Cardiac Catheterization:
Successful Coding and
Chargemaster Practices

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The faculty has reported no vested interests or disclosures regarding this presentation.
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  CE Certificate Instructions
Objectives of This Presentation

- Review the anatomy and clinical indications for cardiac catheterization including catheter placement and injections
- Review ICD-9 diagnostic and CPT coding guidelines for cardiac catheterization
- Discuss the chargemaster and its role in capturing charges for cardiac catheterization services. Review common causes of lost reimbursement and compliance concerns
- Deliver case scenarios that apply ICD-9 diagnostic and CPT coding guidelines

Overview of Topics

- Anatomy and CPT procedural coding
- ICD-9 diagnostic coding
- Chargemaster issues
National Coding Standards

• Sources of information
  • Centers for Medicare and Medicaid (CMS)
  • Provider Policy Manual 14.3 version (10/2008)
  • NCD’s and LCD’s from Medicare Administrative Contractors (MACs)
  • American Medical Association (AMA)
  • American Hospital Association (AHA)
  • American College of Cardiology (ACC)
  • Heart Rhythm Society (HRS)
  • Society of Interventional Radiology (SIR)

General Recommendations for Physician Dictations

• State the history and medical necessity for procedure. Reasons for repeat diagnostic study after prior heart cath (also applies to prior CTA and MRA for peripherals)
• State the vascular access site(s)
• State the vessels catheterized, describing the catheter tip location, and any variant anatomy
• State pressures and chambers entered, injected and imaged
**General Recommendations for Physician Dictations**

- State the vessels injected, the areas imaged (for medical necessity) with interpretation of findings, along with specific documentation of degree stenosis and exact locations of the lesions treated
- State the interventions performed and any complications or additional treatments provided
- State the specific devices and specialty supplies used during the procedure
Diagnostic Catheterization

- Three components
  - Type of heart catheterization (RT, LT, RT & LT, approaches, normal anatomy vs. congenital)
  - Injection procedures (vessels or chambers injected)
  - Imaging procedures (vessels or chambers imaged)
  - 14 types of catheterization procedures, choose the correct one. Medicare payment (hospital APC rate) is the same for each of these procedures
Diagnostic Catheterization

- Left heart catheterization
  - Defined as left heart hemodynamics
    - Systolic and end-diastolic pressures, etc.
    - Not aortic pressures
    - Not coronary angiography
    - Not ventriculography
    - Includes coronary angiography

Diagnostic Catheterization

- Left heart catheterization - normal anatomy
  - Percutaneous - 93510
  - Cut down technique - 93511
  - Left ventricular puncture - 93514
  - Transseptal and retrograde - 93524
Diagnostic Catheterization

- Right heart catheterization
  - Percutaneous - 93501
    - Defined as right heart hemodynamics
    - Not pulmonary angiography - coded separately
    - Not ventriculography - coded separately
    - Do not additionally code Swan Ganz catheter placement (93503) as a right heart catheterization procedure uses this catheter as an integral component to perform the exam

Diagnostic Catheterization

- Right and left heart - normal anatomy
  - Right & retrograde left - 93526
  - Right & transseptal left (intact) - 93527
  - Right & left via ventricular puncture - 93528
  - Right & transseptal left (existing) - 93529
**Diagnostic Catheterization**

- Coronary angiography without left heart hemodynamics
  - Coronary angiography – 93508

**Diagnostic Catheterization**

- Right heart catheterization and coronary artery imaging (no left heart hemodynamics, occurs with aortic valve replacement or when catheter is unable to cross the aortic valve)
  - 93508 & 93501
    - Not a right and left heart catheterization (no single code currently available)
### Diagnostic Catheterization

#### Heart Catheterization for Congenital Anomaly
- Right heart catheterization only - 93530
- Right & retrograde left - 93531
- Right & transseptal left (intact) - 93532
- Right & transseptal left (existing) - 93533

#### Injection Procedures - use one time per case
- 93539 – Injection of arterial conduits
- 93540 – Injection of venous bypass grafts
- 93541 – Injection for pulmonary angiography
- 93542 – Injection for right ventricular/atrial angiography
Diagnostic Catheterization

• 93543  – Injection for left ventricular/atrial angiography
• 93544  – Injection for aortography
• 93545  – Injection for native coronary angiography

Note: Codes 93539, 93540, 93542, 93543, and 93545 require selective catheter placement.

