

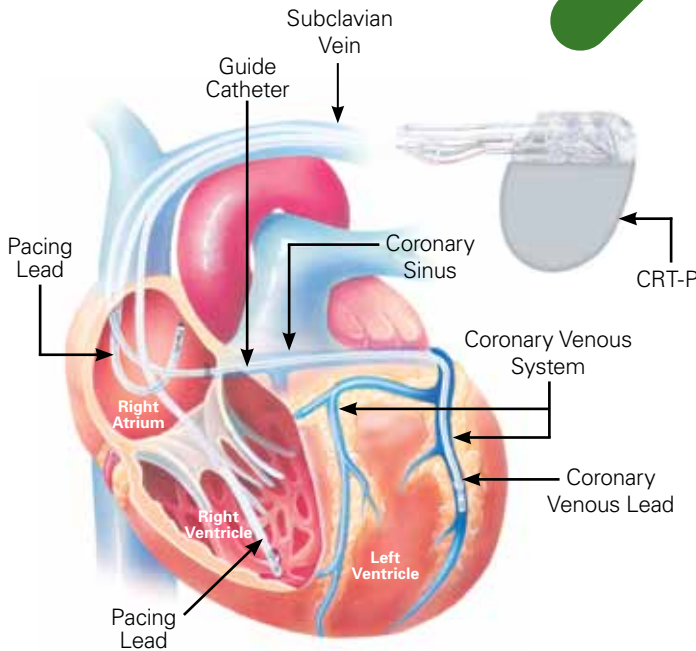
GuidePoint is simplifying reimbursement.

Updated: June 2009

## Cardiac Resynchronization Therapy Pacemaker (CRT-P) Coding Overview

### CRT-P implantation procedure

The implantation of a CRT-P system typically requires the use of a cardiac resynchronization therapy pulse generator and three electrodes, or leads. The three leads monitor and deliver electrical stimulation to the right atrium, right ventricle, and left ventricle. As in conventional pacemaker procedures, the leads are inserted through the subclavian vein near the collarbone and positioned in the right atrium and right ventricle. In some cases, the cephalic or internal jugular vein may be used as an alternative to the subclavian vein. In addition, a CRT-P system requires the implantation of a third lead within the coronary venous system to pace the left ventricle in order to coordinate, or resynchronize, ventricular contractions. This third transvenous lead is inserted into the subclavian vein, introduced into the coronary sinus, and advanced into a coronary vein located on the exterior wall of the left ventricle.



### A step-by-step description of a typical initial CRT-P system implantation procedure

1. The subclavian vein is accessed and a device pocket is formed.
2. A **guide catheter** is inserted into the subclavian vein.
3. The coronary sinus (cs) is cannulated with the guide catheter via the coronary sinus ostium (opening).
4. In most cases, a **venogram** is required to visualize the coronary venous system prior to inserting the left ventricular lead.
5. A **guide wire** is inserted through the guide catheter into the coronary venous system to the desired branch vein.
6. Under **fluoroscopy**, the **left ventricular coronary venous lead (+33225)** is inserted over the guide wire and into a branch of the coronary venous system.
7. **Pacing leads** are inserted into the right ventricle and right atrium under **fluoroscopy. (71090)**
8. **Lead measurement tests**, including pacing and sensing thresholds and lead impedances, are performed.
9. The guide wire is removed and replaced with a **finishing wire** to stabilize the lead upon removal of the guide catheter.
10. The guide catheter is removed, maintaining lead position.
11. The finishing wire is removed and the left ventricular coronary venous lead is secured.
12. A **CRT-P pulse generator (33208)** is connected to the three leads that are in place.
13. Additional **testing of all lead combinations** is completed.
14. The leads and device are secured, and the pulse generator pocket is closed.

+ Add-on code

**Note:** This document is for reference purposes only and does not replace physicians' medical documentation.

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See important notes on the uses and limitations of this information on page 10.

