarsal...

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Medical and Surgical	Lower Extremities	Detachment	Foot, Left	Open	No Device	Partial 5th Ray
0	Y	6	N	0	Z	F

Coding note: Qualifier value

The surgeon uses the word "toe" to describe the amputation, but the operative report says he extends the amputation to the midshaft of the fifth metatarsal, which is the foot, so the qualifier is Partial 5th Ray.

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Amputation at right elbow level: 0X6B0ZZ
2. Right below-knee amputation, proximal tibia/fibula: 0Y6H0Z1 (The qualifier High here means the portion of the tib/fib closest to the knee.)
3. Fifth ray carpometacarpal joint amputation, left hand: 0X6K0Z8 (A Complete ray amputation is through the carpometacarpal joint.)
4. Right leg and hip amputation through ischium: 0Y620ZZ (The Hindquarter body part includes amputation along any part of the hip bone.)
5. DIP joint amputation of right thumb: 0X6L0Z3 (The qualifier Low here means through the distal interphalangeal joint,)
6. Right wrist joint amputation: 0X6J0Z0 (Amputation at the wrist joint is actually complete amputation of the hand.)
7. Trans-metatarsal amputation of foot at left big toe: 0Y6N0Z9 (A Partial amputation is through the shaft of the metatarsal bone.)
8. Mid-shaft amputation, right humerus: 0X680Z2
9. Left fourth toe amputation, mid-proximal phalanx: 0Y6W0Z1 (The qualifier High here means anywhere along the proximal phalanx.)
10. Right above-knee amputation, distal femur : 0Y6C0Z3
11. Right forequarter amputation: 0X600ZZ (The Forequarter body part includes amputation along any part of the scapula and clavicle.)

Destruction—Root operation 5

Definition: Physical eradication of all or a portion of a body part by the direct use of energy, force or a destructive agent

Explanation: None of the body part is physically taken out

Examples: Fulguration of rectal polyp, cautery of skin lesion

Destruction "takes out" a body part in the sense that it obliterates the body part so it is no longer there. This root operation defines a broad range of common procedures, since it can be used anywhere in the body to treat a variety of conditions, including:

- Skin and genital warts
- Nasal and colon polyps
- Esophageal varices
- Endometrial implants
- Nerve lesions

Example: Radiofrequency coagulation of the trigeminal nerve

...The right cheek was infiltrated dermally with Xylocaine, and a small nick in the skin 2.5 cm lateral to the corner of the mouth was performed with an 18 gauge needle. The radiofrequency needle with 2 mm exposed tip was then introduced using the known anatomical landmarks and under lateral fluoroscopy guidance into the foramen ovale.

Confirmation of the placement of the needle was done by the patient grimacing to pain and by the lateral x-ray. The first treatment, 90 seconds in length, was administered with the tip of the needle 3 mm below the clival line at a temperature of 75 degrees C.

The needle was then advanced further to the mid clival line and another treatment of similar strength and duration was also administered. Finally the third and last treatment was administered with the tip of the needle about 3 cm above the line. The needle was removed. The patient tolerated the procedure well...

Character 1 Section	**Character 2 Body System**	**Character 3 Root Operation**	**Character 4 Body Part**	**Character 5 Approach**	**Character 6 Device**	**Character 7 Qualifier**
Medical and Surgical	Central Nervous	Destruction	Trigeminal Nerve	Percutaneous	No Device	No Qualifier
0	0	5	K	3	Z	Z

Coding note: Approach value

The small nick in the skin does not constitute an open approach. It was made to accommodate the radiofrequency needle. The needle was advanced all the way to the operative site, so the correct approach value is Percutaneous.

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Cryotherapy of wart on left hand: 0H5GXZZ
2. Percutaneous radiofrequency ablation of right vocal cord lesion: 0C5T3ZZ
3. Left heart catheterization with laser destruction of arrhythmogenic focus, A-V node: 02583ZZ
4. Cautery of nosebleed: 095KXZZ
5. Transurethral endoscopic laser ablation of prostate: 0V508ZZ
6. Cautery of oozing varicose vein, left calf: 065Y3ZZ (The approach is coded Percutaneous because that is the normal route to a vein. No mention is made of approach, because likely the skin has eroded at that spot.)
7. Laparoscopy with destruction of endometriosis, bilateral ovaries: 0U524ZZ

8. Laser coagulation of right retinal vessel hemorrhage, percutaneous: 085G3ZZ (The Retinal Vessel body part values are in the Eye body system.)
9. Thoracoscopy with mechanical abrasion and application of talc for pleurodesis: 0B5P4ZZ

Extraction—Root operation D

Definition: Pulling or stripping out or off all or a portion of a body part by the use of force

Explanation: The qualifier Diagnostic is used to identify extraction procedures that are biopsies

Examples: Dilation and curettage, vein stripping

Extraction is coded when the method employed to take out the body part is pulling or stripping. Minor cutting, such as that used in vein stripping procedures, is included in Extraction if the objective of the procedure is nevertheless met by pulling or stripping. As with all applicable ICD-10-PCS codes, cutting used to reach the procedure site is specified in the approach value.

Example: Suction dilation & curettage

...after induction of general anesthesia the patient was placed in the dorsal lithotomy position and appropriately prepped and draped. Successive dilators were placed until the cervix was adequate for insertion of the suction cannula.

Suction cannula was placed and suction curettage performed with no residual endometrial lining. The tissue was sent to pathology to rule out endometrial cancer...

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Medical and Surgical	Female Reproductive	Extraction	Endometrium	Via Nat./Artif. Opening	No Device	Diagnostic
0	U	D	B	7	Z	X

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Forceps total mouth extraction, upper and lower teeth: 0CDWXZ2, 0CDXXZ2
2. Removal of left thumbnail: 0HDQXZZ (No separate body part value is given for thumbnail, so this is coded to Fingernail.)
3. Extraction of right intraocular lens without replacement, percutaneous: 08DJ3ZZ
4. Laparoscopy with needle aspiration of ova for in-vitro fertilization: 0UDN4ZZ

5. Non-excisional debridement of skin ulcer, right foot: 0HDMXZZ
6. Open stripping of abdominal fascia, right side: 0JD80ZZ
7. Hysteroscopy with D&C, diagnostic: 0UDB8ZX
8. Liposuction for medical purposes, left upper arm: 0JDF3ZZ (The Percutaneous approach is inherent in the liposuction technique.)
9. Removal of tattered right ear drum fragments with tweezers: 09D77ZZ
10. Microincisional phlebectomy of spider veins, right lower leg: 06DY3ZZ

Root operations that take out solids/fluids/gases from a body part

The following root operations represent procedures for taking out or otherwise eradicating solids, fluids, or gases from a body part. These root operations are listed below and described in detail in the pages that follow.

Objective of procedure

- Drainage: Taking/letting out fluids/gases
- Extirpation: Taking/cutting out solid matter
- Fragmentation: Breaking solid matter into pieces

Site of procedure

- Drainage: Within a body part
- Extirpation: Within a body part
- Fragmentation: Within a body part

Example

- Drainage: Incision and drainage
- Extirpation: Thrombectomy
- Fragmentation: Lithotripsy

Drainage—Root operation 9

Definition: Taking or letting out fluids and/or gases from a body part

Explanation: The qualifier Diagnostic is used to identify drainage procedures that are biopsies

Examples: Thoracentesis, incision and drainage

The root operation Drainage is coded for both diagnostic and therapeutic drainage procedures. When drainage is accomplished by putting in a catheter, the device value Drainage Device is coded in the sixth character.

Example: Urinary nephrostomy catheter placement

...using fluoroscopy and sterile technique a needle was placed through the skin into a markedly dilated right renal collecting system. Guidewire was inserted and an 8 French locking catheter was positioned with the dilated right renal pelvis. It was attached to a bag and immediate drainage of urine was evident...

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Medical and Surgical	Urinary	Drainage	Kidney Pelvis, Right	Percutaneous	Drainage Device	No Qualifier
0	T	9	3	3	0	Z

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Routine Foley catheter placement: 0T9B70Z
2. Incision and drainage of external anal abscess: 0D9QXZZ
3. Percutaneous drainage of ascites: 0W9G3ZZ (This is drainage of the cavity and not the peritoneal membrane itself.)
4. Laparoscopy with left ovarian cystotomy and drainage: 0U914ZZ
5. Laparotomy with drain placement for liver abscess, right lobe: 0F9100Z
6. Right knee arthrotomy with drain placement: 0S9C00Z
7. Thoracentesis of left pleural effusion: 0W9B3ZZ (This is drainage of the pleural cavity.)
8. Phlebotomy of left median cubital vein for polycythemia vera: 059C3ZZ (The median cubital vein is a branch of the basilic vein.)
9. Percutaneous chest tube placement for right pneumothorax: 0W9930Z
10. Endoscopic drainage of left ethmoid sinus: 099V4ZZ
11. External ventricular CSF drainage catheter placement via burr hole: 009630Z

Extirpation—Root operation C

Definition: Taking or cutting out solid matter from a body part

Explanation: The solid matter may be an abnormal byproduct of a biological function or a foreign body; it may be imbedded in a body part or in the lumen of a tubular body part. The solid matter may or may not have been previously broken into pieces.

Examples: Thrombectomy, endarterectomy, choledocholithotomy

Extirpation represents a range of procedures where the body part itself is not the focus of the procedure. Instead, the objective is to remove solid material such as a foreign body, thrombus, or calculus from the body part.

Example: De-clotting of AV dialysis graft

...the right upper extremity was properly prepped and draped. Local anesthesia was used to explore the graft. A transverse incision in the previous site of the incision, 1 cm below the elbow crease, was performed. The venous limb of the graft was dissected free up to the venous anastomosis.

A small incision on the graft was performed. Then a #3 Fogarty catheter was passed on the venous side. The cephalic vein was found obstructed, not on the anastomotic site, but about 4 cm proximal to the anastomosis. A large number of clots were extracted. After the embolectomy a good back flow from the venous side was obtained.

Then the embolectomy was performed throughout the limb on the arterial side. More clots were extracted and a good arterial flow was obtained.

The procedure was concluded, closing the incision on the graft with 6-0 prolene...

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Medical and Surgical	Upper Veins	Extirpation	Cephalic Vein, Right	Open	No Device	No Qualifier
0	5	C	D	0	Z	Z

Coding note: body part value

Do not code separate body parts based on the words “venous side” and “arterial side” in the procedure report. They refer to the two ends of the cephalic vein used to create the fistula.

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Removal of foreign body, right cornea: 08C8XZZ
2. Percutaneous mechanical thrombectomy, left brachial artery: 03C83ZZ
3. Esophagogastroscopy with removal of bezoar from stomach: 0DC68ZZ
4. Foreign body removal, skin of left thumb: 0HCGXZZ (There is no specific value for thumb skin, so the procedure is coded to the hand.)
5. Transurethral cystoscopy with removal of bladder stone: 0TCB8ZZ
6. Forceps removal of foreign body in right nostril: 09CKXZZ (Nostril is coded to the Nose body part value.)
7. Laparoscopy with excision of old suture from mesentery: 0DCV4ZZ
8. Incision and removal of right lacrimal duct stone: 08CX0ZZ
9. Non-incisional removal of intraluminal foreign body from vagina: 0UCG7ZZ (The approach External is also a possibility. It is assumed here that since the patient went to the doctor to have the object removed, that it was not in the vaginal orifice.)
10. Right common carotid endarterectomy, open: 03CH0ZZ

Fragmentation—Root operation F

Definition: Breaking solid matter in a body part into pieces

Explanation: The physical force (e.g., manual, ultrasonic) applied directly or indirectly is used to break the solid matter into pieces. The solid matter may be an abnormal byproduct of a biological function or a foreign body. The pieces of solid matter are not taken out.

Examples: Extracorporeal shockwave lithotripsy, transurethral lithotripsy

Fragmentation is coded for procedures to break up, but not remove, solid material such as a calculus or foreign body. This root operation includes both direct and extracorporeal Fragmentation procedures.

ESWL of left kidney

With the patient having been identified, under satisfactory IV sedation and using the MFL 1000 for extracorporeal shock wave lithotripsy, 1000 shocks were delivered to the stone in the lower pole of the left kidney, and 800 shocks were delivered to the stone in the upper pole of the same, with change in shape and density of the stone indicating fragmentation. The patient tolerated the procedure well...

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Medical and Surgical	Urinary	Fragment.	Kidney Pelvis, Left	External	No Device	No Qualifier
0	T	F	4	X	Z	Z

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Extracorporeal shock-wave lithotripsy (ESWL), bilateral ureters: 0TF6XZZ, 0TF7XZZ (The bilateral ureter body part value is not available for the root operation Fragmentation, so the procedures are coded separately.)
2. Endoscopic Retrograde Cholangiopancreatography (ERCP) with lithotripsy of common bile duct stone: 0FF98ZZ (ERCP is performed through the mouth to the biliary system via the duodenum, so the approach value is Via Natural or Artificial Opening Endoscopic.)
3. Thoracotomy with crushing of pericardial calcifications: 02FN0ZZ
4. Transurethral cystoscopy with fragmentation of bladder calculus: 0TFB8ZZ
5. Hysteroscopy with intraluminal lithotripsy of left fallopian tube calcification: 0UF68ZZ

Root operations involving cutting or separation only

The following root operations represent procedures that cut or separate a body part. These root operations are listed below and described in detail in the pages that follow.

Objective of procedure

- Division: Cutting into/separating a body part
- Release: Freeing a body part from constraint

Site of procedure

- Division: Within a body part
- Release: Around a body part

Example

- Division: Neurotomy
- Release: Adhesiolysis

Division—Root operation 8

Definition: Cutting into a body part without draining fluids and/or gases from the body part in order to separate or transect a body part

Explanation: All or a portion of the body part is separated into two or more portions

Examples: Spinal cordotomy, osteotomy

The root operation Division is coded when the objective of the procedure is to cut into, transect, or otherwise separate all or a portion of a body part. When the objective is to cut or separate the area around a body part, the attachments to a body part, or between subdivisions of a body part that are causing abnormal constraint, then the root operation Release is coded instead.

Example: Anal sphincterotomy

Manual examination of the rectum and anus was done, and examination showed that the patient has an anterior anal fissure. For that reason, lateral sphincterotomy was done at the 3 o'clock position using the closed approach, dividing only the internal sphincter using the #11 blade...

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Medical and Surgical	Gastrointest. System	Division	Anal Sphincter	Percutaneous	No Device	No Qualifier
0	D	8	R	3	Z	Z

Coding note: Approach value

This is coded to the Percutaneous approach, because the procedure report says that the sphincterotomy was done using the closed approach, dividing only the internal sphincter.

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Division of right foot tendon, percutaneous: 0L8V3ZZ
2. Left heart catheterization with division of bundle of HIS: 02883ZZ
3. Open osteotomy of capitate, left hand: 0P8N0ZZ (The capitate is one of the carpal bones of the hand.)
4. EGD with esophagotomy of esophagogastric junction: 0D848ZZ
5. Sacral rhizotomy for pain control, percutaneous: 018R3ZZ

Release—Root operation N

Definition: Freeing a body part from an abnormal physical constraint by cutting or by use of force

Explanation: Some of the restraining tissue may be taken out but none of the body part is taken out

Examples: Adhesiolysis, carpal tunnel release

The objective of procedures represented in the root operation Release is to free a body part from abnormal constraint. Release procedures are coded to the body part being freed. The procedure can be performed on the area around a body part, on the attachments to a body part, or between subdivisions of a body part that are causing the abnormal constraint.

Example: Release of median nerve

...the right arm was scrubbed with Betadine and prepped and draped in the usual sterile fashion. A well-padded tourniquet was fixed to the right proximal arm but not inflated until after draping. After draping, the right arm was exsanguinated with a combination of elevation and an Esmarch bandage, placing a sponge in the palm. The tourniquet was inflated to 250.

A transverse incision was made at the level of the proximal wrist crease between the palmaris longus and the flexor carpi ulnaris sharply through the skin with a knife, and subcutaneous tissue was dissected by blunt spreading.

The volar fascia was identified and a transverse incision was made sharply with a knife. The flat synovial retractor was pushed through the underneath of the transverse carpal ligament, removing synovium from beneath the ligament.