Imaging Procedures – use one time per case

• 93555  – Imaging of heart chambers
• 93556  – Imaging of cardiac related vessels (aortic root, pulmonary and native coronary arteries, vein and arterial bypass grafts)
Injection of drugs directly into the coronary arteries are bundled. Do not use 37202/75896 for this.

Catheter placements are bundled.

Venous infusions during coronary intervention are bundled (the drug may be billed separately). Do not use 92977 for this.

Diagnostic Catheterization

Thermo-dilution and all blood sampling are bundled.

Cardiac output and ejection fraction are bundled.

Closure device angiography is bundled (the closure device and its placement may be billed separately with C1760 and G0269). Do not use G0278, 75710, 75736 or 75774 for this.
Diagnostic Catheterization

- Charge separately for any coronary intervention
- Charge separately for intravascular Doppler (FFR, Wave wire)
- Charge separately for intravascular ultrasound (IVUS)
- Charge separately for injection procedures

Diagnostic Catheterization

- Charge separately for imaging procedures
- Charge separately for peripheral imaging S&I codes, catheter placements and interventions. (Use “G” codes as appropriate for non-selective diagnostic renal and iliac angiography at the time of cardiac catheterization)
- All of these procedures are now N-status (except interventions) for hospital Medicare billing
Non-cardiac imaging performed with a heart cath

- **G0275** – Non-selective Renal(s)
  - Terminology change October 1, 2003
  - Includes catheter placement and S&I

If the renal arteries are selected, do not code **G0275** (per CMS 10/08 14.3 provider policy manual, “renal artery angiography at the time of cardiac catheterization should be reported as HCPCS code **G0275** if selective catheterization of the renal artery is not performed”, “If it is medically necessary to perform selective renal artery catheterization and renal angiography, HCPCS code **G0275** should not be additionally reported”).

- **G0275** zero edits 75724. Do not bill both together.
Non-cardiac imaging performed with a heart cath
  • G0278 – Non-selective Ilio-femoral (obliques of pelvis)
    • Terminology change October 1, 2003 and 2008
    • Includes catheter placement

Diagnostic Catheterization

• Includes S&I
• Do not code G0278 for closure device placement angiography (per provider policy manual 14.3) It is included in G0269
• G0278 zero edits 75716. Do not bill both together.
Catheter Placement Codes

Arteries above the diaphragm

- 36215 - First order selective catheterization in a vascular family
- 36216 - Second order selective catheterization in a vascular family
- 36217 - Third order or higher selective catheterization in a vascular family
- 36218 - Each additional second order or higher selective catheterization in a vascular family

Arteries below the diaphragm

- 36245 - First order selective catheterization in a vascular family
- 36246 - Second order selective catheterization in a vascular family
- 36247 - Third order or higher selective catheterization in a vascular family
- 36248 - Each additional second order or higher selective catheterization in a vascular family
**Diagnostic Catheterization Case 1:**

**HISTORY:** Large reversible defect on nuclear study corresponding to RCA distribution. Worsening angina. Limited renal function.

**PROCEDURE:** A 6 Fr sheath is placed in the right femoral artery. Selective coronary angiography is performed with #4 Judkins left and right catheters. An angulated pigtail is placed into the left ventricle. Left heart pressures and ventriculography were performed. Femoral angiogram is performed via the sheath. No closure device is used.

**LC and LD:** There are up to 20-25% stenoses proximally.

**RC:** 90% proximal stenosis amenable to percutaneous intervention.

**LEFT HEART CATH:** Systemic and systolic pressures are normal. There is no systolic gradient across the aortic valve. LVED is 15. Ventriculography shows ejection fraction of 55%.

**PERIPHERAL ANGIOGRAM:** This is done through the introducer and shows the sheath is through the superficial femoral artery. No significant peripheral vascular disease is noted. The patient is not a candidate for a percutaneous closer technique.
Diagnostic Catheterization Case 1 Codes:

93510 - Left heart catheterization
93543 - Injection for left ventriculogram
93545 - Injection for coronary arteriogram
93555 - Imaging S&I, ventricular and/or atrial angiography
93556 - Imaging S&I, pulmonary angiography, aortography, and/or selective coronary angiography including venous bypass grafts and arterial conduits

(Angiography related to closure device evaluation is not coded.)

Diagnostic Catheterization Case 2:

BRIEF HISTORY: A 62-year-old lady who was admitted because of congestive failure, pulmonary hypertension, angina and abnormal nuclear medicine study with two large reversible defects.

