

ICD-10: Inpatient Coding for Circulatory Conditions

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Presented By



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Prior to joining HCPPro, Commeree was a coding auditor/medical assistance program specialist with the Washington State Health Care Authority (HCA)'s Clinical Review Unit, working within the state's Medicaid program. She oversaw inpatient coding audits for the majority of Washington's hospitals, which included audits for inpatient claims, DRG assignments, and coverage and payment policies. She also served as a coding consultant to other HCA departments by assisting providers, policymakers, and data analysts to identify aberrant coding patterns and potential fraud, waste, and abuse. Before working for Washington, she served as a coding specialist and trauma registrar with Trauma Trust, an organization that serves two major healthcare systems in the Tacoma area by providing Level II trauma and acute care surgical services.

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Learning Objectives

- At the completion of this educational activity, the learner will be able to:
 - Apply ICD-10-CM codes for diseases affecting the circulatory system
 - Review guidelines for ICD-10-CM code descriptions for 2020
 - Identify ICD-10-PCS code components for accurate inpatient procedure coding
 - Improve coding accuracy to reduce denials

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Hypertension

- Sustained elevation of resting systolic BP (>140 mm Hg), diastolic BP (>90 mm Hg), or both <Merck Manual>
- Hypertension - I10
 - No distinction is made between benign, malignant or unspecified types
- Signs/symptoms
 - Most patients are asymptomatic unless hypertension is severe or long-standing. Generally, diagnosis is established after three consecutive days of elevated blood pressure readings. <Merck Manual>

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Hypertensive Crisis

- Hypertensive Crisis (I16.9)
 - Hypertensive “urgency” (I16.0)
 - Very high blood pressure (e.g., diastolic pressure >120 – 130 mm Hg) without target organ damage (I16.0)
 - Hypertensive “emergency” (I16.1)
 - Severe hypertension with signs of damage to target organs (primarily brain, cardiovascular system, and kidneys). Treatment is immediate BP reduction with IV drugs
 - Code also any identified hypertensive disease (I10-I15). The sequencing is based on the reason for the encounter. <Official Guidelines>
 - Terms such as accelerated or malignant are NOT synonymous with hypertensive crisis. <AHA, Coding Clinic, Q4, 2016>

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Hypertension and Related Diseases

- Hypertension with heart disease <Official Guidelines>
 - Assign codes from I11 and an additional code from I50 (if heart failure is present)
 - The classification presumes a causal relationship between hypertension and heart involvement and between hypertension and kidney involvement, as the two conditions are linked by the term “with” in the Alphabetic Index
 - These conditions should be coded as related even in the absence of provider documentation explicitly linking them, unless the documentation clearly states the conditions are unrelated

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Hypertension and Related Diseases

- Hypertension with chronic kidney disease
 - Assign codes from I12 and an additional code from N18 to identify the stage of CKD
 - Documentation does not have to specifically indicate a causal relationship since there is an assumed cause and effect between hypertension and any form of chronic kidney disease
 - Hypertensive CKD with acute renal failure
 - In addition to codes I12 and N18, a code should also be assigned for the ARF (N17.-). See Excludes2 note at category I12
- If a patient has both HTN, DM and CKD assign codes:
 - Assign **E11.22** (DM type 2 with CKD)
 - Assign **I12.9** (Hypertensive CKD, unspecified stage)
 - Assign **N18.9** (CKD, unspecified stage) <AHA, Coding Clinic Q4, 2018>

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Congestive Heart Failure

- A chronic condition where the heart muscle progressively weakens and is unable to pump effectively to meet the body's need for blood and oxygen. <American Heart Association>

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Congestive Heart Failure

- Types of heart failure
 - Left ventricular – failure to pump blood out of the heart to the body (I50.1)
 - Systolic – Result of lost ability of left ventricle *to contract* normally (I50.2-)
 - Most common type of heart failure patients (60-80%)
 - Diastolic – Result of lost or impaired ability of left ventricle *to relax* normally (I50.3)
 - Combined systolic and diastolic – Impairment in both functions of contracting and relaxing (I50.4-)