The entire carpal tunnel and the fat pad distally was visualized. The blade was inserted into the carpal tunnel, was elevated at the distal edge of the transverse carpal ligament, and was pulled proximally, spreading and cutting through the transverse carpal ligament.

It was visualized that the entire median nerve had been released, and that configuration of the end of the transverse carpal ligament was a rectangle, denoting that both the deep and the superficial fibers had been cut.

The wound was then copiously irrigated with saline...

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Medical and Surgical	Peripheral Nervous	Release	Median Nerve	Open	No Device	No Qualifier
0	1	N	5	0	Z	Z

Coding note: body part value

The body part value assigned is the structure released and not the structure cut to obtain the release, where the two differ. The transverse carpal ligament was cut to release the median nerve and not for its own sake.

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Laparotomy with exploration and adhesiolysis of right ureter: 0TN60ZZ
2. Incision of scar contracture, right elbow: 0HNDXZZ (The skin of the elbow region is coded to the lower arm.)
3. Frenulotomy for treatment of tongue-tie syndrome: 0CN7XZZ (The frenulum is coded to the body part value Tongue.)
4. Right shoulder arthroscopy with coracoacromial ligament release: 0MN14ZZ
5. Mitral valvulotomy for release of fused leaflets, open approach: 02NG0ZZ
6. Percutaneous left Achilles tendon release: 0LNP3ZZ
7. Laparoscopy with lysis of peritoneal adhesions: 0DNW4ZZ
8. Manual rupture of right shoulder joint adhesions under general anesthesia: 0RNJXZZ
9. Open posterior tarsal tunnel release: 01NG0ZZ (The nerve released in the posterior tarsal tunnel is the tibial nerve.)
10. Laparoscopy with freeing of left ovary and fallopian tube: 0UN14ZZ, 0UN64ZZ

Root operations that put in/put back or move some/all of a body part

The following root operations represent procedures that put in/put back or move some/all of a body part. These root operations are listed below and described in detail in the pages that follow.

Objective of procedure

- Transplantation: Putting in a living body part from a person/animal
- Reattachment: Putting back a detached body part
- Transfer: Moving a body part to function for a similar body part
- Reposition: Moving a body part to normal or other suitable location

Site of procedure

- Transplantation: Some/all of a body part
- Reattachment: Some/all of a body part
- Transfer: Some/all of a body part
- Reposition: Some/all of a body part

Example

- Transplantation: Kidney transplant
- Reattachment: Reattach finger
- Transfer: Skin transfer flap
- Reposition: Move undescended testicle

Transplantation—Root operation Y

Definition: 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

Explanation: 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

Examples: Kidney transplant, heart transplant

A small number of procedures is represented in the root operation Transplantation and includes only the body parts currently being transplanted. Qualifier values specify the genetic compatibility of the body part transplanted.

Example: Right kidney transplant (syngeneic)

...the abdomen was sterilely prepped and draped in the usual fashion and incision in the right flank, the Gibson technique, performed. In doing so the right pelvis was entered and Bookwalter retractor appropriately positioned to provide exposure of the external iliac artery and vein.

The artery was placed on vessel loop retraction. We then proceeded with the kidney transplant, and the kidney which was trimmed on the back table was brought into the field. The right renal vein was cut short without reconstruction of the inferior vena cava, and single ureter was identified. Kidney was brought up and an end-to-end anastomosis was performed in the usual fashion with 5-0 Prolene between donor renal vein and external iliac vein on the right.

The long renal artery was brought into view, and end-to-side anastomosis performed in the usual fashion with 5-0 Prolene.

We then turned our attention to performing the neoureterocystostomy after appropriate positioning of the graft and evaluation of the vessels.

After the anastomosis was completed there was no evidence of leak. A Blake drain was brought out through a stab incision and the tip of the drain placed near the neoureterocystostomy and both wounds were closed. The infrainguinal wound was closed with running 3-0 Vicryl and the kidney transplant wound was closed with #1 PDS...

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Medical and Surgical	Urinary	Transplant.	Kidney, Right	Open	No Device	Syngeneic
0	T	Y	0	0	Z	1

Coding note: bone marrow transplant

Bone marrow transplant procedures are coded in section 3 Administration to the root operation 2 Transfusion.

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Liver transplant with donor matched liver: 0FY00Z0
2. Orthotopic heart transplant using porcine heart: 02YA0Z2 (The donor heart comes from an animal (pig), so the qualifier value is Zooplastic.)
3. Right lung transplant, open, using organ donor match: 0BYK0Z0
4. Transplant of large intestine, organ donor match: 0DYE0Z0
5. Left kidney/pancreas organ bank transplant: 0FYG0Z0, 0TY10Z0

Reattachment—Root operation M

Definition: Putting back in or on all or a portion of a separated body part to its normal location or other suitable location

Explanation: Vascular circulation and nervous pathways may or may not be reestablished

Examples: Reattachment of hand, reattachment of avulsed kidney

Procedures coded to Reattachment include putting back a body part that has been cut off or avulsed. Nerves and blood vessels may or may not be reconnected in a Reattachment procedure.

Example: Complex reattachment, left index finger

A sharp debridement of grossly contaminated tissue was carried out. It was noted that the extensor mechanism distal to the PIP joint had been lost. There were circumferential lacerations about the finger, save for a cutaneous bridge and ulnar vascular pedicle present at the PIP level.

Nonviable bony fragments were removed and then the distal portion of the PIP joint was reshaped with removal of cartilage using double- rongeurs. It was noted that the fractures through the proximal phalanx extended longintudinally. Stabilization was then carried out, with 0.062 K-wire brought down through the distal finger, out through the fingertip, and then back into the proximal phalanx centrally.

The A2 pulley was restored, using figure of eight interrupted sutures of 4 and 5-0 Vicryl, reapproximating the flexor tendons. The extensor mechanisms and tendons were repaired using 4 and 5-0 Vicryl, and anchored to the periosteum on the middle phalanx. A digital nerve was then carried out on the radial aspect of the digit at the PIP joint level using interrupted sutures of 9-0 Ethilon beneath the microscope.

At this point, the skin was trimmed, removing skin margins, and then multiple lacerations were closed with 5-0 Prolene...

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Medical and Surgical	Upper Extremities	Reattachment	Index Finger, Left	Open	No Device	No Qualifier
0	X	M	P	0	Z	Z

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Replantation of avulsed scalp: 0HM0XZZ
2. Reattachment of severed right ear: 09M0XZZ
3. Reattachment of traumatic left gastrocnemius avulsion, open: 0KMT0ZZ
4. Closed replantation of three avulsed teeth, lower jaw: 0CMXXZ1
5. Reattachment of severed left hand: 0XMK0ZZ

Transfer—Root operation X

Definition: Moving, without taking out, all or a portion of a body part to another location to take over the function of all or a portion of a body part

Explanation: The body part transferred remains connected to its vascular and nervous supply

Examples: Tendon transfer, skin pedicle flap transfer

The root operation Transfer is used to represent procedures where a body part is moved to another location without disrupting its vascular and nervous supply. In the body systems that classify the subcutaneous tissue, fascia and muscle body parts, qualifiers can be used to specify when more than one tissue layer was used in the transfer procedure, such as a musculocutaneous flap transfer.

Example: Fasciocutaneous flap from scalp to cheek

...development of the plane of dissection was completed into the superficial temporal fascia. Development of subgaleal dissection posteriorly was then completed, a distance of 7-8 cm, with hemostasis by electrocautery.

The flaps were advanced to the cheek defect and secured with 2-0 inverted PDS sutures and 3-0 inverted Monocryl...

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Medical and Surgical	Subcu. Tissue and Fascia	Transfer	Scalp	Open	No Device	Skin, Subcu. and Fascia
0	J	X	0	0	Z	C

Coding note: body system value

For procedures involving transfer of tissue layers such as skin, fascia and muscle, the procedure is coded to the body system value that describes the deepest tissue layer in the flap. When the tissue transferred is composed of more than one tissue layer, the qualifier can be used to describe the other tissue layers, if any, being transferred.

For transfer procedures classified to other body systems such as peripheral nervous system, the body part value specifies the body part that is the source of the transfer ("from"). Where qualifiers are available, they specify the destination of the transfer ("to").

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Right open palmaris longus tendon transfer: 0LX50ZZ
2. Endoscopic radial to median nerve transfer: 01X64Z5
3. Fasciocutaneous flap closure of left thigh, open: 0JXM0ZC (The qualifier identifies the body layers in addition to fascia included in the procedure.)
4. Transfer left index finger to left thumb position, open: 0XXP0ZM
5. Percutaneous fascia transfer to fill defect, anterior neck: 0JX43ZZ
6. Trigeminal to facial nerve transfer, percutaneous endoscopic: 00XK4ZM
7. Endoscopic left leg flexor hallucis longus tendon transfer: 0LXP4ZZ
8. Right scalp advancement flap to right temple: 0HX0XZZ
9. Bilateral TRAM pedicle flap reconstruction status post mastectomy, muscle only, open: 0KXK0Z6, 0KXL0Z6 (The transverse rectus abdominus muscle (TRAM) flap is coded for each flap developed.)
10. Skin transfer flap closure of complex open wound, left lower back: 0HX6XZZ

Reposition—Root operation S

Definition: Moving to its normal location or other suitable location all or a portion of a body part

Explanation: The body part is moved to a new location from an abnormal location, or from a normal location where it is not functioning correctly. The body part may or may not be cut out or off to be moved to the new location

Examples: Reposition of undescended testicle, fracture reduction

Reposition represents procedures for moving a body part to a new location. The range of Reposition procedures includes moving a body part to its normal location, or moving a body part to a new location to enhance its ability to function.

Example: Reposition of undescended right testicle from pelvic region to scrotum

...Following satisfactory induction of general anesthesia, an incision was made in the inguinal region and dissection carried down to the pelvic cavity, where the right testis was located and mobilized.

The spermatic cord was located and freed from surrounding tissue, and its length judged to be sufficient.

A one centimeter incision was made in the scrotum and a pouch created in the usual fashion. The right testicle was mobilized down through the inguinal canal into the scrotum, and stitched in place.

Meticulous hemostasis was obtained, and the incisions closed in layers…

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Medical and Surgical	Male Reproductive	Reposition	Testis, Right	Open	No Device	No Qualifier
0	V	S	9	0	Z	Z

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Open fracture reduction, right tibia: 0QSG0ZZ
2. Laparoscopy with gastropexy for malrotation: 0DS64ZZ
3. Left knee arthroscopy with reposition of anterior cruciate ligament: 0MSP4ZZ
4. Open transposition of ulnar nerve: 01S40ZZ
5. Closed reduction with percutaneous internal fixation of right femoral neck fracture: 0QS634Z

Root operations that alter the diameter/route of a tubular body part

The following root operations represent procedures that alter the diameter or route of a tubular body part. Tubular body parts are defined in ICD-10-PCS as those hollow body parts that provide a route of passage for solids, liquids, or gases. They include the cardiovascular system, and body parts such as those contained in the gastrointestinal tract, genitourinary tract, biliary tract, and respiratory tract.

These root operations are listed below and described in detail in the pages that follow.

Objective of procedure

- Restriction: Partially closing orifice/lumen
- Occlusion: Completely closing orifice/lumen
- Dilation: Expanding orifice/lumen
- Bypass: Altering route of passage

Site of procedure

- Restriction: Tubular body part
- Occlusion: Tubular body part
- Dilation: Tubular body part
- Bypass: Tubular body part

Example

- Restriction: Gastroesophageal fundoplication
- Occlusion: Fallopian tube ligation
- Dilation: Percutaneous transluminal coronary angioplasty (PTCA)
- Bypass: Coronary artery bypass graft (CABG)

Restriction—Root operation V

Definition: Partially closing an orifice or the lumen of a tubular body part

Explanation: The orifice can be a natural orifice or an artificially created orifice

Examples: Esophagogastric fundoplication, cervical cerclage

The root operation Restriction is coded when the objective of the procedure is to narrow the diameter of a tubular body part or orifice. Restriction includes both intraluminal or extraluminal methods for narrowing the diameter.

Example: Laparoscopic gastroesophageal fundoplication

…Insufflation was accomplished through a 5 mm infraumbilical incision. Five separate 5 mm ports were placed under direct visualization other than the initial port. Laparoscopy revealed a large hiatal hernia. Electrocautery was used to free up adhesions from the hernia sac to the stomach.

Next, the fundus which had been mobilized was brought down into the stomach and it was felt there was enough mobilization to perform a fundoplication. A generous loose fundoplication was then performed by wrapping the fundus around the

esophagus. Interrupted 0 Ethibond sutures were used to secure the stomach in this fashion.

There was generally good hemostasis throughout the case. All instruments were removed and ports closed…

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Medical and Surgical	Gastrointest. System	Restriction	Esophagogast Junction	Percutaneous Endoscopic	No Device	No Qualifier
0	D	V	4	4	Z	Z

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Cervical cerclage using Shirodkar technique: 0UVC7ZZ
2. Thoracotomy with banding of left pulmonary artery using extraluminal device: 02VR0CZ
3. Restriction of thoracic duct with intraluminal stent, percutaneous: 07VK3DZ
4. Craniotomy with clipping of cerebral aneurysm: 03VG0CZ (A clip is placed lengthwise on the outside wall of the widened portion of the vessel.)
5. Non-incisional, trans-nasal placement of restrictive stent in right lacrimal duct: 08VX7DZ
6. Catheter-based temporary restriction of blood flow in abdominal aorta for treatment of cerebral ischemia: 04V03DJ

Occlusion—Root operation L

Definition: Completely closing an orifice or the lumen of a tubular body part

Explanation: The orifice can be a natural orifice or an artificially created orifice

Examples: Fallopian tube ligation, ligation of inferior vena cava

The root operation Occlusion is coded when the objective of the procedure is to close off a tubular body part or orifice. Occlusion includes both intraluminal or extraluminal methods of closing off the body part. Division of the tubular body part prior to closing it is an integral part of the Occlusion procedure.

Example: Uterine artery embolization

…catheter was advanced over a 0.18 Terumo gold guidewire and advanced several centimeters superselectively into the left uterine artery. Contrast injection was performed here, confirming filling of the uterine artery and subsequent opacification of large vascular structures in the uterus compatible with uterine fibroids.

A syringe and a half of 500-700 micron biospheres was then instilled slowly through the catheter, and at the conclusion of this infusion there was cessation of flow through the uterine artery.

The catheter was then removed and hemostasis achieved...

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Medical and Surgical	Lower Arteries	Occlusion	Internal Iliac Artery, Left	Percutaneous	Intraluminal Device	Uterine Artery, Left
0	4	L	F	3	D	U

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Percutaneous ligation of esophageal vein: 06L33ZZ
2. Percutaneous embolization of left internal carotid-cavernous fistula: 03LL3DZ
3. Laparoscopy with bilateral occlusion of fallopian tubes using Hulka extraluminal clips: 0UL74CZ
4. Open suture ligation of failed AV graft, left brachial artery: 03L80ZZ
5. Percutaneous embolization of vascular supply, intracranial meningioma: 03LG3DZ
6. Percutaneous embolization of right uterine artery, using coils: 04LE3DT
7. Open occlusion of left atrial appendage, using extraluminal pressure clips: 02L70CK
8. Percutaneous suture exclusion of left atrial appendage, via femoral artery access: 02L73ZK

Dilation—Root operation 7

Definition: Expanding an orifice or the lumen of a tubular body part

Explanation: The orifice can be a natural orifice or an artificially created orifice. Accomplished by stretching a tubular body part using intraluminal pressure or by cutting part of the orifice or wall of the tubular body part

Examples: Percutaneous transluminal angioplasty, pyloromyotomy

The root operation Dilation is coded when the objective of the procedure is to enlarge the diameter of a tubular body part or orifice. Dilation includes both intraluminal or extraluminal methods of enlarging the diameter. A device placed to maintain the new diameter is an integral part of the Dilation procedure, and is coded to a sixth-character device value in the Dilation procedure code.

Example: PTCA of left anterior descending

…under 1% Lidocaine local anesthesia, the right femoral artery was entered by the Seldinger technique and a #7 French sheath was placed. A Judkins left guiding catheter was advanced to the left coronary ostium and using a .014 Entrée wire and a 2.5 x 30 mm Panther balloon, it was easily placed across the lesion in the left anterior descending.