PROCEDURE:
Left heart catheterization
Coronary arteriography
Left ventriculogram
Right heart catheterization
Cardiac output examination
Diagnostic Catheterization Case 2:

- **TECHNIQUE:** Using a modified Seldinger technique, a sheath is placed in the right femoral vein. Another sheath is placed in the right femoral artery.
- 6-French Judkins catheters are placed into the right and left coronary arteries with injection performed to visualize the coronary arteries in multiple projections. A pigtail catheter is placed into the left ventricle, and ventriculography performed. A complete right heart catheterization was then performed.

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Diagnostic Catheterization Case 2:

**RCA:** There is a 70% lesion in the proximal part of the PDA. There is a 50% lesion in the middle of the PDA.

**Lt. Main:** There is an ostial lesion present; this is 30%.

**LC:** There is a 30% lesion seen in the first obtuse marginal.

**LD:** There is a long 80% lesion seen in a proximal LAD.

**VENTRICULOGRAM:** The left ventriculogram shows normal contraction of the left ventricle. The ejection fraction is 45%.
Diagnostic Catheterization Case 2:

**RESULTS HEMODYNAMICS:**

<table>
<thead>
<tr>
<th>SITE</th>
<th>PRESSURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Pre-angio:</td>
<td></td>
</tr>
<tr>
<td>AO</td>
<td>160/80</td>
</tr>
<tr>
<td>LV</td>
<td>155/20</td>
</tr>
<tr>
<td>RV</td>
<td>37/12</td>
</tr>
<tr>
<td>2. Post-angio</td>
<td></td>
</tr>
<tr>
<td>AO</td>
<td>156/70</td>
</tr>
<tr>
<td>LV</td>
<td>160/27</td>
</tr>
<tr>
<td>RA</td>
<td>7 mmHg (mean)</td>
</tr>
<tr>
<td>PA</td>
<td>40/12/25</td>
</tr>
<tr>
<td>PCW</td>
<td>15 mmHg (mean)</td>
</tr>
</tbody>
</table>

Cardiac output is 4.83. Cardiac index is 2.31. There is no gradient across the aortic valve or pulmonic valve demonstrated.

**Diagnostic Catheterization Case 2 Codes:**

- 93526 - Left and right heart catheterization
- 93543 - Injection for left ventriculogram
- 93545 - Injection for coronary arteriogram
- 93555 - Imaging S&I, ventricular and/ or atrial angiography
- 93556 - Imaging S&I, pulmonary angiography, aortography, and/ or selective coronary angiography including venous bypass grafts and arterial conduits
Diagnostic Catheterization Case 3:

Left heart catheterization: Ventriculography and left sided hemodynamics are performed. Coronary angiography with selective imaging of the right and left coronary arteries is performed. The catheter is withdrawn into the aorta and placed above the renal arteries. An injection is performed with imaging the renals (hypertension) from the aorta. The catheter is withdrawn to the bifurcation. An injection with imaging of both legs to a level just above the ankles.

Diagnostic Catheterization Case 3:

The coronary arteries show 90% RCA stenosis proximally. The LV injection shows 55% EF, normal contractility and normal hemodynamics. The abdominal aorta has minor plaque. The renal arteries show 70% stenosis on the left, normal right side.

Bilateral lower extremity: The right iliac artery shows a 60% narrowing in the proximal vessel. The superficial femoral, popliteal and tibial arteries are normal. The left leg shows stenoses of 80% at Hunter’s Canal and 40% in the mid anterior tibial with occluded peroneal and posterior tibial arteries.
**Diagnostic Catheterization Case 3 Codes:**

- 93510 - Left heart catheterization
- 93543 - Injection for left ventriculogram
- 93545 - Injection for coronary angiogram
- 93555 - Imaging S&I, ventriculogram
- 93556 - Imaging S&I coronary angiogram
- G0275 - Non-selective renal angiogram
- 75716-59 - Bilateral lower extremity angiogram, S&I

**Diagnostic Catheterization Case 4:**

58 year old, s/p CABG with recurrent anginal symptoms.

*Left heart catheterization:* The patient has a metallic aortic valve. We did not perform ventriculography or left heart pressures. Coronary angiography is performed with selective imaging of the right and left coronary arteries is performed. Following this, the left internal mammary artery was selected and imaged. Three saphenous vein bypass grafts were also selected and imaged.
Diagnostic Catheterization Case 4:

- The native coronary arteries show occlusion of the RCA proximally. There is severe stenosis of the left main bifurcation. Bypass grafts to the mid RCA, LC, LD and second diagonal are patent with diffuse disease distally in the LD and second diagonal. No intervention was indicated.