# Commonly Billed Cardiac Resynchronization Therapy Pacemaker (CRT-P) Procedures

## Key

- + Add-on code.
- Moderate sedation. (For these procedures, moderate [conscious] sedation is included and cannot be billed separately when provided by the same physician. See AMA Current Procedural Terminology 2009 for specific guidelines.)

## Initial CRT-P system implant, with fluoroscopy

Hospital Inpatient ICD-9-CM Codes <sup>1</sup>	Hospital Outpatient* CPT® Codes <sup>2,3</sup>	Physician* CPT® Codes <sup>2,3</sup>
<p><b>00.50 Implantation of cardiac resynchronization pacemaker without mention of defibrillation, total system [CRT-P]</b></p> <p><i>Note: Device testing during procedure — omit code</i></p> <ul style="list-style-type: none"> <li>• Biventricular pacemaker</li> <li>• Biventricular pacing without internal cardiac defibrillator</li> <li>• BiV pacemaker</li> <li>• Implantation of cardiac resynchronization (biventricular) pulse generator pacing device, formation of pocket, transvenous leads including placement of lead into left ventricular coronary venous system, and intraoperative procedures for evaluation of lead signals</li> <li>• That with CRT-P generator and one or more leads</li> </ul> <p><b>Excludes:</b></p> <ul style="list-style-type: none"> <li>• Implantation of cardiac resynchronization defibrillator, total system [CRT-D] (00.51)</li> <li>• Insertion or replacement of any type pacemaker device (37.80–37.87)</li> <li>• Replacement of cardiac resynchronization:               <ul style="list-style-type: none"> <li>– defibrillator, pulse generator only [CRT-D] (00.54)</li> <li>– pacemaker, pulse generator only [CRT-P] (00.53)</li> </ul> </li> </ul> <p><b>87.49 Other chest X-ray</b></p> <p>X-ray of:</p> <ul style="list-style-type: none"> <li>• Bronchus NOS</li> <li>• Diaphragm NOS</li> <li>• Heart NOS</li> <li>• Mediastinum NOS</li> <li>• Lung NOS</li> <li>• Trachea NOS</li> </ul>	<ul style="list-style-type: none"> <li>• <b>33208</b> Insertion or replacement of permanent pacemaker with transvenous electrodes; atrial and ventricular</li> <li>+<b>33225</b> Insertion of pacing electrode, cardiac venous system, for left ventricular pacing, at time of insertion of pacing cardioverter defibrillator or pacemaker pulse generator (including upgrade to dual-chamber system) (List separately in addition to code for primary procedure.)</li> <li><b>71090</b> Insertion pacemaker, fluoroscopy and radiography, radiological supervision and interpretation</li> </ul>	<ul style="list-style-type: none"> <li>• <b>33208</b> Insertion or replacement of permanent pacemaker with transvenous electrodes; atrial and ventricular</li> <li>+<b>33225</b> Insertion of pacing electrode, cardiac venous system, for left ventricular pacing, at time of insertion of pacing cardioverter defibrillator or pacemaker pulse generator (including upgrade to dual-chamber system) (List separately in addition to code for primary procedure.)</li> <li><b>71090–26**</b> Insertion pacemaker, fluoroscopy and radiography, radiological supervision and interpretation</li> </ul>