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Congestive Heart Failure

- Types of heart failure
 - Right sided – usually occurs as a result of left ventricular failure (I50.8-)
 - Biventricular – failure of both right and left ventricles (I50.82)
 - High output – characterized by the rare elevated cardiac index as opposed to the typical low output (I50.83)
 - End stage – occurs when conventional heart therapies and symptom management strategies no longer work. Patient may feel short of breath and have other symptoms even at rest (I50.84)
 - Rheumatic – caused by a condition in which the heart valves are damaged by rheumatic fever
- “Decompensated” heart failure
 - “Decompensated” indicates that there has been a flare-up (acute phase) of a chronic condition. <AHA, *Coding Clinic*, 2Q 2013>

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Congestive Heart Failure

- Common causes:
 - Hypertension
 - Valvular disorders
 - Rheumatic disease
 - Ischemic disorders
 - Cardiomyopathies
- Common treatment options:
 - Lanoxin/Diuresis
 - Nitrates/Hydralazine
 - ACEI/Beta Blockers
 - Angiotensin Receptor Blockers
 - Aldosterone Antagonists
 - Device therapy (e.g., defibrillators, biventricular pacing)
- Diagnostic options:
 - Physical exam
 - Symptoms: SOB, fatigue, edema (abdomen, ankles)
 - Chest x-rays
 - EKGs
 - Echocardiography
 - Stroke volume= (end diastolic volume - end systolic volume)
 - For example: 120 mL (EDV) -60 mL (ESV) = 60 mL Stroke Volume
 - Ejection Fraction % (EJ)= percentage of blood that is pumped out with each heartbeat. (SV/EDV) Normally should be 50-70%
 - For example: 60mL (SV) /120mL (EDV) = 50% (EJ)
 - Less than 40% = systolic failure

ICD-10-PCS – Pacemakers/Defibrillators

- A pacemaker is a small device that's placed in the chest or abdomen to help control abnormal heart rhythms. This device uses low-energy electrical pulses to prompt the heart to beat at a normal rate.
- Pacemakers are used to treat arrhythmias. Arrhythmias are problems with the rate or rhythm of the heartbeat.
- Two components:
 - Pulse generator
 - Electrodes or leads

ICD-10-PCS – Pacemakers/Defibrillators

- Coding for initial placement or “Insertion”
- Coding for replacement
 - Is it the root operation “Replacement?”
 - What is (or are) the root operation(s)?
- Coding for biventricular pacemakers/defibrillators
 - Also known as cardiac resynchronization therapy (CRT)
 - CRT-P = pacemaker
 - CRT-D = defibrillator

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Coronary Artery Disease/Angina

- Impairment of blood flow through the coronary arteries, most commonly from atheromas (calcified plaque) which may cause silent ischemia, angina pectoris, acute coronary syndrome, unstable angina, myocardial infarction, and sudden death. <Merck>

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Coronary Artery Disease/Angina

- Category I25.1- – CAD of native artery
 - Additional digits identify presence of angina pectoris and type – combination code
 - Default code is I25.10 for a native artery
 - Category I25.7- – CAD of a bypass graft
 - Additional digits identify type of bypass and presence of angina pectoris – combination code
 - Excludes1 note: unstable angina without atherosclerotic heart disease (I20.0)
 - A causal relationship can be assumed in a patient with both CAD and angina, unless the documentation states another cause. <Official Guidelines>

Myocardial Infarctions

Type of MI	Definition	ICD-10-CM Code
1	Spontaneous MI due to atherosclerotic plaque rupture or dissection w/intraluminal thrombus in 1 or more coronary arteries. Usually due to severe CAD.	Categories I21.0-I21.4
2	Demand MI due to another condition such as; arrhythmias, hypertension, hypotension, respiratory failure	I21.A1

Myocardial Infarctions

Type of MI	Definition	ICD-10-CM Code
3	Cardiac death occurring before blood samples can be taken to see rise of biomarkers (e.g. troponin)	I21.A9
4a	MI related to a percutaneous coronary intervention (PCI)	I21.A9
4b	MI related to stent thrombosis	I21.A9
4c	MI related to stent re-stenosis	I21.A9
5	MI related to a CABG procedure	I21.A9

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Myocardial Infarctions

- *Official Guidelines:*
 - If a Type 1 STEMI converts to a NSTEMI due to thrombolytic therapy, it is still coded as a STEMI
 - If a Type 1 NSTEMI evolves into a STEMI, assign the STEMI code.
 - If the type of Acute MI is not documented, assign I21.9 (Acute myocardial infarction, unspecified).