The balloon was inflated times two for five minutes for up to 9 atmospheres. Angiography demonstrated an excellent result…

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Medical and Surgical	Heart and Gr.Vessels	Dilation	Coronary Art., One Site	Percutaneous	No Device	No Qualifier
0	2	7	0	3	Z	Z

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. ERCP with balloon dilation of common bile duct: 0F798ZZ
2. PTCA of two coronary arteries, LAD with stent placement, RCA with no stent: 02703DZ, 02703ZZ (A separate procedure is coded for each artery dilated, since the device value differs for each artery.)
3. Cystoscopy with intraluminal dilation of bladder neck stricture: 0T7C8ZZ
4. Open dilation of old anastomosis, left femoral artery: 047L0ZZ
5. Dilation of upper esophageal stricture, direct visualization, with Bougie sound: 0D717ZZ
6. PTA of right brachial artery stenosis: 03773ZZ
7. Trans-nasal dilation and stent placement in right lacrimal duct: 087X7DZ
8. Hysteroscopy with balloon dilation of bilateral fallopian tubes: 0U778ZZ
9. Tracheoscopy with intraluminal dilation of tracheal stenosis: 0B718ZZ
10. Cystoscopy with dilation of left ureteral stricture, with stent placement: 0T778DZ

Bypass—Root operation 1

Definition: Altering the route of passage of the contents of a tubular body part

Explanation: Rerouting 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. Includes one or more anastomoses, with or without the use of a device

Examples: Coronary artery bypass, colostomy formation

Bypass is coded when the objective of the procedure is to reroute the contents of a tubular body part. The range of Bypass procedures includes normal routes such as those made in coronary artery bypass procedures, and abnormal routes such as those made in colostomy formation procedures.

Example: Aorto-bifemoral bypass graft

…the patient was prepped and draped, and groin incisions were opened. The common femoral vein and its branches were isolated and Teflon tapes were placed around the vessels.

The aorta and iliacs were mobilized. Bleeding points were controlled with electrocautery and Liga clips. Tapes were placed around the vessel, the vessel measured, and the aorta was found to be 12 mm. A 12 x 7 bifurcated microvelour graft was then preclotted with the patient's own blood.

An end-to-end anastomosis was made on the aorta and the graft using a running suture of 2-0 Prolene. The limbs were taken down through tunnels noting that the ureters were anterior, and at this point an end-to-side anastomosis was made between the graft and the femoral arteries with running suture of 4-0 Prolene.

The inguinal incisions were closed…

Character 1 Section	**Character 2 Body System**	**Character 3 Root Operation**	**Character 4 Body Part**	**Character 5 Approach**	**Character 6 Device**	**Character 7 Qualifier**
Medical and Surgical	Lower Arteries	Bypass	Abdominal Aorta	Open	Synthetic Substitute	Bil. Femoral Arteries
0	4	1	0	0	J	K

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Open gastric bypass with Roux-en-Y limb to jejunum: 0D160ZA
2. Right temporal artery to intracranial artery bypass using goretex graft, open: 031S0JG
3. Tracheostomy formation with tracheostomy tube placement, percutaneous: 0B113F4

4. PICVA (Percutaneous in-situ coronary venous arterialization) of single coronary artery: 02103D4
5. Open left femoral-popliteal artery bypass using cadaver vein graft: 041L0KL
6. Shunting of intrathecal cerebrospinal fluid to peritoneal cavity using synthetic shunt: 00160J6
7. Colostomy formation, open, transverse colon to abdominal wall: 0D1L0Z4
8. Open urinary diversion, left ureter, using ileal conduit to skin: 0T170ZC
9. CABG of LAD using left internal mammary artery, open off-bypass: 02100Z9
10. Open pleuroperitoneal shunt, right pleural cavity, using synthetic device: 0W190JG
11. Percutaneous placement of ventriculoperitoneal shunt for treatment of hydrocephalus: 00163J6

Root operations that always involve a device

The following root operations represent procedures that always involve a device. These root operations are listed below and described in detail in the pages that follow.

Objective of procedure

- Insertion: Putting in non-biological device
- Replacement: Putting in device that replaces a body part
- Supplement: Putting in device that reinforces or augments a body part
- Change: Exchanging device w/out cutting/puncturing
- Removal: Taking out device
- Revision: Correcting a malfunctioning/displaced device

Site of procedure

- Insertion: In/on a body part
- Replacement: Some/all of a body part
- Supplement: In/on a body part
- Change: In/on a body part
- Removal: In/on a body part
- Revision: In/on a body part

Example

- Insertion: Central line insertion
- Replacement: Total hip replacement
- Supplement: Abdominal wall herniorrhaphy using mesh

- Change: Drainage tube change
- Removal: Central line removal
- Revision: Revision of pacemaker insertion

Insertion—Root operation H

Definition: Putting in a non-biological device that monitors, assists, performs or prevents a physiological function but does not physically take the place of a body part

Explanation: N/A

Examples: Insertion of radioactive implant, insertion of central venous catheter

The root operation Insertion represents those procedures where the sole objective is to put in a device without doing anything else to a body part. Procedures typical of those coded to Insertion include putting in a vascular catheter, a pacemaker lead, or a tissue expander.

Example: Placement of totally implanted central venous access device

…the right chest and neck were prepped and draped in the usual manner and 10 cc's of 1% Lidocaine were injected in the right infraclavicular area.

The right subclavian vein was then punctured and a wire was passed through the needle into the superior vena cava. This was documented by fluoroscopy. Introducer kit was introduced into the subclavian vein and the Port-a-cath was placed through the introducer and by fluoroscopy was placed down to the superior vena cava.

The pocket was then made over the right pectoralis major muscle, superior to the breast, and the Port-a-cath reservoir was placed into this pocket and tacked down with #0 Prolene sutures.

The catheter was then tunneled through a subcutaneous tunnel to this receptacle. Hemostasis was achieved and the subcutaneous tissue closed…

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Medical and Surgical	Subcu.Tissue and Fascia	Insertion	Chest	Percutaneous	Vascular Access Dev	No Qualifier
0	J	H	6	3	X	Z

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Medical and Surgical	Heart and Great Vessels	Insertion	Superior Vena Cava	Percutaneous	Infusion Device	No Qualifier
0	2	H	v	3	3	Z

Coding note: imaging guidance

Imaging guidance done to assist in the performance of a procedure can be coded separately in the Imaging section, if desired (Section B).

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. End-of -life replacement of spinal neurostimulator generator, multiple array, in lower abdomen: 0JH80DZ (Taking out the old generator is coded separately to the root operation Removal.)
2. Percutaneous replacement of broken pacemaker lead in left atrium: 02H73JZ (Taking out the broken pacemaker lead is coded separately to the root operation Removal.)
3. Open placement of dual chamber pacemaker generator in chest wall: 0JH606Z
4. Percutaneous placement of venous central line in right internal jugular, with tip in Superior Vena Cava: 02HV33Z
5. Open insertion of multiple channel cochlear implant, left ear: 09HE06Z
6. Percutaneous placement of Swan-Ganz catheter in pulmonary trunk: 02HP32Z (The Swan-Ganz catheter is coded to the device value Monitoring Device because it monitors pulmonary artery output.)
7. Bronchoscopy with insertion of brachytherapy seeds, right main bronchus: 0BH081Z
8. Open placement of bone growth stimulator, left femoral shaft: 0QHY0MZ
9. Cystoscopy with placement of brachytherapy seeds in prostate gland: 0VH081Z
10. Percutaneous insertion of Greenfield IVC filter: 06H03DZ

Replacement—Root operation R

Definition: Putting in or on biological or synthetic material that physically takes the place and/or function of all or a portion of a body part

Explanation: The body part may have been taken out or replaced, or may be taken out, physically eradicated, or rendered nonfunctional during the Replacement procedure. A Removal procedure is coded for taking out the device used in a previous replacement procedure.

Examples: Total hip replacement, bone graft, free skin graft

The objective of procedures coded to the root operation Replacement is to put in a device that takes the place of some or all of a body part. Replacement encompasses a wide range of procedures, from joint replacements to grafts of all kinds.

Example: Prosthetic lens implantation

…a superior peritomy was made on the left eye and adequate hemostasis was achieved using eraser cautery. A posterior one-half thickness groove was placed posterior to the blue line. This was beveled forward toward clear cornea.

The anterior chamber was entered at the 11:30 position with a blade. The eye was filled with viscoelastic substance. A can-opener type capsulotomy was performed with a cystotome. Hydrodissection was carried out and the lens was rocked gently with a cystotome to loosen it from the cortex.

The wound was then opened with corneal scleral scissors. The lens was prolapsed in the anterior chamber and removed. The anterior chamber was then temporarily closed with 8-0 Vicryl sutures and cortical clean-up was performed.

One of the sutures was removed and a posterior chamber intraocular lens (Alcon model #MZ50BD) was inspected, rinsed, and placed into a capsular bag. Miochol was then instilled into the anterior chamber. The conjunctiva was pulled over the incision and cauterized into place…

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Medical and Surgical	Eye	Replacement	Lens, Left	Percutaneous	Synthetic Substitute	No Qualifier
0	8	R	K	3	J	Z

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Full-thickness skin graft to right lower arm, autograft (do not code graft harvest for this exercise): 0HRDX73
2. Excision of necrosed left femoral head with bone bank bone graft to fill the defect, open: 0QR70KZ
3. Penetrating keratoplasty of right cornea with donor matched cornea, percutaneous approach: 08R83KZ
4. Bilateral mastectomy with concomitant saline breast implants, open: 0HRV0JZ
5. Excision of abdominal aorta with goretex graft replacement, open: 04R00JZ
6. Total right knee arthroplasty with insertion of total knee prosthesis: 0SRC0JZ
7. Bilateral mastectomy with free TRAM flap reconstruction: 0HRV076
8. Tenonectomy with graft to right ankle using cadaver graft, open: 0LRS0KZ
9. Mitral valve replacement using porcine valve, open: 02RG08Z
10. Percutaneous phacoemulsification of right eye cataract with prosthetic lens insertion: 08RJ3JZ
11. Transcatheter replacement of pulmonary valve using of bovine jugular vein valve: 02RH38Z
12. Total left hip replacement using ceramic on ceramic prosthesis, without bone cement: 0SRB03A

Supplement—Root operation U

Definition: Putting in or on biologic or synthetic material that physically reinforces and/or augments the function a portion of a body part

Explanation: The biological material is non-living, or is living and from the same individual. The body part may have been previously replaced, and the Supplement procedure is performed to physically reinforce and/or augment the function of the replaced body part.

Examples: Herniorrhaphy using mesh, free nerve graft, mitral valve ring annuloplasty, put a new acetabular liner in a previous hip replacement

The objective of procedures coded to the root operation Supplement is to put in a device that reinforces or augments the functions of some or all of a body part. The body part may have been taken out during a previous procedure, but is not taken out as part of the Supplement procedure. Supplement includes a wide range of procedures, from hernia repairs using mesh reinforcement to heart valve annuloplasties and grafts such as nerve grafts that supplement but do not physically take the place of the existing body part.

Example: Posterior colporrhaphy with Gynemesh

…attention was then turned to the posterior wall. Two Allis clamps were placed at the mucocutaneous junction in the region of the fourchette, and another clamp was placed at the apex of the rectocele.

The tissue between the distal clamps and the fourchette was excised, and carefully measured so that the introitus would be a 3-finger introitus. The posterior vaginal mucosa was then incised in the midline by sharp and blunt dissection. The mucosa was then dissected to the level at the Allis clamp at the apex of the rectocele, and dissected with blunt and sharp dissection from the underlying tissue. The rectocele was then imbricated using mattress sutures of 2-0 vicryl, and the area of the levator ani reinforced with Gynemesh.

Two sutures of 2-0 Vicryl were taken in the levator ani muscle, the excess posterior vaginal mucosa excised, and then closed with interrupted sutures of 2-0 Vicryl.

The perineal muscles were then approximated in the midline in layers, using 2-0 Vicryl, after which the perineal skin was approximated using interrupted sutures of 2-0 Vicryl…

Character 1 Section	**Character 2 Body System**	**Character 3 Root Operation**	**Character 4 Body Part**	**Character 5 Approach**	**Character 6 Device**	**Character 7 Qualifier**
Medical and Surgical	Subcutaneous Tissue and Fascia	Supplement	Pelvic Region	Open	Synthetic Substitute	No Qualifier
0	j	U	C	0	J	Z

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Aortic valve annuloplasty using ring, open: 02UF0JZ
2. Laparoscopic repair of left inguinal hernia with marlex plug: 0YU64JZ
3. Autograft nerve graft to right median nerve, percutaneous endoscopic (do not code graft harvest for this exercise): 01U547Z
4. Exchange of liner in femoral component of previous left hip replacement, open approach: 0SUS09Z (Taking out the old liner is coded separately to the root operation Removal.)
5. Anterior colporrhaphy with polypropylene mesh reinforcement, open approach: 0JUC0JZ
6. Implantation of CorCap cardiac support device, open approach: 02UA0JZ
7. Abdominal wall herniorrhaphy, open, using synthetic mesh: 0WUF0JZ
8. Tendon graft to strengthen injured left shoulder using autograft, open (do not code graft harvest for this exercise): 0LU207Z
9. Onlay lamellar keratoplasty of left cornea using autograft, external approach: 08U9X7Z
10. Resurfacing procedure on right femoral head, open approach: 0SUR0BZ

Change—Root operation 2

Definition: Taking out or off a device from a body part and putting back an identical or similar device in or on the same body part without cutting or puncturing the skin or a mucous membrane

Explanation: All Change procedures are coded using the approach External

Examples: Urinary catheter change, gastrostomy tube change

`The root operation Change represents only those procedures where a similar device is exchanged without making a new incision or puncture. Typical Change procedures include exchange of drainage devices and feeding devices.

Coding note: Change

In the root operation Change, general body part values are used when the specific body part value is not in the table.

Example: Percutaneous endoscopic gastrostomy (PEG) tube exchange

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Medical and Surgical	Gastrointest. System	Change	Upper Intest. Tract	External	Feeding Device	No Qualifier
0	D	2	0	X	U	Z

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Exchange of drainage tube from right hip joint: 0S2YX0Z
2. Tracheostomy tube exchange: 0B21XFZ
3. Change chest tube for left pneumothorax: 0W2BX0Z
4. Exchange of cerebral ventriculostomy drainage tube: 0020X0Z
5. Foley urinary catheter exchange: 0T2BX0Z (This is coded to Drainage Device because urine is being drained.)

Removal—Root operation P

Definition: Taking out or off a device from a body part

Explanation: If a device is taken out and a similar device put in without cutting or puncturing the skin or mucous membrane, the procedure is coded to the root operation Change. Otherwise, the procedure for taking out a device is coded to the root operation Removal.

Examples: Drainage tube removal, cardiac pacemaker removal

Removal represents a much broader range of procedures than those for removing the devices contained in the root operation Insertion. A procedure to remove a device is coded to Removal if it is not an integral part of another root operation, and regardless of the approach or the original root operation by which the device was put in.

Coding note: Removal

In the root operation Removal, general body part values are used when the specific body part value is not in the table

Example: Removal of right forearm external fixator

…the right upper extremity was prepped and draped in a sterile fashion. A tourniquet was placed at 250 mm of pressure.

The external fixator was removed using the appropriate wrench. The four pins in the ulna were then removed manually, as well as with the drill. The wounds were irrigated with antibiotic solution and a sterile dressing applied…

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Medical and Surgical	Upper Bones	Removal	Ulna, Right	External	External Fixation	No Qualifier
0	P	P	K	X	5	Z

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Open removal of lumbar sympathetic neurostimulator: 01PY0MZ
2. Non-incisional removal of Swan-Ganz catheter from right pulmonary artery: 02PYX2Z
3. Laparotomy with removal of pancreatic drain: 0FPG00Z
4. Extubation, endotracheal tube: 0BP1XDZ

5. Non-incisional PEG tube removal: 0DP6XUZ
6. Transvaginal removal of brachytherapy seeds: 0UPH71Z
7. Incision with removal of K-wire fixation, right first metatarsal: 0QPN04Z
8. Cystoscopy with retrieval of left ureteral stent: 0TP98DZ
9. Removal of nasogastric drainage tube for decompression: 0DP6X0Z
10. Removal of external fixator, left radial fracture: 0PPJX5Z

Revision—Root operation W

Definition: Correcting, to the extent possible, a portion of a malfunctioning device or the position of a displaced device

Explanation: Revision can include correcting a malfunctioning device by taking out and/or putting in part of the device

Examples: Adjustment of pacemaker lead, adjustment of hip prosthesis

Revision is coded when the objective of the procedure is to correct the position or function of a previously placed device, without taking the entire device out and putting a whole new device in its place. A complete re-do of a procedure is coded to the root operation performed.