Diagnostic Catheterization Case 4 Codes:

- 93508 - Coronary angiography
- 93539 - Injection of arterial bypass grafts
- 93540 - Injection of saphenous vein bypass grafts
- 93545 - Injection of native coronary arteries
- 93556 - Imaging S&I coronary angiography
Diagnostic Catheterization Case 5:

PROCEDURES: Patient with abnormal stress test, TIA’s and abnormal carotid doppler suggestive of vertebral steal. Coronary angiography, left ventriculography, aortic arch angiography, cerebral angiography, right subclavian stent. Via right femoral approach bilateral selective coronary angiography is performed. A 6-French pigtail catheter is guided across the aortic valve without difficulty and left heart hemodynamics and ventriculography are performed.

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Diagnostic Catheterization Case 5:

The catheter is then pulled back and cervicocerebral arch angiography is done. Selective catheter placement into the right and left common carotid arteries, followed by injection and imaging of the cervical and cerebral arteries bilaterally. The left vertebral and right subclavian arteries are also selectively catheterized and imaged.

FINDINGS: The LV has 55% EF and contractility is normal. The left main, LAD and LC are normal. The RC shows a 80% stenosis in the proximal portion.

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**Diagnostic Catheterization Case 5:**

The proximal brachiocephalic arteries are patent with normal anatomy. Selective right subclavian angiography shows a proximal 90% tubular stenosis. The entire brachial runoff to the hand is normal. The right vertebral does not fill on this injection. The right common carotid artery bifurcation shows an 80% eccentric lesion. The left common and internal carotid arteries appears normal. The intracranial vessels are normal bilaterally. Selective imaging of the left vertebral artery shows a 30% proximal stenosis. The basilar artery is patent. Slow retrograde flow down the entire right vertebral is documented with stenoses of 30-50% documented in its’ mid cervical segment and the origin.

Following the diagnostic study, a 6mm balloon deployable stent is placed across the right subclavian stenosis. This is post-dilated to 7mm. Follow-up imaging shows normal antegrade flow up the right vertebral.
Diagnostic Catheterization
Case 5 Codes:

<table>
<thead>
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<th>Code</th>
<th>Description</th>
<th>Description</th>
<th>Description</th>
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<td>75650-59</td>
<td>75960</td>
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<td>93543</td>
<td>75680-59</td>
<td>37205</td>
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<td>93545</td>
<td>75671-59</td>
<td>36216</td>
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<td>75710-59</td>
<td>36215-59</td>
<td></td>
</tr>
<tr>
<td>93556</td>
<td>75685-59</td>
<td>36216-59</td>
<td>36218</td>
</tr>
</tbody>
</table>

Lower Extremities Case 6:

Abdominal aortography from high catheter position (to look at renals) and oblique pelvic angiography from low aortic catheter position, (to look at iliacs) all done during a left heart cath

GO275 - Nonselective renal angiography at the time of cardiac cath
GO278 - Nonselective iliofemoral angiography at the time of cardiac cath

(Catheter placement aorta is bundled)
**Lower Extremities Case 7:**

Abdominal aortography from high catheter position and oblique pelvic angiography from low aortic catheter position for **aortic aneurysm evaluation** during a cardiac catheterization

75630-59 - Aorto-ilio-femoral angiography, S&I

(Catheter placement in aorta bundled into the cardiac catheterization)

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**Lower Extremities Case 8:**

Abdominal aortography from high catheter position and complete bilateral lower extremity run-off from low catheter position during a heart cath (medical necessity is Blue Toe Syndrome and 1 block claudication)

75625-59 - Abdominal aortogram, S&I
75716-59 - Bilateral extremity angiography, S&I

(Catheter placement in aorta bundled into the cardiac catheterization)
Interventional Cardiology

- **Rules for angioplasty, atherectomy and stent placement**
  - One code describes the procedure – not component coded
  - Only the three main arteries are recognized for reimbursement
  - Branches of the main vessels are considered part of the main vessel

- **Hierarchy of coding**
  - Atherectomy supercedes angioplasty
  - Stent placement supercedes atherectomy and angioplasty
  - Drug-eluting stent placement supersedes stent placement, atherectomy and angioplasty
  - All coronary artery interventions include temporary pacemaker insertion
  - Coronary artery angioplasty, atherectomy and stenting includes intracoronary thrombolysis
Interventional Cardiology