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Myocardial Infarctions

- I21 – Includes note:
 - Acute MIs are defined as a stated duration of 4 weeks (28 days) or less from onset
- I22 – Includes note:
 - A Type 1 AMI occurring within four weeks (28 days) of a previous AMI, regardless of site
 - Mandatory instructional note
 - I22 must be used in conjunction with a code from I21
 - Sequencing depends on circumstances of admission
 - I22 should only be used for subsequent Type 1 AMIs.
 - Subsequent Type 2-5 AMIs are assigned from I21.A1 and I21.A9

Myocardial Infarctions

- Old MI – I25.2
 - Referenced under History, myocardial infarction
- MIs for Subsequent Admissions *<Official Guidelines>*
 - Category I21 – May be assigned as a SDX if the AMI is still within the 4-week time frame and meets the criteria of being treated, evaluated, assessed or monitored.
 - If patient is still on cardiac medications *<AHA, Coding Clinic, Q3, 2016>*
 - Aftercare code (e.g. Z48- or Z51-?) - May be assigned if the AMI is outside of the 4-week timeframe and is still receiving care for the AMI.
 - I25.2 may be assigned if the patient is outside of the 4-week time and there is no further care required for the AMI.

Treatment for CAD/AMIs

- Common diagnostic and treatment options:
 - Cardiac catheterizations
 - Angioplasty
 - Stenting
 - Atherectomy
 - Coronary Artery Bypass Grafting (CABG)

ICD-10-PCS – Cardiac Catheterizations

- Cardiac catheterization is a diagnostic procedure to examine how well the heart is functioning
 - During cardiac catheterization, a long thin tube called a catheter is inserted in an artery or vein in your groin, neck or arm and threaded through your blood vessels to your heart
 - Cardiac catheterization allows injection of radio-opaque dye for angiography, measurement of intracardiac pressures and oxygen saturations

ICD-10-PCS – Cardiac Catheterizations

- Right heart catheterization – performed to diagnose causes of heart failure and cardiomyopathy, valvular disease, pulmonary hypertension and congenital heart defects
 - Accessed via VENOUS route
 - Aids in assessing:
 - Measurement of cardiac output, left ventricular filling pressure and pulmonary artery wedge pressure
 - Measurement of right heart oxygen saturations