Coding note: Revision

In the root operation Revision, general body part values are used when the specific body part value is not in the table.

Example: Revision of artificial anal sphincter

…Proceeding through a suprapubic incision, this was then extended after injecting local anesthetic, thereby exposing the underlying tubing, which was then delivered through the suprapubic region.

Meticulous hemostasis was achieved using electrocautery. At that point the pump device was then repositioned in the left lower quadrant abdominal wall region. The tubing was reinserted using dilators, and the skin reapproximated using 2-0 Vicryl sutures. Sterile dressing was then applied…

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Medical and Surgical	Gastrointest. System	Revision	Anus	Open	Artificial Sphincter	No Qualifier
0	D	W	Q	0	L	Z

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Trimming and reanastomosis of stenosed femorofemoral synthetic bypass graft, open: 04WY0JZ
2. Open revision of right hip replacement, with recementing of the prosthesis: 0SW90JZ
3. Adjustment of position, pacemaker lead in left ventricle, percutaneous: 02WA3MZ
4. Taking out loose screw and putting larger screw in fracture repair plate, left tibia: 0QWH04Z
5. Revision of totally implantable VAD port placement in chest wall, causing patient discomfort, open: 0JWT0XZ

Root operations involving examination only

The table below lists the root operations that involve examination of a body part. Each is described in detail in the pages that follow.

Objective of procedure

- Inspection: Visual/manual exploration
- Map: Location electrical impulses/functional areas

Site of procedure

- Inspection: Some/all of a body part
- Map: Brain/cardiac conduction mechanism

Example

- Inspection: Diagnostic cystoscopy
- Map: Cardiac mapping

Inspection—Root operation J

Definition: Visually and/or manually exploring a body part

Explanation: Visual exploration may be performed with or without optical instrumentation. Manual exploration may be performed directly or through intervening body layers

Examples: Diagnostic arthroscopy, exploratory laparotomy

The root operation Inspection represents procedures where the sole objective is to examine a body part. Procedures that are discontinued without any other root operation being performed are also coded to Inspection.

Example: Diagnostic colposcopy with examination of cervix

…Colposcopy was done which revealed pseudo-white areas at 2 o'clock and 6 o'clock on the cervix, with abnormal cells and irregular white borders noted on both…

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Medical and Surgical	Female Reproductive	Inspection	Uterus and Cervix	Via Nat./Artif. Opening Endo	No Device	No Qualifier
0	U	J	D	8	Z	Z

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Thoracotomy with exploration of right pleural cavity: 0WJ90ZZ
2. Diagnostic laryngoscopy: 0CJS8ZZ
3. Exploratory arthrotomy of left knee: 0SJD0ZZ
4. Colposcopy with diagnostic hysteroscopy: 0UJD8ZZ
5. Digital rectal exam: 0DJD7ZZ
6. Diagnostic arthroscopy of right shoulder: 0RJJ4ZZ
7. EGD (esophagogastroduodenscopy) 0DJ08ZZ
8. Laparotomy with palpation of liver: 0FJ00ZZ
9. Transurethral diagnostic cystoscopy: 0TJB8ZZ
10. Colonoscopy, discontinued at sigmoid colon: 0DJD8ZZ

Map—Root operation K

Definition: Locating the route of passage of electrical impulses and/or locating functional areas in a body part

Explanation: Applicable only to the cardiac conduction mechanism and the central nervous system

Examples: Cardiac mapping, cortical mapping

Mapping represents a very narrow range of procedures. Procedures include only cardiac mapping and cortical mapping.

Example: Cardiac mapping

…under sterile technique arterial sheath was placed in the right femoral artery. The electrical catheter was advanced up the aorta and into the left atrium under fluoroscopic guidance and mapping commenced. After adequate recordings were obtained the catheter was withdrawn and hemostasis achieved with manual pressure on the right femoral artery…

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Medical and Surgical	Heart and Gr. Vessels	Map	Conduction Mechanism	Percutaneous	No Device	No Qualifier
0	2	K	8	3	Z	Z

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Percutaneous mapping of basal ganglia: 00K83ZZ
2. Heart catheterization with cardiac mapping: 02K83ZZ
3. Intraoperative whole brain mapping via craniotomy: 00K00ZZ
4. Mapping of left cerebral hemisphere, percutaneous endoscopic: 00K74ZZ
5. Intraoperative cardiac mapping during open heart surgery: 02K80ZZ

Root operations that define other repairs

The table below lists the root operations that define other repairs. Control describes the effort to locate and stop postprocedural hemorrhage. Repair is described in detail in the pages that follow.

Objective of procedure

- Control: Stopping/attempting to stop postprocedural bleed
- Repair: Restoring body part to its normal structure

Site of procedure

- Control: Anatomical region
- Repair: Some/all of a body part

Example

- Control: Post-prostatectomy bleeding control
- Repair: Suture laceration

Control—Root operation 3

Definition: Stopping, or attempting to stop, postprocedural bleeding

Explanation: The site of the bleeding is coded as an anatomical region and not to a specific body part

Examples: Control of post-prostatectomy hemorrhage, control of post-tonsillectomy hemorrhage

Control is used to represent a small range of procedures performed to treat postprocedural bleeding. If performing Bypass, Detachment, Excision, Extraction, Reposition, Replacement, or Resection is required to stop the bleeding, then Control is not coded separately.

Coding note: Control

Control includes irrigation or evacuation of hematoma done at the operative site. Both irrigation and evacuation may be necessary to clear the operative field and effectively stop the bleeding.

Example: Re-opening of laparotomy site with ligation of arterial bleeder

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Medical and Surgical	Anatomical Regions, Gen.	Control	Peritoneal Cavity	Open	No Device	No Qualifier
0	W	3	G	0	Z	Z

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Hysteroscopy with cautery of post-hysterectomy oozing and evacuation of clot: 0W3R8ZZ
2. Open exploration and ligation of post-op arterial bleeder, left forearm: 0X3F0ZZ
3. Control of post-operative retroperitoneal bleeding via laparotomy: 0W3H0ZZ
4. Reopening of thoracotomy site with drainage and control of post-op hemopericardium: 0W3D0ZZ
5. Arthroscopy with drainage of hemarthrosis at previous operative site, right knee: 0Y3F4ZZ

Repair—Root operation Q

Definition: Restoring, to the extent possible, a body part to its normal anatomic structure and function

Explanation: Used only when the method to accomplish the repair is not one of the other root operations

Examples: Herniorrhaphy, suture of laceration

The root operation Repair represents a broad range of procedures for restoring the anatomic structure of a body part such as suture of lacerations. Repair also functions as the "not elsewhere classified (NEC)" root operation, to be used when the procedure performed does not meet the definition of one of the other root operations.

Example: Left open inguinal herniorrhaphy

…an incision in the left groin extending on the skin from the internal to the external inguinal ring was made. The external oblique aponeurosis was exposed.

The hernia sac was then ligated at the internal ring with non-dissolving sutures. A hernia repair was then performed. The internal oblique fascia was sutured in interrupted stitches to the ilio-pubic fascia. The spermatic cord was then returned to its anatomical position.

The external oblique aponeurosis was then repaired in interrupted sutures. Complete hemostasis was obtained, and the skin closed…

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Medical and Surgical	Lower Extremities	Repair	Inguinal Region, Left	Open	No Device	No Qualifier
0	Y	Q	6	0	Z	Z

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Suture repair of left radial nerve laceration: 01Q60ZZ (The approach value is Open, though the surgical exposure may have been created by the wound itself.)
2. Laparotomy with suture repair of blunt force duodenal laceration: 0DQ90ZZ
3. Perineoplasty with repair of old obstetric laceration, open: 0WQN0ZZ
4. Suture repair of right biceps tendon laceration, open: 0LQ30ZZ
5. Closure of abdominal wall stab wound: 0WQF0ZZ

Root operations that define other objectives

The last three root operations in the Medical and Surgical section, Fusion, Alteration, and Creation, describe procedures performed for three distinct reasons. Beyond that they have little in common. A Fusion procedure puts a dysfunctional joint out of service rather than restoring function to the joint. Alteration encompasses a whole range of procedures that share only the fact that they are done to improve the way the patient looks. Creation represents only two very specific sex change operations.

Objective of procedure

- Fusion: Rendering joint immobile
- Alteration: Modifying body part for cosmetic purposes without affecting function
- Creation: Making new structure for sex change operation

Site of procedure

- Fusion: Joint
- Alteration: Some/all of a body part
- Creation: Perineum

Example

- Fusion: Spinal fusion
- Alteration: Face lift
- Creation: Artificial vagina/penis

Fusion—Root operation G

Definition: Joining together portions of an articular body part rendering the articular body part immobile

Explanation: The body part is joined together by fixation device, bone graft, or other means

Examples: Spinal fusion, ankle arthrodesis

A limited range of procedures is represented in the root operation Fusion, because fusion procedures are by definition only performed on the joints. Qualifier values are used to specify whether a vertebral joint fusion uses an anterior or posterior approach, and whether the anterior or posterior column of the spine is fused.

Example: Anterior cervical fusion C-2 through C-4 with bone bank graft

…after skull tong traction was applied, incision was made in the left neck, and Gardner retractors placed to separate the intervertebral muscles at the C-2 through C-4 levels.

Using the drill, a trough was incised on the anterior surface of the C-2 vertebra, and the C-2/C-3 space evacuated with a rongeur, and the accompanying cartilage removed. This procedure was then repeated at the C-3/C-4 level.

Bone bank patella strut graft was trimmed with a saw and fashioned to fit the C-2/C-3 interspace. After adequate adjustments in the size and shape had been made, the graft was tapped securely into place. The procedure was repeated for the C-3/C-4 level.

X-rays revealed good alignment and final position. Traction was gradually decreased to maintain position. Retractors were removed and the fascia was reapproximated with 0 Vicryl…

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Medical and Surgical	Upper Joints	Fusion	Cervical Jt, 2 or More	Open	Nonautolog Tissue Subst	Ant Approach Ant Column
0	R	G	2	0	K	0

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Radiocarpal fusion of left hand with internal fixation, open: 0RGP04Z
2. Posterior spinal fusion at L1-L3 level with BAK cage interbody fusion device, open: 0SG10AJ
3. Intercarpal fusion of right hand with bone bank bone graft, open: 0RGQ0KZ
4. Sacrococcygeal fusion with bone graft from same operative site, open: 0SG507Z
5. Interphalangeal fusion of left great toe, percutaneous pin fixation: 0SGQ34Z

Alteration—Root operation 0

Definition: Modifying the natural anatomic structure of a body part without affecting the function of the body part

Explanation: Principal purpose is to improve appearance

Examples: Face lift, breast augmentation

Alteration is coded for all procedures performed solely to improve appearance. All methods, approaches, and devices used for the objective of improving appearance are coded here.

Coding note: Alteration

Because some surgical procedures can be performed for either medical or cosmetic purposes, coding for Alteration requires diagnostic confirmation that the surgery is in fact performed to improve appearance.

Example: Cosmetic blepharoplasty

…attention was turned to the redundant upper eyelid skin. The ellipse of skin as marked preoperatively was excised bilaterally.

The medial and lateral fat compartments were open bilaterally. The medial compartment had severe fatty excess and periorbital fat herniation. This was resected. The lateral fat compartment was opened and the lateral fat tailored as well.

Subdermal closure was performed with interrupted 3-0 sutures bilaterally. The skin was closed…

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Medical and Surgical	Eye	Alteration	Upper Eyelid, Left	Open	No Device	No Qualifier
0	8	0	P	0	Z	Z

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Medical and Surgical	Eye	Alteration	Upper Eyelid, Right	Open	No Device	No Qualifier
0	8	0	N	0	Z	Z

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Cosmetic face lift, open, no other information available: 0W020ZZ
2. Bilateral breast augmentation with silicone implants, open: 0H0V0JZ
3. Cosmetic rhinoplasty with septal reduction and tip elevation using local tissue graft, open: 090K07Z
4. Abdominoplasty (tummy tuck), open: 0W0F0ZZ
5. Liposuction of bilateral thighs: 0J0L3ZZ, 0J0M3ZZ

Creation—Root operation 4

Definition: Making a new genital structure that does not physically take the place of a body part

Explanation: Used only for sex change operations

Examples: Creation of vagina in a male, creation of penis in a female

Creation is used to represent a very narrow range of procedures. Only the procedures performed for sex change operations are included here.

Coding note: Harvesting autograft tissue

If a separate procedure is performed to harvest autograft tissue, it is coded to the appropriate root operation in addition to the primary procedure.

Exmample: Creating a vagina in a male patient using autograft

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Medical and Surgical	Anatomical Regions, Gen.	Creation	Perineum, Male	Open	Autolog. Tissue Subst.	Vagina
0	W	4	M	0	7	0

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Creation of penis in female patient using tissue bank donor graft: 0W4N0K1
2. Creation of vagina in male patient using synthetic material: 0W4M0J0

Chapter 3: Procedures in the Medical and Surgical-related sections

This chapter provides reference material for procedure codes in sections 1 through 9 of ICD-10-PCS. These nine sections define procedures related to the Medical and Surgical section. Codes in these sections contain characters not previously defined, such as substance, function, and method.

First is a list of the sections in order. Next, reference material is provided for each section, and includes

- General description of the section
- A table listing each root operation in the section, with its corresponding definition
- Coding notes as needed
- Representative examples of procedures coded in that section, in table excerpt format, with explanatory notes as needed
- Coding exercises that provide example procedures and their corresponding ICD-10-PCS codes, with explanatory notes as needed

List of Medical and Surgical-related sections of ICD-10-PCS

Nine additional sections of ICD-10-PCS include procedures related to the Medical and Surgical section, such as obstetrical procedures, administration of substances, and extracorporeal procedures.

- Section 1: Obstetrics
- Section 2: Placement
- Section 3: Administration
- Section 4: Measurement and Monitoring
- Section 5: Extracorporeal Assistance and Performance
- Section 6: Extracorporeal Therapies
- Section 7: Osteopathic
- Section 8: Other Procedures
- Section 9: Chiropractic

Obstetrics—Section 1

The Obstetrics section follows the same conventions established in the Medical and Surgical section, with all seven characters retaining the same meaning, as shown in this example of a low forceps extraction.

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Obstetrics	Pregnancy	Extraction	Products of Conception	Via Nat./Artif. Opening	No Device	Low Forceps
1	0	D	0	7	Z	3

Root operations

There are twelve root operations in the Obstetrics section. Ten of these are also found in the Medical and Surgical section.

For the complete list of root operations and their definitions, please refer to ICD-10-PCS definitions (page 117).

The two root operations unique to Obstetrics are defined below:

- A – Abortion: Artificially terminating a pregnancy
- E – Delivery: Assisting the passage of the products of conception from the genital canal

Coding note: Abortion

Abortion is subdivided according to whether an additional device such as a laminaria or abortifacient is used, or whether the abortion was performed by mechanical means.

If either a laminaria or abortifacient is used, then the approach is Via Natural or Artificial Opening.

All other abortion procedures are those done by mechanical means (the products of conception are physically removed using instrumentation), and the device value is Z, No Device.

Example: Transvaginal abortion using vacuum aspiration technique

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Obstetrics	Pregnancy	Abortion	Products of Conception	Via Nat./Artif. Opening	No Device	Vacuum
1	0	A	0	7	Z	6

Coding note: Delivery

Delivery applies only to manually-assisted, vaginal delivery and is defined as assisting the passage of the products of conception from the genital canal. Cesarean deliveries are coded in this section to the root operation Extraction.