• Rules for angioplasty, atherectomy and stent placement
  • Hierarchy of coding
    • Code highest level intervention with initial vessel code
    • Code other vessel interventions with each additional vessel code (Use modifiers to document the procedure as performed in a separate vascular distribution)
  • Diagnostic angiography performed at same session is coded separately. Must meet new medical necessity to code for a repeat diagnostic coronary angiogram.
  • Modifiers required on diagnostic codes at time of intervention: 93555-59, 93556-59

Interventional Cardiology

• Rules for angioplasty, atherectomy, and stent placement
  • Code ramus intermedius as either LC or LD
  • Use modifier LC or LD for left main coronary artery intervention
  • Left main is considered part of distal vessel if both have an intervention
Diagnostic Coding for Heart Caths

- Assign codes for positive findings;
- If no positive findings, assign codes for symptoms and/or abnormal findings on less invasive studies;
- If done for pre-op clearance, code V72.81, then code for condition being treated, then positive findings or symptoms/other abnormal studies; and
- Don’t forget personal and family history and other relevant diagnoses per documentation.

Signs and Symptoms

- 786.50  Chest pain, unspecified
- 786.59  Chest pain, atypical
- 786.09  Dyspnea
- 780.79  Fatigue
- 793.2  Abnormal findings, echo
- 794.39  Abnormal findings, stress echo or perfusion study
Coronary Atherosclerosis (CAD)

- Plaques develop, narrowing lumens of the coronary arteries. Plaque ruptures, breaks off, and a clot (thrombus) forms around it.
- Coronary thrombosis is the most common cause of myocardial infarction.

Codes for Coronary Artery Disease

- Code to type of occluded vessel:
  - 414.00 - Unspecified
  - 414.01 - Native artery
  - 414.02 - Vein bypass graft
  - 414.04 - Artery bypass graft
  - 414.05 - Unspecified bypass graft
  - V45.81 - Graft status (not occluded)
More Coronary Artery Codes

- **414.2** - Chronic total occlusion - Use in addition to code from 414.0x, but do not use if occlusion is acute
- **996.72** - In-stent restenosis not due to disease progression
- **V45.82** - Stent status (no restenosis)
- **414.8** - Ischemic cardiomyopathy - Heart damage caused by chronic CAD. Sequence before code from 414.0x

Classifications of Angina

- Angina is classified by Canadian Cardiovascular Society (CCS)
  - Class I - Stable, exertional only
  - Class II - Stable, slightly limiting activity
  - Class III - Stable, marked limitations
  - Class IV-A - Stable, discomfort with activity
  - Class IV-B - Unstable, on oral therapy
  - Class IV-C - Unstable, on parenteral therapy
Acute Coronary Syndrome

- In clinical use, this term includes a range of conditions from unstable angina through non-Q wave myocardial infarction
  - These terms all code to 411.1:
    - Acute coronary syndrome
    - Intermediate coronary syndrome
    - Unstable angina
    - Impending infarction
    - Preinfarction angina or Preinfarction syndrome
    - Aborted MI

Acute Myocardial Infarction

- Classified as Q wave or non-Q wave
  - Q wave or STEMI is coded by location (heart wall) 410.0x – 410.6x
    - 5th digit = episode of care
      - 1 = initial episode; 2 = subsequent episode
  - Acute event has stated duration of 8 weeks or less. If specified as chronic MI or there are symptoms after 8 weeks, code to 414.8, Old MI's code to 412
**Acute Myocardial Infarction**

- **Non-Q wave myocardial infarction**
  - Also called:
    - Subendocardial infarction
    - Non-transmural infarction
    - Non-ST elevation infarction (NSTEMI)
  - Definition: Acute coronary syndrome with elevated troponin, without ST elevation or with ST depression
  - Codes to 410.7x (5th digit = episode of care)

**Multiple Department Impact**

- **80+% of Hospitals Split Coding Responsibility**
  - HIM Codes Major Surgical Codes (10,000 - 69,999 Series)
    - May not have the capability to review or change department charges
    - Codes are based on physician dictated report
  - Clinical Staff Codes (via Charging) S&I/Technical Codes (70,000 & 90,000 Series)
    - Clinical area may not know they are “coding” or the impact of their charges
    - Charges/codes are entered prior to physician documentation
    - Clinical staff has no formal training or credential for coding
    - Varies from clinical department to department
- **Scrubber edits often “fixed” in business office**
  - Everyone thinks “billing issues” are the responsibility of the business office
**Charge Tool Impact**