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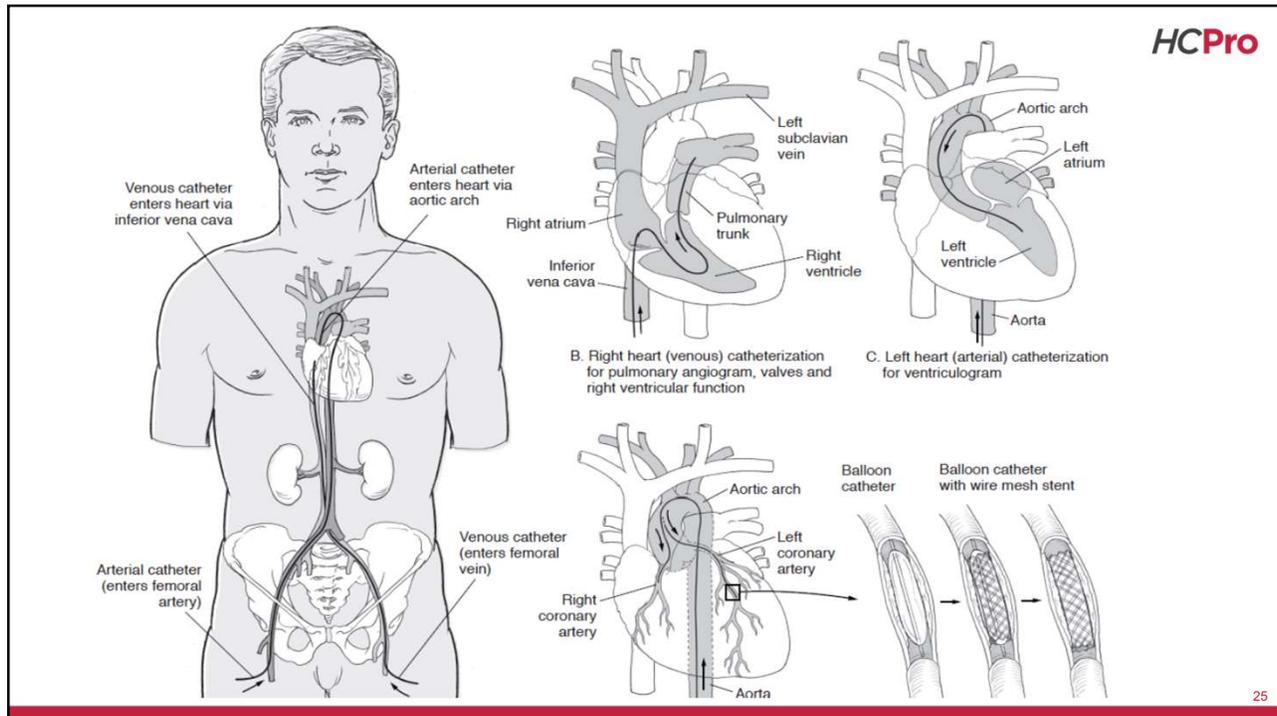
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ICD-10-PCS – Cardiac Catheterizations

- Left heart catheterization – performed to diagnose valvular disease, and coronary artery disease
 - Accessed via ARTERIAL route
 - Aids in assessing:
 - Left ventricular function
 - Outflow tract obstruction
- Combined (or “bilateral”) right and left heart catheterization

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ICD-10-PCS – Coronary Artery Procedures

- The coronary circulation consists of two main arteries, right and left, each with several branches. <AHA, Coding Clinic Q4, 2016>
 - Right coronary artery (RCA)
 - Right marginal
 - Right posterior descending
 - Left main coronary artery (LMCA)
 - Left anterior descending branch (LAD)
 - Diagonal
 - Septal
 - Left circumflex (LCX)
 - Obtuse marginal (OM)
 - Posterior descending
 - Posterolateral
 - Ramus intermedius - Seen when the left main trifurcates into LAD, LCX and Ramus

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ICD-10-PCS – Coronary Artery Procedures

- Coronary arteries – Body Part
 - In ICD-10-PCS, the coronary arteries are classified as a single body part and are selected by the number of coronary arteries treated <PCS Guidelines B4.4>
 - Example: PTCA of the left circumflex artery and the obtuse marginal artery → coronary artery, two arteries
 - Code separate body part values when multiple sites are treated with different procedures
 - Example: PTCA in the left circumflex artery and PTCA with stent in the obtuse marginal artery → coronary artery, one site for each procedure

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ICD-10-PCS – Angioplasty (PTCA)

- Percutaneous transluminal coronary angioplasty (PTCA) is a minimally invasive procedure to open up blocked coronary arteries using a balloon, allowing blood to circulate unobstructed to the heart muscle.
 - ICD-10-PCS table – 027-
 - Angioplasty only – Device character = “Z- no device”
 - May also be referred to as “PCI” (percutaneous coronary intervention)
- PTCA with stent
 - A stent is a small, expandable tube that is permanently inserted into the artery during angioplasty. The stent keeps the artery open.
 - May be drug-eluting or non-drug-eluting
 - Number of stents