Example: Manually-assisted delivery

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Obstetrics	Pregnancy	Delivery	Products of Conception	External	No Device	No Qualifier
1	0	E	0	X	Z	Z

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Abortion by dilation and evacuation following laminaria insertion: 10A07ZW
2. Manually assisted spontaneous abortion: 10E0XZZ (Since the pregnancy was not artificially terminated, this is coded to Delivery, because it captures the procedure objective. The fact that it was an abortion will be identified in the diagnosis code.)
3. Abortion by abortifacient insertion: 10A07ZX
4. Bimanual pregnancy examination: 10J07ZZ
5. Extraperitoneal c-section, low transverse incision: 10D00Z2
6. Fetal spinal tap, percutaneous: 10903ZA
7. Fetal kidney transplant, laparoscopic: 10Y04ZS
8. Open in utero repair of congenital diaphragmatic hernia: 10Q00ZK (Diaphragm is classified to the Respiratory body system in the Medical and Surgical section.)
9. Laparoscopy with total excision of tubal pregnancy: 10T24ZZ
10. Transvaginal removal of fetal monitoring electrode: 10P073Z

Placement—Section 2

The Placement section follows the same conventions established in the Medical and Surgical section, with all seven characters retaining the same meaning, as in the example of cast change on the right forearm below.

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Region	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Placement	Anatomical Regions	Change	Lower Arm, Right	External	Cast	No Qualifier
2	W	0	C	X	2	Z

Root operations

The root operations in the Placement section include only those procedures performed without making an incision or a puncture.

- 0 – Change: Taking out or off a device from a body region and putting back an identical or similar device in or on the same body region without cutting or puncturing the skin or a mucous membrane
- 1 – Compression: Putting pressure on a body region
- 2 – Dressing: Putting material on a body region for protection
- 3 – Immobilization: Limiting or preventing motion of a body region
- 4 – Packing: Putting material in a body region
- 5 – Removal: Taking out or off a device from a body region
- 6 – Traction: Exerting a pulling force on a body region in a distal direction

Example: Change of vaginal packing

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Region	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Placement	Anatomical Orifices	Change	Female Genital Tract	External	Packing Material	No Qualifier
2	Y	0	4	X	5	Z

Example: Placement of pressure dressing on abdominal wall

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Region	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Placement	Anatomical Regions	Compression	Abdominal Wall	External	Pressure Dressing	No Qualifier
2	W	1	3	X	6	Z

Example: Application of sterile dressing to head wound

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Region	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Placement	Anatomical Regions	Dressing	Head	External	Bandage	No Qualifier
2	W	2	0	X	4	Z

Coding note: Immobilization

The procedures to fit a device, such as splints and braces, as described in F0DZ6EZ and F0DZ7EZ, apply only to the rehabilitation setting. Splints and braces placed in other inpatient settings are coded to Immobilization, table 2W3 in the Placement section.

Example: Placement of splint on left finger

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Region	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Placement	Anatomical Regions	Immobilization	Finger, Left	External	Splint	No Qualifier
2	W	3	K	X	1	Z

Example: Placement of nasal packing

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Region	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Placement	Anatomical Orifices	Packing	Nasal	External	Packing Material	No Qualifier
2	Y	4	1	X	5	Z

Example: Removal of cast from right lower leg

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Region	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Placement	Anatomical Regions	Removal	Lower Leg, Right	External	Cast	No Qualifier
2	W	5	Q	X	2	Z

Coding note: Traction

Traction in this section includes only the task performed using a mechanical traction apparatus. Manual traction performed by a physical therapist is coded to Manual Therapy Techniques in section F, Physical Rehabilitation and Diagnostic Audiology (page 107).

Example: Lumbar traction using motorized split-traction table

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Region	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Placement	Anatomical Regions	Traction	Back	External	Traction Apparatus	No Qualifier
2	W	6	5	X	0	Z

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Placement of packing material, right ear: 2Y42X5Z
2. Mechanical traction of entire left leg: 2W6MX0Z
3. Removal of splint, right shoulder: 2W5AX1Z
4. Placement of neck brace: 2W32X3Z
5. Change of vaginal packing: 2Y04X5Z
6. Packing of wound, chest wall: 2W44X5Z
7. Sterile dressing placement to left groin region: 2W27X4Z
8. Removal of packing material from pharynx: 2Y50X5Z
9. Placement of intermittent pneumatic compression device, covering entire right arm: 2W18X7Z
10. Exchange of pressure dressing to left thigh: 2W0PX6Z

Administration—Section 3

The Administration section includes infusions, injections, and transfusions, as well as other related procedures, such as irrigation and tattooing. All codes in this section define procedures where a diagnostic or therapeutic substance is given to the patient, as in the platelet transfusion example below.

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body System	Character 5 Approach	Character 6 Substance	Character 7 Qualifier
Administration	Circulatory	Transfusion	Central Vein	Percutaneous	Platelets	Nonautologous
3	0	2	4	3	R	1

Root operations

Root operations in this section are classified according to the broad category of substance administered. If the substance given is a blood product or a cleansing substance, then the procedure is coded to Transfusion and Irrigation respectively. All the other substances administered, such as anti-neoplastic substances, are coded to the root operation Introduction.

- 0 – Introduction: Putting in or on a therapeutic, diagnostic, nutritional, physiological, or prophylactic substance except blood or blood products
- 1 – Irrigation: Putting in or on a cleansing substance
- 2 – Transfusion: Putting in blood or blood products

Example: Nerve block injection to median nerve

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body System	Character 5 Approach	Character 6 Substance	Character 7 Qualifier
Administration	Phys. Sys. & Anat. Regions	Introduction	Peripheral Nerves	Percutaneous	Regional Anesthetic	No Qualifier
3	E	0	T	3	C	Z

Example: Flushing of eye

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body System	Character 5 Approach	Character 6 Substance	Character 7 Qualifier
Administration	Phys. Sys. & Anat. Regions	Irrigation	Eye	External	Irrigating Substance	No Qualifier
3	E	1	C	X	8	Z

Example: Transfusion of cell saver red cells into central venous line

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body System	Character 5 Approach	Character 6 Substance	Character 7 Qualifier
Administration	Circulatory	Transfusion	Central Vein	Percutaneous	Red Blood Cells	Autologous
3	0	2	4	3	N	0

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Peritoneal dialysis via indwelling catheter: 3E1M39Z
2. Transvaginal artificial insemination: 3E0P7LZ
3. Infusion of total parenteral nutrition via central venous catheter: 3E0436Z
4. Esophagogastroscopy with botox injection into esophageal sphincter: 3E0G8GC (Botulinum toxin is a paralyzing agent with temporary effects; it does not sclerose or destroy the nerve.)
5. Percutaneous irrigation of knee joint: 3E1U38Z
6. Systemic infusion of recombinant tissue plasminogen activator (r-tPA) via peripheral venous catheter: 3E03317
7. Transfusion of antihemophilic factor, (nonautologous) via arterial central line: 30263V1
8. Transabdominal in-vitro fertilization, implantation of donor ovum: 3E0P3Q1
9. Autologous bone marrow transplant via central venous line: 30243G0
10. Implantation of anti-microbial envelope with cardiac defibrillator placement, open: 3E0102A

Measurement and Monitoring—Section 4

There are two root operations in this section, and they differ in only one respect: Measurement defines one procedure and Monitoring defines a series of procedures.

Root operations

Measurement describes a single level taken, while Monitoring describes a series of levels obtained at intervals. For example,

- A single temperature reading is considered Measurement.
- Temperature taken every half hour for 8 hours is considered Monitoring.

Instead of defining a device, the sixth character defines the physiological or physical function being tested.

- 0 – Measurement: Determining the level of a physiological or physical function at a point in time
- 1 – Monitoring: Determining the level of a physiological or physical function repetitively over a period of time

Example: External electrocardiogram (EKG), single reading

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body System	Character 5 Approach	Character 6 Function	Character 7 Qualifier
Measurement & Monitoring	Physiological Systems	Measurement	Cardiac	External	Electrical Activity	No Qualifier
4	A	0	2	X	4	Z

Example: Urinary pressure monitoring

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body System	Character 5 Approach	Character 6 Device	Character 7 Qualifier
Measurement & Monitoring	Physiological Systems	Monitoring	Urinary	Via Nat./Artif. Opening	Pressure	No Qualifier
4	A	1	D	7	B	Z

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Cardiac stress test, single measurement: 4A02XM4
2. EGD with biliary flow measurement: 4A0C85Z
3. Right and left heart cardiac catheterization with bilateral sampling and pressure measurements: 4A023N8
4. Peripheral venous pulse, external, single measurement: 4A04XJ1
5. Holter monitoring: 4A12X45
6. Respiratory rate, external, single measurement: 4A09XCZ
7. Fetal heart rate monitoring, transvaginal: 4A1H7CZ
8. Visual mobility test, single measurement: 4A07X7Z
9. Left ventricular cardiac output monitoring from pulmonary artery wedge (Swan-Ganz) catheter: 4A1239Z
10. Olfactory acuity test, single measurement: 4A08X0Z

Extracorporeal Assistance and Performance—Section 5

This section includes procedures performed in a critical care setting, such as mechanical ventilation and cardioversion. It also includes other procedures, such as hemodialysis and hyperbaric oxygen treatment. These procedures all use equipment to support a physiological function in some way, whether it is breathing, circulating the blood, or restoring the natural rhythm of the heart.

The fifth and sixth characters in this section define duration and function respectively. These characters describe the duration of the procedure and the body function being acted upon, rather than the approach and device used.

Root operations

Assistance and Performance are two variations of the same kinds of procedures, varying only in the degree of control exercised over the physiological function.

- 0 – Assistance: Taking over a portion of a physiological function by extracorporeal means
- 1 – Performance: Completely taking over a physiological function by extracorporeal means
- 2 – Restoration: Returning, or attempting to return, a physiological function to its original state by extracorporeal means

Coding note: Assistance

Assistance defines procedures that support a physiological function but do not take complete control of it, such as intra-aortic balloon pump to support cardiac output and hyperbaric oxygen treatment.

Example: Hyperbaric oxygenation of wound

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body System	Character 5 Duration	Character 6 Function	Character 7 Qualifier
Extracorp. Assistance & Performance	Physiological Systems	Assistance	Circulatory	Intermittent	Oxygenation	Hyperbaric
5	A	0	5	1	2	1

Coding note: Performance

Performance defines procedures where complete control is exercised over a physiological function, such as total mechanical ventilation, cardiac pacing, and cardiopulmonary bypass.

Example: Cardiopulmonary bypass in conjunction with CABG

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body System	Character 5 Duration	Character 6 Function	Character 7 Qualifier
Extracorp. Assistance & Performance	Physiological Systems	Performance	Cardiac	Continuous	Output	No Qualifier
5	A	1	2	2	1	Z

Coding note: Restoration

Restoration defines only external cardioversion and defibrillation procedures. Failed cardioversion procedures are also included in the definition of Restoration, and are coded the same as successful procedures.

Example: Attempted cardiac defibrillation, unsuccessful

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body System	Character 5 Duration	Character 6 Function	Character 7 Qualifier
Extracorp. Assist. and Performance	Physiological Systems	Restoration	Cardiac	Single	Rhythm	No Qualifier
5	A	2	2	0	4	Z

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Intermittent mechanical ventilation, 16 hours: 5A1935Z
2. Liver dialysis, single encounter: 5A1C00Z
3. Cardiac countershock with successful conversion to sinus rhythm: 5A2204Z
4. IPPB (intermittent positive pressure breathing) for mobilization of secretions, 22 hours: 5A09358
5. Renal dialysis, series of encounters: 5A1D60Z
6. IABP (intra-aortic balloon pump) continuous: 5A02210
7. Intra-operative cardiac pacing, continuous: 5A1223Z
8. ECMO (extracorporeal membrane oxygenation), continuous: 5A15223
9. Controlled mechanical ventilation (CMV), 45 hours: 5A1945Z
10. Pulsatile compression boot with intermittent inflation: 5A02115 (This is coded to the function value Cardiac Output, because the purpose of such compression devices is to return blood to the heart faster.)

Extracorporeal Therapies—Section 6

Section 6, Extracorporeal Therapies, describes other extracorporeal procedures that are not defined by Assistance and Performance in section 5 (page 92). Examples are bili-lite phototherapy, apheresis, and whole body hypothermia.

The second character contains a single general body system choice, Physiological Systems, as in the phototherapy example below. The sixth character is defined as a qualifier, but contains no specific qualifier values. The seventh-character qualifier identifies various blood components separated out in pheresis procedures.

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body System	Character 5 Duration	Character 6 Qualifier	Character 7 Qualifier
Extracorp. Therapies	Physiological Systems	Phototherapy	Skin	Single	No Qualifier	No Qualifier
6	A	6	0	0	Z	Z

Root operations

The meaning of each root operation is consistent with the term as used in the medical community. Decompression and Hyperthermia have a more specialized meaning. All are defined in the table below.

- 0 – Atmospheric Control: Extracorporeal control of atmospheric pressure and composition
- 1 – Decompression: Extracorporeal elimination of undissolved gas from body fluids
- 2 – Electromagnetic Therapy: Extracorporeal treatment by electromagnetic rays
- 3 – Hyperthermia: Extracorporeal raising of body temperature
- 4 – Hypothermia: Extracorporeal lowering of body temperature
- 5 – Pheresis: Extracorporeal separation of blood products
- 6 – Phototherapy: Extracorporeal treatment by light rays
- 7 – Ultrasound Therapy: Extracorporeal treatment by ultrasound
- 8 – Ultraviolet Light Therapy: Extracorporeal treatment by ultraviolet light
- 9 – Shock Wave Therapy: Extracorporeal treatment by shock waves

Coding note: Decompression

Decompression describes a single type of procedure—treatment for decompression sickness (the bends) in a hyperbaric chamber.

Example: Hyperbaric decompression treatment, single

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body System	Character 5 Duration	Character 6 Qualifier	Character 7 Qualifier
Extracorp. Therapies	Physiological Systems	Decompression	Circulatory	Single	No Qualifier	No Qualifier
6	A	1	5	0	Z	Z

Coding note: Hyperthermia

Hyperthermia is used both to treat temperature imbalance, and as an adjunct radiation treatment for cancer. When performed to treat temperature imbalance, the procedure is coded to this section.

When performed for cancer treatment, whole-body hyperthermia is classified as a modality qualifier in section D, Radiation Therapy (page 106).

Example: Whole body hypothermia treatment for temperature imbalance, series

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body System	Character 5 Duration	Character 6 Qualifier	Character 7 Qualifier
Extracorp. Therapies	Physiological Systems	Hypothermia	None	Multiple	No Qualifier	No Qualifier
6	A	4	Z	1	Z	Z

Coding note: Pheresis

Pheresis is used in medical practice for two main purposes: to treat diseases where too much of a blood component is produced, such as leukemia, or to remove a blood product such as platelets from a donor, for transfusion into a patient who needs them.

Example: Therapeutic leukapheresis, single treatment

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body System	Character 5 Duration	Character 6 Qualifier	Character 7 Qualifier
Extracorp. Therapies	Physiological Systems	Pheresis	Circulatory	Single	No Qualifier	Leukocytes
6	A	5	5	0	Z	1

Coding note: Phototherapy

Phototherapy to the circulatory system means exposing the blood to light rays outside the body, using a machine that recirculates the blood and returns it to the body after phototherapy.

Example: Phototherapy of circulatory system, series treatment

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body System	Character 5 Duration	Character 6 Qualifier	Character 7 Qualifier
Extracorp. Therapies	Physiological Systems	Phototherapy	Circulatory	Multiple	No Qualifier	No Qualifier
6	A	6	5	1	Z	Z

Example: Ultraviolet light phototherapy, series treatment

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body System	Character 5 Duration	Character 6 Qualifier	Character 7 Qualifier
Extracorp. Therapies	Physiological Systems	UV Light Phototherapy	Skin	Multiple	No Qualifier	No Qualifier
6	A	8	0	1	Z	Z

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Donor thrombocyte apheresis, single encounter: 6A550Z2
2. Bili-lite phototherapy, series treatment: 6A651ZZ
3. Whole body hypothermia, single treatment: 6A4Z0ZZ
4. Circulatory phototherapy, single encounter: 6A650ZZ
5. Shock wave therapy of plantar fascia, single treatment: 6A930ZZ
6. Antigen-free air conditioning, series treatment: 6A0Z1ZZ
7. TMS (transcranial magnetic stimulation), series treatment: 6A221ZZ
8. Therapeutic ultrasound of peripheral vessels, single treatment: 6A750ZZ
9. Plasmapheresis, series treatment: 6A551Z3
10. Extracorporeal electromagnetic stimulation (EMS) for urinary incontinence, single treatment: 6A210ZZ

Osteopathic—Section 7

Section 7, Osteopathic, is one of the smallest sections in ICD-10-PCS. There is a single body system, Anatomical Regions, and a single root operation, Treatment.