1) Charge sheets are outdated
2) Charge sheets are inaccurate
3) Charge sheets do not have complete code descriptions
4) Charge sheets are limited or difficult to use
5) Charge sheets are available but not used
6) Charge sheets are just the starting point for accurate procedural coding
7) Charge sheets may be based on hospital specific charge codes, not on CPT codes which makes it difficult to correlate with code specific rules

8) Charge sheets are filled out by busy physicians who may not be up to date on the latest coding rule updates and changes
9) Charge sheets are based on what was visually seen occurring in the lab, not on what was documented in the permanent medical record (dictated report)
10) Charge sheets differ from department to department
Bill Scrubber Impact

- Scrubbers can result in changes to original codes
- Modifier -59 usually not CDM-driven, so edits are encountered
- Usually edits are “fixed” by someone in the billing office without knowledge of Special Procedure coding rules
  - Appropriate codes are written off
  - Inappropriate codes are appended -59
  - Inappropriate codes may not be scrubbed as they do not create a CCI edit
  - Edits may be referred back to the clinical departments instead of HIM

Work Process Impact

- What Goes “Out the Door” Does Not Reflect Coding or Charging
  - Charges are removed
  - Codes are removed
  - Codes may be changed
  - Codes may be duplicated
  - Modifiers may be added, deleted or missing altogether
- Everyone did what they were supposed to, but the end result was failure
- No one department or person is responsible for the final product
Review Current Processes

Charge Description Master
- Review CDM line items for CPT code, revenue code and description accuracy
  - Verify that surgical codes are not in the CDM if HIM is coding them
- Review explosion tables
- Analyze charging process
  - When are charges determined?
  - How are charges determined?
  - Who enters charges?
  - What reconciliation is performed?

Review Current Processes

Charge Tools
- Determine last date charge tools were updated
- Review charge sheets to verify they are accurate
  - Are all procedures performed listed?
  - Are items grouped in a manner that facilitates accurate charging?
  - Are charge code descriptions/mnemonics accurate for the item described?
Review Current Processes

Workflow
- Determine how HIM identifies the codes that should be “soft” coded
- Determine who can make changes to charges
- Determine who can change HIM codes
- Determine who fixes “scrubber” edits
- Determine if anyone reviews the final bill against the physician report prior to submission

Implement Changes

Charge Description Master and Charging
- Update with changes identified
- Establish a resource for the clinical area to keep current on:
  - Coding rules
  - CPT codes
  - HCPCS Level II codes
  - CCI edits
Implement Changes

Charge Tools

- Update or create new charge tools
- Get commitment from clinical areas to review charge tools at least annually. Use consistent tools within different clinical departments

Workflow

- Establish a team to be the “Single Point of Accountability” for all Special Procedure billing
  - 2 - 3 Individuals
  - Compare SP claims to physician report immediately prior to submission
  - Responsible for all revisions when incorrect
  - Communicate back and help education any area causing the correction
  - Only ones that can revise a bill, to include scrubber edits
  - Only ones to add most modifiers

- Validate
- Educate
An Alternative Plan for the Cath Lab

- Let coders do the CPT coding and charging:
  - Clinical staff can focus on patient care;
  - The codes will be more accurate, resulting in lower compliance risk;
  - Coders will check for documentation before submitting charges;
  - Coders can help physicians improve documentation; and
  - Codes and modifiers can be applied at the same time, eliminating a major step in the revenue cycle.

Resource/Reference List

- AHA Coding Clinics:
  - Acute coronary syndrome & CAD 2004 2Q 3-4
  - Clarification-unstable angina w/ CAD 1995 2Q 18-19
  - Acute myocardial infarction 2005 4Q 69-72
  - Atherosclerosis of coronary bypass grafts 1996 4Q 31
  - Coronary artery stent stenosis clarification 2006 3Q 25
  - CAD with ischemic cardiomyopathy 2001 3Q 15-16
  - Aborted myocardial infarction 2001 2Q 7-8
  - Old myocardial infarction 2003 2Q 10
**Resource/Reference List**

- Dubin, Dale MD. Rapid Interpretation of EKG’s, Sixth Edition.
- Dr. Z’s Medical Coding Series
- Diagnostic & Interventional Cardiovascular Coding Reference - 2009 Edition

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