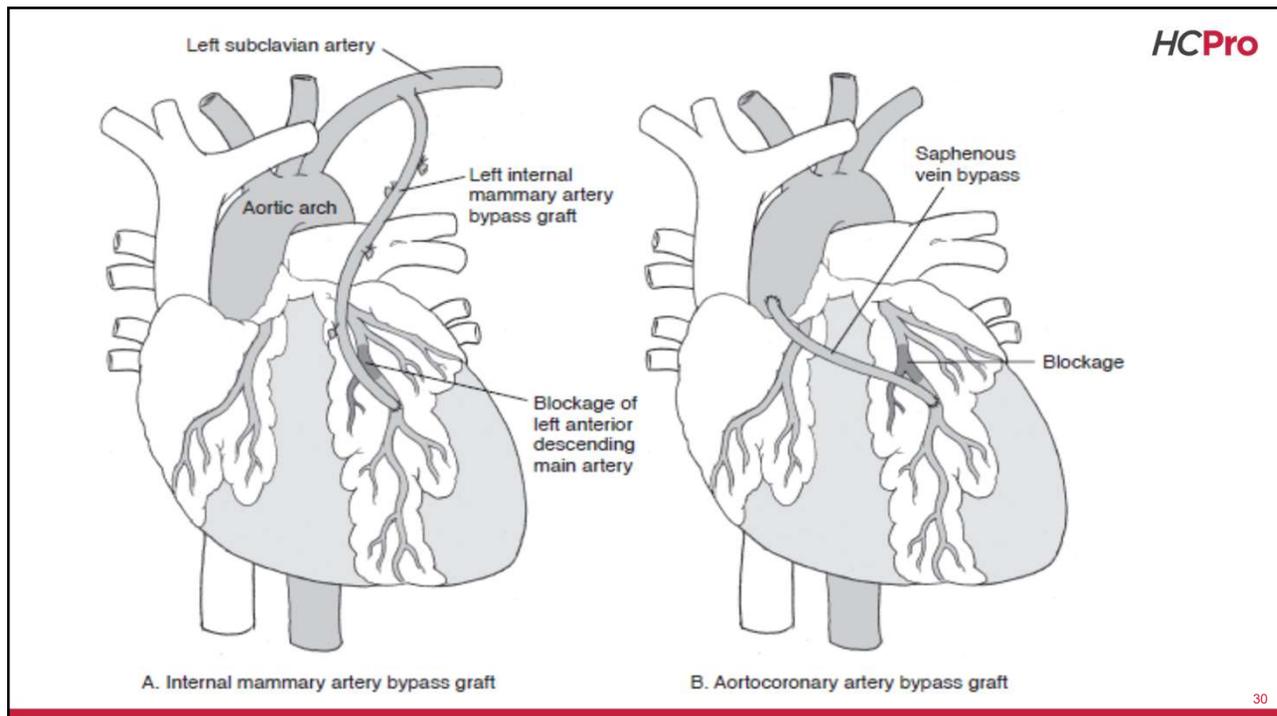
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ICD-10-PCS – Coronary Artery Bypass Grafts (CABG)

- CABG is a surgical procedure in which one or more blocked coronary arteries are bypassed by a blood vessel graft to restore normal blood flow to the heart. Grafts are usually harvested from the patient’s own arteries and/or veins.

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ICD-10-PCS – Coronary Bypass Grafts

- Bypass procedures – Coronary arteries

- 0 Medical and Surgical
- 2 Heart and Great Vessels
- 1 Bypass

Body Part Character 4	Approach Character 5	Device Character 6	Qualifier Character 7
0 Coronary Artery, One Artery 1 Coronary Artery, Two Arteries 2 Coronary Artery, Three Arteries 3 Coronary Artery, Four or More Arteries			

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ICD-10-PCS – Coronary Bypass Grafts

- Bypass procedures – Coronary arteries

- Coronary artery bypass procedures are coded differently than other bypass procedures – The body part identifies the number of coronary artery sites bypassed to, and the qualifier identifies the vessel bypassed from