The sixth-character methods such as Lymphatic Pump and Fascial Release are not explicitly defined in ICD-10-PCS, and rely on the standard definitions as used in this specialty.

- 0 – Treatment: Manual treatment to eliminate or alleviate somatic dysfunction and related disorders

Example: Fascial release of abdomen, osteopathic treatment

Character 1 Section	Character 2 Body System	Character 3 Operation	Character 4 Body Region	Character 5 Approach	Character 6 Method	Character 7 Qualifier
Osteopathic	Anatomical Regions	Treatment	Abdomen	External	Fascial Release	No Qualifier
7	W	0	9	X	1	Z

Example: General osteopathic mobilization of legs

Character 1 Section	Character 2 Body System	Character 3 Operation	Character 4 Body Region	Character 5 Approach	Character 6 Method	Character 7 Qualifier
Osteopathic	Anatomical Regions	Treatment	Lower Extremities	External	General Mobilization	No Qualifier
7	W	0	6	X	2	Z

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Isotonic muscle energy treatment of right leg: 7W06X8Z
2. Low velocity-high amplitude osteopathic treatment of head: 7W00X5Z
3. Lymphatic pump osteopathic treatment of left axilla: 7W07X6Z
4. Indirect osteopathic treatment of sacrum: 7W04X4Z
5. Articulatory osteopathic treatment of cervical region: 7W01X0Z

Other Procedures—Section 8

The Other Procedures section contains codes for procedures not included in the other medical and surgical-related sections. A single root operation, Other Procedures, is defined below.

- 0 – Other Procedures: Methodologies which attempt to remediate or cure a disorder or disease

There are relatively few procedure codes in this section, for nontraditional, whole body therapies including acupuncture and meditation. There is also a code for the fertilization portion of an in-vitro fertilization procedure.

Example: Acupuncture

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Region	Character 5 Approach	Character 6 Method	Character 7 Qualifier
Other Procedures	Phys. Sys. & Anat. Regions	Other Procedures	Integ. Sys. & Breast	Percutaneous	Acupuncture	No Qualifier
8	E	0	H	3	0	Z

Example: Yoga therapy

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Region	Character 5 Approach	Character 6 Method	Character 7 Qualifier
Other Procedures	Phys. Sys. & Anat. Regions	Other Procedures	None	External	Other Method	Yoga Therapy
8	E	0	Z	X	Y	4

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Near infrared spectroscopy of leg vessels: 8E023DZ
2. CT computer assisted sinus surgery: 8E09XBG (The primary procedure is coded separately.)
3. Suture removal, abdominal wall: 8E0WXY8
4. Isolation after infectious disease exposure: 8E0ZXY6
5. Robotic assisted open prostatectomy: 8E0W0CZ (The primary procedure is coded separately.)

Chiropractic—Section 9

The Chiropractic section consists of a single body system, Anatomical Regions, and a single root operation, Manipulation, defined below.

- B – Manipulation: Manual procedure that involves a directed thrust to move a joint past the physiological range of motion, without exceeding the anatomical limit

Example: Chiropractic treatment of cervical spine, short lever specific contact

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Region	Character 5 Approach	Character 6 Method	Character 7 Qualifier
Chiropractic	Anatomical Regions	Manipulation	Cervical	External	Short Lever Sp. Contact	No Qualifier
9	W	B	1	X	H	Z

Example: Non-manual chiropractic manipulation of pelvis

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Region	Character 5 Approach	Character 6 Method	Character 7 Qualifier
Chiropractic	Anatomical Regions	Manipulation	Pelvis	External	Non-Manual	No Qualifier
9	W	B	5	X	B	Z

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Chiropractic treatment of lumbar region using long lever specific contact: 9WB3XGZ
2. Chiropractic manipulation of abdominal region, indirect visceral: 9WB9XCZ
3. Chiropractic extra-articular treatment of hip region: 9WB6XDZ
4. Chiropractic treatment of sacrum using long and short lever specific contact: 9WB4XJZ
5. Mechanically-assisted chiropractic manipulation of head: 9WB0XKZ

Chapter 4: Procedures in the ancillary sections

This chapter provides reference material for procedure codes in the six ancillary sections of ICD-10-PCS (B through D, F through H). Codes in these sections contain characters not previously defined, such as contrast, modality qualifier and equipment.

First is a list of the sections in order. Next, reference material is provided for each section, and includes

- General description of the section
- A table listing each root type in the section, with its corresponding definition (sections B, C and F only)
- Coding notes as needed
- Representative examples of procedures coded in that section, in table excerpt format, with explanatory notes as needed
- Coding exercises that provide example procedures and their corresponding ICD-10-PCS codes, with explanatory notes as needed

List of ancillary sections in ICD-10-PCS

The six ancillary sections of ICD-10-PCS include procedures such as imaging, radiation therapy, and rehabilitation.

- Section B: Imaging
- Section C: Nuclear Medicine
- Section D: Radiation Therapy
- Section F: Physical Rehabilitation and Diagnostic Audiology
- Section G: Mental Health
- Section H: Substance Abuse Treatment

Imaging—Section B

Imaging follows the same conventions established in the Medical and Surgical section (page 35), for the section, body system, and body part characters. However, the third and fourth characters introduce definitions not used in previous sections.

- Third character defines procedure by root type, instead of root operation.
- Fifth character defines contrast if used.

- Sixth character is a qualifier that specifies an image taken without contrast followed by one with contrast.
- Seventh character is a qualifier that is not specified in this section.

Root types

The Imaging root types are defined below:

- 0 – Plain Radiography: Planar display of an image developed from the capture of external ionizing radiation on photographic or photoconductive plate
- 1 – Fluoroscopy: Single plane or bi-plane real time display of an image developed from the capture of external ionizing radiation on a fluorescent screen. The image may also be stored by either digital or analog means
- 2 – Computerized Tomography (CT scan): Computer reformatted digital display of multiplanar images developed from the capture of multiple exposures of external ionizing radiation
- 3 – Magnetic Resonance Imaging (MRI): Computer reformatted digital display of multiplanar images developed from the capture of radio-frequency signals emitted by nuclei in a body site excited within a magnetic field
- 4 – Ultrasonography: Real time display of images of anatomy or flow information developed from the capture of reflected and attenuated high frequency sound waves

Example: X-ray of right clavicle, limited study

Character 1 Section	Character 2 Body System	Character 3 Root Type	Character 4 Body Part	Character 5 Contrast	Character 6 Qualifier	Character 7 Qualifier
Imaging	Non-axial Upper Bones	Plain Radiography	Clavicle, Right	None	None	None
B	P	0	4	Z	Z	Z

Example: Fluoroscopy of renal dialysis shunt using CO2 contrast

Character 1 Section	Character 2 Body System	Character 3 Root Type	Character 4 Body Part	Character 5 Contrast	Character 6 Qualifier	Character 7 Qualifier
Imaging	Veins	Fluoroscopy	Dialysis Shunt/Fistula	Other Contrast	None	None
B	5	1	W	Y	Z	Z

Example: CT of brain without contrast followed by high osmolar contrast

Character 1 Section	Character 2 Body System	Character 3 Root Type	Character 4 Body Part	Character 5 Contrast	Character 6 Qualifier	Character 7 Qualifier
Imaging	Central Nervous	Computerized Tomography	Brain	High Osmolar	Unenhanced and Enhanced	None
B	0	2	0	0	0	Z

Example: MRI of liver using Gadoteridol

Character 1 Section	Character 2 Body System	Character 3 Root Type	Character 4 Body Part	Character 5 Contrast	Character 6 Qualifier	Character 7 Qualifier
Imaging	Hepatobiliary & Pancreas	Magnetic Resonance Imaging	Liver	Other Contrast	None	None
B	F	3	5	Y	Z	Z

Example: Ultrasound of prostate gland

Character 1 Section	Character 2 Body System	Character 3 Root Type	Character 4 Body Part	Character 5 Contrast	Character 6 Qualifier	Character 7 Qualifier
Imaging	Male Reproductive	Ultrasonography	Prostate and Seminal Vesicles	None	None	None
B	V	4	9	Z	Z	Z

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Non-contrast CT of abdomen and pelvis: BW21ZZZ
2. Intravascular ultrasound, left subclavian artery: B342ZZ3
3. Fluoroscopic guidance for insertion of central venous catheter in SVC, low osmolar contrast: B5181ZA
4. Endoluminal ultrasound of gallbladder and bile ducts: BF43ZZZ
5. Left ventriculography using low osmolar contrast: B2151ZZ
6. Esophageal videofluoroscopy study with oral barium contrast: BD11YZZ
7. Portable X-ray study of right radius/ulna shaft, standard series: BP0JZZZ

8. Routine fetal ultrasound, second trimester twin gestation: BY4DZZZ
9. CT scan of bilateral lungs, high osmolar contrast with densitometry: BB240ZZ
10. Fluoroscopic guidance for percutaneous transluminal angioplasty (PTA) of left common femoral artery, low osmolar contrast: B41G1ZZ

Nuclear Medicine—Section C

Nuclear Medicine is organized like the Imaging section (page 101). The only significant difference is that the fifth character defines the radionuclide instead of the contrast material used in the procedure, as described below.

- The fifth character specifies the radionuclide, the radiation source used in the procedure. Choices are applicable for the root procedure type.
- The sixth and seventh characters are qualifiers, and are not specified in this section.

Root types

The third character classifies the procedure by root type instead of by root operation.

- 1 – Planar Nuclear Medicine Imaging: Introduction of radioactive materials into the body for single plane display of images developed from the capture of radioactive emissions
- 2 – Tomographic (Tomo) Nuclear Medicine Imaging: Introduction of radioactive materials into the body for three-dimensional display of images developed from the capture of radioactive emissions
- 3 – Positron Emission Tomography (PET): Introduction of radioactive materials into the body for three-dimensional display of images developed from the simultaneous capture, 180 degrees apart, of radioactive emissions
- 4 – Nonimaging Nuclear Medicine Uptake: Introduction of radioactive materials into the body for measurements of organ function, from the detection of radioactive emissions
- 5 – Nonimaging Nuclear Medicine Probe: Introduction of radioactive materials into the body for the study of distribution and fate of certain substances by the detection of radioactive emissions from an external source
- 6 – Nonimaging Nuclear medicine Assay: Introduction of radioactive materials into the body for the study of body fluids and blood elements, by the detection of radioactive emissions
- 7 – Systemic Nuclear Medicine Therapy: Introduction of unsealed radioactive materials into the body for treatment

Example: Adenosine sestamibi (technetium) planar scan of heart muscle at rest

Character 1 Section	Character 2 Body System	Character 3 Root Type	Character 4 Body Part	Character 5 Radionuclide	Character 6 Qualifier.	Character 7 Qualifier
Nuclear Medicine	Heart	Planar Nuclear Imaging	Myocardium	Technetium 99m	None	None
C	2	1	G	1	Z	Z

Example: Technetium tomo scan of liver

Character 1 Section	Character 2 Body System	Character 3 Root Type	Character 4 Body Part	Character 5 Radionuclide	Character 6 Qualifier.	Character 7 Qualifier
Nuclear Medicine	Hepatobiliary and Pancreas	Tomo Nuclear Imaging	Liver	Technetium 99m	None	None
C	F	2	5	1	Z	Z

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Tomo scan of right and left heart, unspecified radiopharmaceutical, qualitative gated rest: C226YZZ
2. Technetium pentetate assay of kidneys, ureters, and bladder: CT631ZZ
3. Uniplanar scan of spine using technetium oxidronate, with first pass study: CP151ZZ
4. Thallous chloride tomographic scan of bilateral breasts: CH22SZZ
5. PET scan of myocardium using rubidium: C23GQZZ
6. Gallium citrate scan of head and neck, single plane imaging: CW1BLZZ
7. Xenon gas nonimaging probe of brain: C050VZZ
8. Upper GI scan, radiopharmaceutical unspecified, for gastric emptying: CD15YZZ
9. Carbon 11 PET scan of brain with quantification: C030BZZ
10. Iodinated albumin nuclear medicine assay, blood plasma volume study: C763HZZ

Radiation Therapy—Section D

Radiation Therapy contains the radiation procedures performed for cancer treatment. Character meanings are described below.

- Third character defines root type, which is the basic modality.
- Fifth character further specifies treatment modality.
- Sixth character defines the radioactive isotope used, if applicable.
- Seventh character is a qualifier, and is not specified in this section.

Root type

The third character defines the treatment modality as root type. Examples are Brachytherapy and Stereotactic Radiosurgery. Four different root types are used in this section, as listed below.

- 0: Beam Radiation
- 1: Brachytherapy
- 2: Stereotactic Radiosurgery
- Y: Other Radiation

Example: LDR Brachytherapy of cervix using Iridium 192

Character 1 Section	Character 2 Body System	Character 3 Root Type	Character 4 Body Part	Character 5 Modal. Qualifier	Character 6 Isotope	Character 7 Qualifier
Radiation Therapy	Female Reproductive	Brachy-therapy	Cervix	LDR Brachytherapy	Iridium 192	None
D	U	1	1	B	8	Z

Example: Intraoperative radiation therapy (IORT) of bladder

Character 1 Section	Character 2 Body Sys	Character 3 Root Type	Character 4 Body Part	Character 5 Modal. Qualifier	Character 6 Isotope	Character 7 Qualifier
Radiation Therapy	Urinary System	Other Radiation	Bladder	IORT	None	None
D	T	Y	2	C	Z	Z

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Plaque radiation of left eye, single port: D8Y0FZZ
2. 8 MeV photon beam radiation to brain: D0011ZZ
3. IORT of colon, 3 ports: DDY5CZZ
4. HDR Brachytherapy of prostate using Palladium 103: DV109BZ
5. Electron radiation treatment of right breast, custom device: DM013ZZ
6. Hyperthermia oncology treatment of pelvic region: DWY68ZZ
7. Contact radiation of tongue: D9Y57ZZ
8. Heavy particle radiation treatment of pancreas, four risk sites: DF034ZZ
9. LDR brachytherapy to spinal cord using iodine: D016B9Z
10. Whole body Phosphorus 32 administration with risk to hematopoetic system: DWY5GFZ

Physical Rehabilitation and Diagnostic Audiology—Section F

Physical Rehabilitation and Diagnostic Audiology contains character definitions unlike the other sections in ICD-10-PCS. They are described below.

- Second character is a section qualifier that specifies whether the procedure is a rehabilitation or diagnostic audiology procedure.
- Third character defines the general procedure root type.
- Fourth character defines the body system and body region combined, where applicable.
- Fifth character further specifies the procedure type.
- Sixth character specifies the equipment used, if any.

Root types

This section uses the third character to classify procedures into 14 root types. They are defined in the table below.

- 0 – Speech Assessment: Measurement of speech and related functions
- 1 – Motor and/or Nerve Function Assessment: Measurement of motor, nerve, and related functions
- 2 – Activities of Daily Living Assessment: Measurement of functional level for activities of daily living

- 3 – Hearing Assessment: Measurement of hearing and related functions
- 4 – Hearing Aid Assessment: Measurement of the appropriateness and/or effectiveness of a hearing device
- 5 – Vestibular Assessment: Measurement of the vestibular system and related functions
- 6 – Speech Treatment: Application of techniques to improve, augment, or compensate for speech and related functional impairment
- 7 – Motor Treatment: Exercise or activities to increase or facilitate motor function
- 8 – Activities of Daily Living Treatment: Exercise or activities to facilitate functional competence for activities of daily living
- 9 – Hearing Treatment: Application of techniques to improve, augment, or compensate for hearing and related functional impairment
- B – Cochlear Implant Treatment: Application of techniques to improve the communication abilities of individuals with cochlear implant
- C – Vestibular Treatment: Application of techniques to improve, augment, or compensate for vestibular and related functional impairment
- D – Device Fitting: Fitting of a device designed to facilitate or support achievement of a higher level of function
- F – Caregiver Training: Training in activities to support patient's optimal level of function

Coding note: Treatment

Treatment procedures include swallowing dysfunction exercises, bathing and showering techniques, wound management, gait training, and a host of activities typically associated with rehabilitation.