## Upgrade to CRT-P from a dual-chamber pacemaker

<b>Hospital Inpatient</b> ICD-9-CM Codes <sup>1</sup>	<b>Hospital Outpatient*</b> CPT® Codes <sup>2,3</sup>	<b>Physician*</b> CPT® Codes <sup>2,3</sup>
<p><b>00.53 Implantation or replacement of cardiac resynchronization pacemaker, pulse generator only [CRT-P]</b></p> <p><i>Note: Device testing during procedure —omit code</i></p> <p>Implantation of CRT-P device with removal of any existing CRT-P or other pacemaker device</p> <p><b>Excludes:</b></p> <ul style="list-style-type: none"> <li>• Implantation of cardiac resynchronization pacemaker, total system [CRT-P] (00.50)</li> <li>• Implantation or replacement of cardiac resynchronization defibrillator, pulse generator only [CRT-D] (00.54)</li> <li>• Insertion or replacement of any type pacemaker device (37.80–37.87)</li> </ul> <p><b>87.49 Other chest X-ray</b></p> <p>X-ray of:</p> <ul style="list-style-type: none"> <li>• Bronchus NOS</li> <li>• Diaphragm NOS</li> <li>• Heart NOS</li> <li>• Mediastinum NOS</li> <li>• Lung NOS</li> <li>• Trachea NOS</li> </ul>	<ul style="list-style-type: none"> <li>• <b>33213</b> Insertion or replacement of pacemaker pulse generator only; dual-chamber</li> <li>• <b>33233</b> Removal of permanent pacemaker pulse generator</li> <li><b>+33225</b> Insertion of pacing electrode, cardiac venous system, for left ventricular pacing, at time of insertion of pacing cardioverter defibrillator or pacemaker pulse generator (including upgrade to dual-chamber system) (List separately in addition to code for primary procedure.)</li> <li><b>71090</b> Insertion pacemaker, fluoroscopy and radiography, radiological supervision and interpretation</li> </ul>	<ul style="list-style-type: none"> <li>• <b>33213</b> Insertion or replacement of pacemaker pulse generator only; dual-chamber</li> <li>• <b>33233–51**</b> Removal of permanent pacemaker pulse generator</li> <li><b>+33225</b> Insertion of pacing electrode, cardiac venous system, for left ventricular pacing, at time of insertion of pacing cardioverter defibrillator or pacemaker pulse generator (including upgrade to dual-chamber system) (List separately in addition to code for primary procedure.)</li> <li><b>71090–26**</b> Insertion pacemaker, fluoroscopy and radiography, radiological supervision and interpretation</li> </ul>

+ Add-on code      • Moderate sedation

## Single-chamber pacemaker upgrade to CRT-P, with insertion of right atrial lead, with fluoroscopy

<b>Hospital Inpatient</b> ICD-9-CM Codes <sup>1</sup>	<b>Hospital Outpatient*</b> CPT® Codes <sup>2,3</sup>	<b>Physician*</b> CPT® Codes <sup>2,3</sup>
<p><b>00.50 Implantation of cardiac resynchronization pacemaker without mention of defibrillation, total system [CRT-P]</b></p> <p><i>Note: Device testing during procedure —omit code</i></p> <ul style="list-style-type: none"> <li>• Biventricular pacemaker</li> <li>• Biventricular pacing without internal cardiac defibrillator</li> <li>• BiV pacemaker</li> <li>• Implantation of cardiac resynchronization (biventricular) pulse generator pacing device, formation of pocket, transvenous leads including placement of lead into left ventricular coronary venous system, and intraoperative procedures for evaluation of lead signals</li> <li>• That with CRT-P generator and one or more leads</li> </ul> <p><b>Excludes:</b></p> <ul style="list-style-type: none"> <li>• Implantation of cardiac resynchronization defibrillator, total system [CRT-D] (00.51)</li> <li>• Insertion or replacement of any type pacemaker device (37.80–37.87)</li> <li>• Replacement of cardiac resynchronization:                             <ul style="list-style-type: none"> <li>– defibrillator, pulse generator only [CRT-D] (00.54)</li> <li>– pacemaker, pulse generator only [CRT-P] (00.53)</li> </ul> </li> </ul> <p><b>87.49 Other chest X-ray</b></p> <p>X-ray of:</p> <ul style="list-style-type: none"> <li>• Bronchus NOS</li> <li>• Mediastinum NOS</li> <li>• Diaphragm NOS</li> <li>• Lung NOS</li> <li>• Heart NOS</li> <li>• Trachea NOS</li> </ul>	<ul style="list-style-type: none"> <li>• <b>33214</b> Upgrade of implanted pacemaker system, conversion of single-chamber system to dual-chamber system (includes removal of previously placed pulse generator, testing of existing lead, insertion of new lead, insertion of new pulse generator)</li> <li><b>+33225</b> Insertion of pacing electrode, cardiac venous system, for left ventricular pacing, at time of insertion of pacing cardioverter defibrillator or pacemaker pulse generator (including upgrade to dual-chamber system) (List separately in addition to code for primary procedure.)</li> <li><b>71090</b> Insertion pacemaker, fluoroscopy and radiography, radiological supervision and interpretation</li> </ul>	<ul style="list-style-type: none"> <li>• <b>33214</b> Upgrade of implanted pacemaker system, conversion of single-chamber system to dual-chamber system (includes removal of previously placed pulse generator, testing of existing lead, insertion of new lead, insertion of new pulse generator)</li> <li><b>+33225</b> Insertion of pacing electrode, cardiac venous system, for left ventricular pacing, at time of insertion of pacing cardioverter defibrillator or pacemaker pulse generator (including upgrade to dual-chamber system) (List separately in addition to code for primary procedure)</li> <li><b>71090–26**</b> Insertion pacemaker, fluoroscopy and radiography, radiological supervision, and interpretation</li> </ul>