- 0 Medical and Surgical
- 2 Heart and Great Vessels
- 1 Bypass

Body Part Character 4	Approach Character 5	Device Character 6	Qualifier Character 7
0 Coronary Artery, One Artery 1 Coronary Artery, Two Arteries 2 Coronary Artery, Three Arteries 3 Coronary Artery, Four or More Arteries			3 Coronary Artery 8 Internal Mammary, Right 9 Internal Mammary, Left C Thoracic Artery F Abdominal Artery W Aorta

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ICD-10-PCS – Coronary Bypass Grafts

- Bypass procedures – Coronary arteries
 - If multiple coronary arteries are bypassed, a separate procedure is coded for each coronary artery that uses a different device/qualifier

0 Medical and Surgical

2 Heart and Great Vessels

1 Bypass

Body Part Character 4	Approach Character 5	Device Character 6	Qualifier Character 7
		8 Zooplastic Tissue 9 Autologous Venous Tissue A Autologous Arterial Tissue J Synthetic Substitute K Nonautologous Tissue Substitute	3 Coronary Artery 8 Internal Mammary, Right 9 Internal Mammary, Left C Thoracic Artery F Abdominal Artery W Aorta

ICD-10-PCS – Grafts for CABGs

- Excision for graft
 - If an autograft is obtained from a different body part in order to complete the objective of the procedure, a separate procedure is coded <PCS Guidelines>

Surgical MS-DRGs– Circulatory System (examples)

- MS-DRGs 222-227 (Defibrillators)
 - MS-DRG 222 – Cardiac Defibrillator Implant with Cardiac Catheterization with Acute MI/HF/Shock with MCC
 - MS-DRG 223 – Cardiac Defibrillator Implant with Cardiac Catheterization with Acute MI/HF/Shock without MCC
 - MS-DRG 224 – Cardiac Defibrillator Implant with Cardiac Catheterization without Acute MI/HF/Shock with MCC
 - MS-DRG 225 – Cardiac Defibrillator Implant with Cardiac Catheterization without Acute MI/HF/Shock without MCC
 - MS-DRG 226 – Cardiac Defibrillator Implant without Cardiac Catheterization with MCC
 - MS-DRG 227 – Cardiac Defibrillator Implant without Cardiac Catheterization without MCC

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Surgical MS-DRGs– Circulatory System (examples)

- MS-DRGs 242-244 (Pacemakers)
 - MS-DRG 242 – Permanent Cardiac Pacemaker Implant with MCC
 - MS-DRG 243 – Permanent Cardiac Pacemaker Implant with CC
 - MS-DRG 244 – Permanent Cardiac Pacemaker Implant without CC/MCC
- MS-DRGs 246-249(PTCAs)
 - MS-DRG 246 – Percutaneous Cardiovascular Procedure with Drug-Eluting Stent with MCC OR 4+ Arteries/Stents
 - MS-DRG 247 – Percutaneous Cardiovascular Procedure with Drug-Eluting Stent without MCC
 - MS-DRG 248 – Percutaneous Cardiovascular Procedure with Non Drug-Eluting Stent with MCC OR 4+ Arteries/Stents
 - MS-DRG 249 -- MS-DRG 246 – Percutaneous Cardiovascular Procedure with Non Drug-Eluting Stent without MCC

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Surgical MS-DRGs– Circulatory System (examples)

- MS-DRGs 250-251 (PTCAs)
 - MS-DRG 250 – Percutaneous Cardiovascular Procedure without Coronary Artery Stent with MCC
 - MS-DRG 251 – Percutaneous Cardiovascular Procedure without Coronary Artery Stent without MCC
- MS-DRGs 231-236 (CABGs)
 - MS-DRG 231 – Coronary Bypass with PTCA with MCC
 - MS-DRG 232 – Coronary Bypass with PTCA without MCC
 - MS-DRG 233 – Coronary Bypass with Cardiac Catheterization with MCC
 - MS-DRG 234 – Coronary Bypass with Cardiac Catheterization without MCC
 - MS-DRG 235 – Coronary Bypass without Cardiac Catheterization with MCC
 - MS-DRG 236 – Coronary Bypass without Cardiac Catheterization without MCC

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This concludes the program.

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