Example: Wound care treatment of left calf ulcer using pulsatile lavage

Character 1 Section	**Character 2 Section Qualifier**	**Character 3 Root Type**	**Character 4 Body System & Region**	**Character 5 Type Qualifier**	**Character 6 Equipment**	**Character 7 Qualifier**
Rehabilitation & Diagnostic Audiology	Rehabilitation	Activities of Daily Living Treatment	Musculoskel. Lower Extremity	Wound Management	Physical Agents	None
F	0	8	L	5	B	Z

Coding note: Assessment

Assessments are further classified into more than 100 different tests or methods. The majority of these focus on the faculties of hearing and speech, but others focus on various aspects of body function, and on the patient's quality of life, such as muscle performance, neuromotor development, and reintegration skills.

Example: Articulation and phonology assessment using spectrograph

Character 1 Section	Character 2 Section Qualifier	Character 3 Root Type	Character 4 Body System & Region	Character 5 Type Qualifier	Character 6 Equipment	Character 7 Qualifier
Rehabilitation & Diagnostic Audiology	Rehabilitation	Speech Assessment	None	Articulation/Phonology	Speech Analysis	None
F	0	0	Z	9	Q	Z

Coding note: Device Fitting

The fifth character used in Device Fitting procedures describes the device being fitted rather than the method used to fit the device. Where definitions of devices are provided, they are located in the definitions portion of the ICD-10-PCS Tables and Index, under section F, character 5.

Example: Individual fitting of moveable brace, right knee

Character 1 Section	Character 2 Section Qualifier	Character 3 Root Type	Character 4 Body System & Region	Character 5 Type Qualifier	Character 6 Equipment	Character 7 Qualifier
Rehabilitation & Diagnostic Audiology	Rehabilitation	Device Fitting	None	Dynamic Orthosis	Orthosis	None
F	0	D	Z	6	E	Z

Coding note: Caregiver Training

Caregiver Training is divided into eighteen different broad subjects taught to help a caregiver provide proper patient care.

Example: Caregiver training in feeding, no special equipment used

Character 1 Section	Character 2 Section Qualifier	Character 3 Root Type	Character 4 Body System & Region	Character 5 Type Qualifier	Character 6 Equipment	Character 7 Qualifier
Rehabilitation & Diagnostic Audiology	Rehabilitation	Caregiver Training	None	Feeding and Eating	None	None
F	0	F	Z	2	Z	Z

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Bekesy assessment using audiometer: F13Z31Z
2. Individual fitting of left eye prosthesis: F0DZ8UZ
3. Physical therapy for range of motion and mobility, patient right hip, no special equipment: F07L0ZZ
4. Bedside swallow assessment using assessment kit: F00ZHYZ
5. Caregiver training in airway clearance techniques: F0FZ8ZZ
6. Application of short arm cast in rehabilitation setting: F0DZ7EZ (Inhibitory cast is listed in the equipment reference table under E, Orthosis.)
7. Verbal assessment of patient's pain level: F02ZFZZ
8. Caregiver training in communication skills using manual communication board: F0FZJMZ (Manual communication board is listed in the equipment reference table under M, Augmentative/Alternative Communication.)
9. Group musculoskeletal balance training exercises, whole body, no special equipment : F07M6ZZ (Balance training is included in the Motor Treatment reference table under Therapeutic Exercise.)
10. Individual therapy for auditory processing using tape recorder: F09Z2KZ (Tape recorder is listed in the equipment reference table under Audiovisual Equipment.)

Mental Health—Section G

Mental Health contains specific values in the third and fourth characters to describe mental health procedures. The remaining characters function as placeholders only. Character meanings are described below.

- Third character describes the mental health procedure root type.
- Fourth character further specifies the procedure type as needed.
- Second, fifth, sixth, and seventh characters do not convey specific information about the procedure. The value Z functions as a placeholder in these characters.

Root Type

The third character describes the mental health root type. There are 11 root type values in this section, as listed in the table below.

- 1: Psychological Tests
- 2: Crisis Intervention
- 5: Individual Psychotherapy
- 6: Counseling
- 7: Family Psychotherapy
- B: Electroconvulsive Therapy
- C: Biofeedback
- F: Hypnosis
- G: Narcosynthesis
- H: Group Therapy
- J: Light Therapy

Example: Galvanic skin response (GSR) biofeedback

Character 1 Section	Character 2 Body System	Character 3 Root Type	Character 4 Type Qualifier	Character 5 Qualifier	Character 6 Qualifier	Character 7 Qualifier
Mental Health	None	Biofeedback	Other Biofeedback	None	None	None
G	Z	C	9	Z	Z	Z

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Cognitive-behavioral psychotherapy, individual: GZ58ZZZ
2. Narcosynthesis: GZGZZZZ
3. Light therapy: GZJZZZZ
4. ECT (Electroconvulsive therapy), unilateral, multiple seizure: GZB1ZZZ
5. Crisis intervention: GZ2ZZZZ
6. Neuropsychological testing: GZ13ZZZ
7. Hypnosis: GZFZZZZ
8. Developmental testing: GZ10ZZZ

9. Vocational counseling: GZ61ZZZ
10. Family psychotherapy: GZ72ZZZ

Substance Abuse Treatment—Section H

Substance Abuse Treatment is structured like a smaller version of the Mental Health section. (page 110) Character meanings are described below.

- Third character describes the root type.
- Fourth character is a qualifier that further classifies the root type.
- Second, fifth, sixth, and seventh characters do not convey specific information about the procedure. The value Z functions as a placeholder in these characters.

There are seven different root type values classified in this section, as listed in the following table.

- 2: Detoxification Services
- 3: Individual Counseling
- 4: Group Counseling
- 5: Individual Psychotherapy
- 6: Family Counseling
- 8: Medication Management
- 9: Pharmacotherapy

Example: Pharmacotherapy treatment with Antabuse for alcohol addiction

Character 1 Section	Character 2 Body System	Character 3 Root Type	Character 4 Type Qualifier	Character 5 Qualifier	Character 6 Qualifier	Character 7 Qualifier
Substance Abuse Trmnt.	None	Pharmacotherapy	Antabuse	None	None	None
H	Z	9	3	Z	Z	Z

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Naltrexone treatment for drug dependency: HZ94ZZZ
2. Substance abuse treatment family counseling: HZ63ZZZ
3. Medication monitoring of patient on methadone maintenance: HZ81ZZZ
4. Individual interpersonal psychotherapy for drug abuse: HZ54ZZZ

5. Patient in for alcohol detoxification treatment: HZ2ZZZZ
6. Group motivational counseling: HZ47ZZZ
7. Individual 12-step psychotherapy for substance abuse: HZ53ZZZ
8. Post-test infectious disease counseling for IV drug abuser: HZ3CZZZ
9. Psychodynamic psychotherapy for drug dependent patient: HZ5CZZZ
10. Group cognitive-behavioral counseling for substance abuse: HZ42ZZZ

New Technology–Section X

Section X New Technology is the section in ICD-10-PCS for codes that uniquely identify procedures requested via the New Technology Application Process, and for codes that capture new technologies not currently classified in ICD-10-PCS.

This section may include codes for medical and surgical procedures, medical and surgical-related procedures, or ancillary procedures designated as new technology.

In section X, the seven characters are defined as follows:

- First character: section (X)
- Second character: body system
- Third character: operation
- Fourth character: body part
- Fifth character: approach
- Sixth character: device/substance/technology
- Seventh character: new technology group

The New Technology section includes infusions of new technology drugs, and can potentially include a wide range of other new technology medical, surgical and ancillary procedures. The example below is for infusion of a new technology drug.

Example: New Technology

Character 1 Section	Character 2 Body System	Character 3 Root Operation	Character 4 Body Part	Character 5 Approach	Character 6 Device/ Substance/ Technology	Character 7 Qualifier
New Technology	Anatomical Regions	Introduction	Central Vein	Percutaneous	Ceftazidime-Avibactam Anti-infective	New Technology Group 1
X	W	0	4	3	2	1

Coding note: Seventh Character New Technology Group

In ICD-10-PCS, the type of information specified in the seventh character is called the qualifier, and the information specified depends on the section. In this section, the seventh character is used exclusively to indicate the new technology group.

The New Technology Group is a number or letter that changes each year that new technology codes are added to the system. For example, Section X codes added for the first year have the seventh character value 1, New Technology Group 1, and the next year that Section X codes are added have the seventh character value 2 New Technology Group 2, and so on.

Changing the seventh character New Technology Group to a unique value every year that there are new codes in this section allows the ICD-10-PCS to "recycle" the values in the third, fourth, and sixth characters as needed. This avoids the creation of duplicate codes, because the root operation, body part and device/substance/technology values can specify a different meaning with every new technology group, if needed. Having a unique value for the New Technology Group maximizes the flexibility and capacity of section X over its lifespan, and allows it to evolve as medical technology evolves.

Body system values

Second character body systems in this section do not change from year to year. They are a fixed set of values that combine the uses of body system, body region, and physiological system as specified in other sections in ICD-10-PCS. As a result, the second character body system values are broader values. This allows body part values to be as general or specific as they need to be to efficiently represent the body part applicable to a new technology.

Root operations

Third character root operations in this section use the same root operation values as their counterparts in other sections of ICD-10-PCS. The example above uses the root operation value Introduction. This root operation has the same definition as its counterpart in section 3 of ICD-10-PCS, as given below.

- 0 – Introduction: Putting in or on a therapeutic, diagnostic, nutritional, physiological, or prophylactic substance except blood or blood products

Body part values

Fourth character body part values in this section use the same body part values as their closest counterparts in other sections of ICD-10-PCS. The example above uses the body part value 4 Central Vein. This is its closest counterpart in section 3 of ICD-10-PCS.

Device/Substance/Technology values

In this section, the sixth character contains a general description of the key feature of the new technology. The example above uses the device/substance/technology value 2 Ceftazidime-Avibactam Anti-infective.

Coding exercises

Using the ICD-10-PCS Tables, construct the code that accurately represents the procedure performed.

1. Infusion of ceftazidime via peripheral venous catheter: XW03321

Appendix A. ICD-10-PCS definitions

This appendix contains reference tables listing the root operations and approaches used in the Medical and Surgical section. The first table includes the definition of each root operation, with explanation and examples. The second table includes the definition of each approach.

The root operations are listed by name in alphabetical order. The approaches are listed by approach value, in numeric order followed by alphabetical order.

For the full ICD-10-PCS definitions, please refer to the Definitions portion of the ICD-10 Procedure Coding System.

Root operations

Alteration

- Definition: Modifying the anatomic structure of a body part without affecting the function of the body part
- Explanation: Principal purpose is to improve appearance
- Examples: Face lift, breast augmentation

Bypass

- Definition: Altering the route of passage of the contents of a tubular body part
- Explanation: Rerouting 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. Includes one or more anastomoses, with or without the use of a device
- Examples: Coronary artery bypass, colostomy formation

Change

- Definition: Taking out or off a device from a body part and putting back an identical or similar device in or on the same body part without cutting or puncturing the skin or a mucous membrane
- Explanation: All Change procedures are coded using the approach External
- Examples: Urinary catheter change, gastrostomy tube change

Control

- Definition: Stopping, or attempting to stop, postprocedural bleeding
- Explanation: The site of the bleeding is coded as an anatomical region and not to a specific body part
- Examples: Control of post-prostatectomy hemorrhage, control of post-tonsillectomy hemorrhage

Creation

- Definition: Making a new genital structure that does not take over the function of a body part
- Explanation: Used only for sex change operations
- Examples: Creation of vagina in a male, creation of penis in a female

Destruction

- Definition: Physical eradication of all or a portion of a body part by the direct use of energy, force or a destructive agent
- Explanation: None of the body part is physically taken out
- Examples: Fulguration of rectal polyp, cautery of skin lesion

Detachment

- Definition: Cutting off all or a portion of the upper or lower extremities
- Explanation: The body part value is the site of the detachment, with a qualifier if applicable to further specify the level where the extremity was detached
- Examples: Below knee amputation, disarticulation of shoulder

Dilation

- Definition: Expanding an orifice or the lumen of a tubular body part
- Explanation: The orifice can be a natural orifice or an artificially created orifice. Accomplished by stretching a tubular body part using intraluminal pressure or by cutting part of the orifice or wall of the tubular body part
- Examples: Percutaneous transluminal angioplasty, pyloromyotomy

Division

- Definition: Cutting into a body part without draining fluids and/or gases from the body part in order to separate or transect a body part
- Explanation: All or a portion of the body part is separated into two or more portions
- Examples: Spinal cordotomy, osteotomy

Drainage

- Definition: Taking or letting out fluids and/or gases from a body part
- Explanation: The qualifier Diagnostic is used to identify drainage procedures that are biopsies
- Examples: Thoracentesis, incision and drainage

Excision

- Definition: Cutting out or off, without replacement, a portion of a body part
- Explanation: The qualifier Diagnostic is used to identify excision procedures that are biopsies
- Examples: Partial nephrectomy, liver biopsy

Extirpation

- Definition: Taking or cutting out solid matter from a body part
- Explanation: The solid matter may be an abnormal byproduct of a biological function or a foreign body; it may be imbedded in a body part or in the lumen of a tubular body part. The solid matter may or may not have been previously broken into pieces
- Examples: Thrombectomy, choledocholithotomy

Extraction

- Definition: Pulling or stripping out or off all or a portion of a body part by the use of force
- Explanation: The qualifier Diagnostic is used to identify extraction procedures that are biopsies
- Examples: Dilation and curettage, vein stripping

Fragmentation

- Definition: Breaking solid matter in a body part into pieces
- Explanation: Physical force (e.g., manual, ultrasonic) applied directly or indirectly is used to break the solid matter into pieces. The solid matter may be an abnormal byproduct of a biological function or a foreign body. The pieces of solid matter are not taken out
- Examples: Extracorporeal shockwave lithotripsy, transurethral lithotripsy

Fusion

- Definition: Joining together portions of an articular body part rendering the articular body part immobile
- Explanation: The body part is joined together by fixation device, bone graft, or other means
- Examples: Spinal fusion, ankle arthrodesis

Insertion

- Definition: Putting in a nonbiological device that monitors, assists, performs or prevents a physiological function but does not physically take the place of a body part
- Explanation: N/A
- Examples: Insertion of radioactive implant, insertion of central venous catheter

Inspection

- Definition: Visually and/or manually exploring a body part
- Explanation: Visual exploration may be performed with or without optical instrumentation. Manual exploration may be performed directly or through intervening body layers
- Examples: Diagnostic arthroscopy, exploratory laparotomy

Map

- Definition: Locating the route of passage of electrical impulses and/or locating functional areas in a body part
- Explanation: Applicable only to the cardiac conduction mechanism and the central nervous system
- Examples: Cardiac mapping, cortical mapping

Occlusion

- Definition: Completely closing an orifice or the lumen of a tubular body part
- Explanation: The orifice can be a natural orifice or an artificially created orifice
- Examples: Fallopian tube ligation, ligation of inferior vena cava

Reattachment

- Definition: Putting back in or on all or a portion of a separated body part to its normal location or other suitable location
- Explanation: Vascular circulation and nervous pathways may or may not be reestablished
- Examples: Reattachment of hand, reattachment of avulsed kidney

Release

- Definition: Freeing a body part from an abnormal physical constraint by cutting or by use of force
- Explanation: Some of the restraining tissue may be taken out but none of the body part is taken out
- Examples: Adhesiolysis, carpal tunnel release

Removal

- Definition: Taking out or off a device from a body part
- Explanation: If a device is taken out and a similar device put in without cutting or puncturing the skin or mucous membrane, the procedure is coded to the root operation Change. Otherwise, the procedure for taking out a device is coded to the root operation Removal
- Examples: Drainage tube removal, cardiac pacemaker removal

Repair

- Definition: Restoring, to the extent possible, a body part to its normal anatomic structure and function
- Explanation: Used only when the method to accomplish the repair is not one of the other root operations
- Examples: Colostomy takedown, suture of laceration

Replacement

- Definition: Putting in or on biological or synthetic material that physically takes the place and/or function of all or a portion of a body part
- Explanation: The body part may have been taken out or replaced, or may be taken out, physically eradicated, or rendered nonfunctional during the Replacement procedure. A Removal procedure is coded for taking out the device used in a previous replacement procedure
- Examples: Total hip replacement, bone graft, free skin graft

Reposition

- Definition: Moving to its normal location, or other suitable location, all or a portion of a body part
- Explanation: The body part is moved to a new location from an abnormal location, or from a normal location where it is not functioning correctly. The body part may or may not be cut out or off to be moved to the new location
- Examples: Reposition of undescended testicle, fracture reduction

Resection

- Definition: Cutting out or off, without replacement, all of a body part
- Explanation: N/A
- Examples: Total nephrectomy, total lobectomy of lung

Restriction

- Definition: Partially closing an orifice or the lumen of a tubular body part
- Explanation: The orifice can be a natural orifice or an artificially created orifice
- Examples: Esophagogastric fundoplication, cervical cerclage

Revision

- Definition: Correcting, to the extent possible, a portion of a malfunctioning device or the position of a displaced device
- Explanation: Revision can include correcting a malfunctioning or displaced device by taking out or putting in components of the device such as a screw or pin
- Examples: Adjustment of position of pacemaker lead, recementing of hip prosthesis

Supplement

- Definition: Putting in or on biological or synthetic material that physically reinforces and/or augments the function of a portion of a body part
- Explanation: The biological material is non-living, or is living and from the same individual. The body part may have been previously replaced, and the Supplement procedure is performed to physically reinforce and/or augment the function of the replaced body part
- Examples: Herniorrhaphy using mesh, free nerve graft, mitral valve ring annuloplasty, put a new acetabular liner in a previous hip replacement

Transfer

- Definition: Moving, without taking out, all or a portion of a body part to another location to take over the function of all or a portion of a body part
- Explanation: The body part transferred remains connected to its vascular and nervous supply
- Examples: Tendon transfer, skin pedicle flap transfer

Transplantation

- Definition: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
- Explanation: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
- Examples: Kidney transplant, heart transplant

Approaches

- Open: Cutting through the skin or mucous membrane and any other body layers necessary to expose the site of the procedure
- Percutaneous: Entry, by puncture or minor incision, of instrumentation through the skin or mucous membrane and any other body layers necessary to reach the site of the procedure
- Percutaneous Endoscopic: Entry, by puncture or minor incision, of instrumentation through the skin or mucous membrane and any other body layers necessary to reach and visualize the site of the procedure
- Via Natural or Artificial Opening: Entry of instrumentation through a natural or artificial external opening to reach the site of the procedure
- Via Natural or Artificial Opening Endoscopic: Entry of instrumentation through a natural or artificial external opening to reach and visualize the site of the procedure
- Via Natural or Artificial Opening With Percutaneous Endoscopic Assistance: Entry of instrumentation through a natural or artificial external opening and entry, by puncture or minor incision, of instrumentation through the skin or mucous membrane and any other body layers necessary to aid in the performance of the procedure
- External: Procedures performed directly on the skin or mucous membrane and procedures performed indirectly by the application of external force through the skin or mucous membrane

Appendix B. ICD-10-PCS device and substance classification

This appendix discusses the distinguishing features of device, substance and equipment as classified in ICD-10-PCS, to provide further guidance for correct identification and coding. The appendix includes discussion of the PCS definitions and classification of device, substance and equipment, and is accompanied by specific coding instruction and examples.

PCS device classification

In most PCS codes, the 6th character of the code is used to classify device. The 6th character device value "defines the material or appliance used to accomplish the objective of the procedure that remains in or on the procedure site at the end of the procedure." If the device is the means by which the procedural objective is accomplished, then a specific device value is coded in the 6th character. If no device is used to accomplish the objective of the procedure, the device value No Device is coded in the 6th character.

For example, an aortocoronary bypass that uses saphenous vein graft to accomplish the bypass is coded to the device value Autologous Venous Tissue in the 6th character of the PCS code. A coronary bypass that uses the patient's internal mammary artery directly to accomplish the bypass uses the device value No Device in the 6th character of the PCS code.

Device and procedural objective

Whether or not the material used in a procedure should be coded using a specific PCS device value can be determined primarily by asking the question

- Is this material central to achieving the objective of the procedure, or does it only support the performance of the procedure?

For example, radiological markers are put in the procedure site to aid the performance of a primary procedure such as excision of a tumor, whereas radioactive brachytherapy seeds are put in the procedure site as an end in themselves, to treat a malignant tumor. In the first example, a radiological marker placed during the primary procedure to assist in performing the procedure is not classified as a device in PCS and so is not separately coded. In the second example, where insertion of brachytherapy seeds is the objective of the procedure, the brachytherapy seeds are recorded in the PCS code with the device value Radioactive Element in the root operation Insertion.

The same device coded as a specific device value for one procedure may not be coded at all for another procedure where it is not central to the procedural objective. For example, a procedure performed specifically to place a drain in a body part for diagnostic or therapeutic purposes is coded to the root operation Drainage with the specific device value Drainage Device in the 6th character of the code. However, a wound drain placed at an incision site at the conclusion of the procedure to promote healing is not central to the procedural objective and therefore not coded

separately as a device in PCS. For this reason, materials such as wound dressings and operative site drains that support the performance of the procedure are not coded separately.

Sutures and suture alternatives (e.g., fibrin glue, dermabond, specialized vessel closures) are not coded as devices in PCS, because in most cases using material to bring the edges of a procedure site together is not central to the procedural objective, but is used to support the performance of the procedure (to close the site). For procedures where the sole objective is to close a wound created by trauma or other incident, the procedure is coded to the root operation Repair with the device value No Device in the 6th character of the PCS code.

Device and location

Whether material or an appliance is coded as a device cannot be determined by the size, shape or complexity of the object or material being used. A device may be too small to be seen with the naked eye (microcoils used to occlude a vessel) or two feet long (external fixator for a long bone). A device may be of a predetermined shape (prosthetic heart valve) or no particular shape (morsellized bone graft). A device may be a highly complex machine (cardiac synchronization pacemaker/defibrillator) or a simple piece of hardware (internal fixation bone screw).

However, material that is classified as a PCS device is distinguished from material classified as a PCS substance by the fact that it has a specific location. A device is intended to maintain a fixed location at the procedure site where it was put, whereas a substance is intended to disperse or be absorbed in the body. Indeed, a device that does not stay where it was put may need to be "revised" in a subsequent procedure, to move the device back to its intended location.

Device and removability

Material that is classified as a PCS device is also distinguishable by the fact that it is removable. Although it may not be practical to remove some types of devices once they become established at the site, it is physically possible to remove a device for some time after the procedure. A skin graft, once it "takes," may be nearly indistinguishable from the surrounding skin and so is no longer clearly identifiable as a device. Nevertheless, procedures that involve material coded as a device can for the most part be "reversed" by removing the device from the procedure site.

Device distribution in PCS

The general distribution and use of the 6th character when specified as a device is summarized in the table below. The sections and root operations that specify device in the 6th character are listed. Also included are examples of 6th character values and corresponding procedure examples.

PCS section	Root operation	Device value example	Procedure example
Medical and Surgical	Alteration	Autologous Tissue Substitute	Nasal tip elevation using fat autograft

PCS section	Root operation	Device value example	Procedure example
Medical and Surgical	Bypass	Synthetic Substitute	Femoral-popliteal bypass using synthetic graft
Medical and Surgical	Change	Drainage Device	Foley catheter exchange
Medical and Surgical	Creation	Nonautologous Tissue Substitute	Sex change operation using tissue bank graft material
Medical and Surgical	Dilation	Intraluminal Device	Percutaneous coronary angioplasty using stent
Medical and Surgical	Drainage	Drainage Device	Drainage of pleural effusion using chest tube
Medical and Surgical	Fusion	Interbody Fusion Device	Spinal interbody fusion
Medical and Surgical	Insertion	Infusion Pump	Insertion of infusion pump for pain control
Medical and Surgical	Occlusion	Extraluminal Device	Fallopian tube ligation using clips
Medical and Surgical	Removal	Spacer	Removal of joint spacer
Medical and Surgical	Replacement	Autologous Tissue Substitute	Skin graft using patient's own skin
Medical and Surgical	Reposition	Internal Fixation Device	Fracture reduction with plate and screw fixation
Medical and Surgical	Restriction	Extraluminal Device	Laparoscopic gastric banding, adjustable band
Medical and Surgical	Revision	Neurostimulator Lead	Reposition of spinal neurostimulator lead
Medical and Surgical	Supplement	Zooplastic Tissue	Pulmonary artery patch graft using bovine pericardium
Obstetrics	Insertion, Removal	Monitoring Electrode	Insertion of fetal monitoring electrode
Placement	Change	Cast	Forearm cast change
Placement	Compression	Pressure Dressing	Application of pressure dressing to lower leg
Placement	Dressing	Bandage	Application of bandage to chest wall
Placement	Immobilization	Splint	Splint placement to wrist
Placement	Packing	Packing Material	Nasal packing
Placement	Removal	Brace	Removal of back brace
Placement	Traction	Traction Apparatus	Skin traction of lower leg using traction device

PCS substance classification

The 6th character substance value “defines the blood component or other liquid put in or on the body to accomplish the objective of the procedure.” The 6th character is defined as substance in the Administration section. Administration is the only section where a substance is classified as a separate code, and not included as information in a more definitive procedure.

Substance and procedural objective

Many different substances are typically put in or on the body in the course of an inpatient hospital stay, both during surgical procedures and at the bedside. Only those which meet UHDDS and facility coding guidelines are coded separately. Most material classified as a substance in the Administration section is in liquid form and intended to be immediately absorbed by the body or, in the case of blood and blood products, disseminated in the circulatory system. An exception is the substance value Adhesion Barrier. It is a non-liquid substance classified in the Administration section, and coded separately for tracking purposes.

Substance and removability

Most substances cannot be removed once they are administered, because the whole point of administering them is for them to be dispersed and/or absorbed by the body. Imaging contrast is sometimes extracted from the bloodstream at the conclusion of a procedure to minimize the possibility of adverse effects.

Substance distribution in Administration section

The general distribution and use of the 6th character specified as a substance in the Administration section is summarized in the table below. All root operations that specify substance in the 6th character are listed. Also included are examples of 6th character values and corresponding procedure examples.

Substance value example

- Introduction: Nutritional substance
- Irrigation: Irrigating Substance
- Transfusion: Frozen Plasma

Procedure example

- Introduction: Infusion of total parenteral nutrition
- Irrigation: Irrigation of eye
- Transfusion: Transfusion of frozen plasma

Classification of substance in ancillary sections

Three ancillary sections record their own specific substance values as part of the PCS code, where a substance is used to support the objective of the procedure. They are the Imaging, Nuclear Medicine and Radiation Therapy sections, and they specify Contrast, Radionuclide and Radioisotope respectively. However, these substance values are unambiguously included as part of a more definitive procedure code, to be recorded when the substance is used to support the objective of the procedure. Substances in these three ancillary sections are therefore not likely to be confused with separately coded substances in the Administration section.

Substance distribution in ancillary sections

The three ancillary sections that specify a type of substance used in the procedure are summarized below. The sections and the type of substance classified are listed along with the PCS character where this information is recorded. Also included are examples of the values used and corresponding procedure examples.

Imaging

- Substance classified: Contrast (5th character)
- Substance value example: Low Osmolar Contrast
- Procedure example: Left heart ventriculography using low osmolar contrast

Nuclear Medicine

- Substance classified: Radionuclide (5th character)
- Substance value example: Fluorine 18
- Procedure example: PET scan of brain using Fluorine 18

Radiation Therapy

- Substance classified: Isotope (6th character)
- Substance value example: Iodine 125
- Procedure example: HDR brachytherapy of thyroid using Iodine 125

Equipment and PCS coding

For the most part, equipment used to assist in the performance of the procedure is not coded in PCS. The only exception to this rule occurs in the Rehabilitation and Diagnostic Audiology section, where the 6th character is specified as equipment. The 6th character values in the Rehabilitation and Diagnostic Audiology section are used to capture information about the machine, physical aid, or other equipment used to assist in performing the procedure.

Equipment and procedural objective

For all other sections in PCS, equipment is distinguished from a codeable device by the fact that equipment is a method used to support the performance of a procedure. For example, the machine used to maintain cardiovascular circulation during an open heart bypass procedure is equipment that performs the circulatory functions for the heart so that the heart bypass can be performed. This support procedure is coded to the root operation Performance in the Extracorporeal Assistance and Performance section, and the type of equipment used is not captured in the code. The primary procedure is coded to the root operation Bypass in the Medical and Surgical section, and any graft material used is coded to the appropriate 6th character device value.

Equipment and location

Equipment is also distinguished from a device in PCS by the fact that equipment resides primarily outside the body during the procedure. Cardiopulmonary circulatory support is coded to the Extracorporeal Assistance and Performance section and the type of equipment used is not recorded in the PCS code. With cardiovascular support equipment, the machinery resides primarily outside the body. The outtake and return cannulae are the only portions of the machine directly connected to the patient.

Hemodialysis is also coded to the Extracorporeal Assistance and Performance section and the equipment used is not recorded in the PCS code. As with cardiovascular support equipment, the hemodialysis machine resides primarily outside the body. The blood lines connected to the patient's dialysis fistula are the only portion of the machine directly connected to the patient. Insertion of the lines into the fistula are not coded as a separate device insertion procedure, because establishing vascular access is the interface between the patient and the equipment used to perform the procedure, rather than an end in itself.

On the other hand, insertion of a vascular catheter to give a patient a blood transfusion is the central objective of the procedure. The vascular catheter in such cases is classified as a device.

Equipment and removability

Equipment used solely to support the performance of a procedure and therefore not coded in PCS can be further distinguished by the fact that the equipment is used only for the duration of the procedure. Once the procedure is completed, any portions of the equipment attached to the patient are disconnected. For example, a patient no longer requiring mechanical ventilation is "extubated," or disconnected from the equipment that provides ventilation support.

Summary

Three distinguishing features have been identified to enable correct identification and coding of device, substance and equipment: procedural objective, location, and removability. The procedural objective alone is sufficient in most cases to determine whether material or an appliance used in a procedure should be coded in PCS. Once it is determined that the information should be coded in PCS, location and removability are useful in determining whether the item is classified as a device or substance. The following table summarizes the distinguishing features of device, substance, and equipment in relation to each other, along with examples.

Device

- Procedural objective: Material or appliance put in or on the body is central to accomplishing the procedural objective
- Location: Resides at the site of the procedure, not intended to change location
- Removability: In most cases, capable of being removed from the procedure site
- Procedure example: Neurostimulator lead insertion

Substance

- Procedural objective: Administration of the substance is the procedural objective
- Location: A liquid or blood product has no fixed position, but is intended to be absorbed or dispersed
- Removability: A liquid or blood product may not be removable, once dispersed or absorbed
- Procedure example: Antibiotic injection

Equipment

- Procedural objective: Machinery or other aid used to perform a procedure
- Location: Resides primarily outside the body, though interfaces with the body via tube or other means
- Removability: Temporary, used for the duration of the procedure only
- Procedure example: Mechanical ventilation

Glossary

A

Approach (5th character)

Defines the technique used to reach the site of the procedure.

B

Body Part or Region (4th character)

Defines the specific anatomical site where the procedure is performed.

Body System (2nd character)

Defines the general physiological system on which the procedure is performed or anatomical region where the procedure is performed.

C

Character

One of the seven components that comprise an ICD-10-PCS procedure code.

D

Device (6th character, sections 0-2)

Defines the material or appliance used to accomplish the objective of the procedure that remains in or on the procedure site at the end of the procedure.

P

Procedure

The complete specification of the seven characters.

Q

Qualifier (7th character)

Defines an additional attribute of the procedure performed, if applicable.

R

Root Operation/Type (3rd character)

Defines the objective of the procedure.

S

Section (1st character)

Defines the general type of procedure.

Substance (6th character, section 3)

Defines the blood component or other liquid put in or on the body to accomplish the objective of the procedure.

V

Value

Individual units defined for each character and represented by a number or letter.

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