+ Add-on code      • Moderate sedation

## CRT-P AV Optimization with Echocardiography (use codes as appropriate)

Hospital Inpatient ICD-9-CM Codes <sup>1</sup>	Hospital Outpatient* CPT® Codes <sup>2,3</sup>	Physician* CPT® Codes <sup>2,3</sup>
<p><b>88.72 Diagnostic ultrasound of the heart</b></p> <ul style="list-style-type: none"> <li>Echocardiography</li> <li>Transesophageal echocardiography</li> </ul> <p><b>Excludes:</b></p> <ul style="list-style-type: none"> <li>Echocardiography of heart chambers (37.28)</li> <li>Intracardiac echocardiography (ICE) (37.28)</li> <li>Intravascular (IVUS) imaging of coronary vessels (00.24)</li> </ul> <p><b>89.45 Artificial pacemaker rate check</b></p> <ul style="list-style-type: none"> <li>Artificial pacemaker function check NOS</li> <li>Bedside device check of pacemaker or cardiac resynchronization pacemaker [CRT-P]</li> <li>Interrogation only without arrhythmia induction</li> </ul> <p><b>Excludes:</b></p> <ul style="list-style-type: none"> <li>Catheter based invasive electrophysiologic testing (37.26)</li> <li>Non-invasive programmed electrical stimulation [NIPS] (arrhythmia induction) (37.20)</li> </ul>	<p><b>93306</b> Echocardiography, transthoracic, real-time with image documentation (2D), includes M-mode recording, when performed, complete, with spectral Doppler echocardiography, and with color flow Doppler echocardiography</p> <p><b>OR</b></p> <p><b>93307</b> Echocardiography, transthoracic, real-time with image documentation (2D), Includes M-mode recording, when performed complete, without spectral or color Doppler</p> <p><b>OR</b></p> <p><b>93308</b> Echocardiography, transthoracic, real-time with image documentation (2D), Includes M-mode recording, when performed follow-up or limited study</p> <p><b>AND</b></p> <p><b>+93321</b> Doppler echocardiography, pulsed wave and/or continuous wave with spectral display, follow-up or limited study (List separately in addition to codes for echocardiography imaging)</p>	<p><b>93306</b> Echocardiography, transthoracic, real-time with image documentation (2D), includes M-mode recording, when performed, complete, with spectral Doppler echocardiography, and with color flow Doppler echocardiography</p> <p><b>OR</b></p> <p><b>93307-26**</b> Echocardiography, transthoracic, real-time with image documentation (2D) includes M-mode recording; when performed, complete, without spectral or color Doppler</p> <p><b>OR</b></p> <p><b>93308-26**</b> Echocardiography transthoracic real-time with image documentation (2D), includes M-mode recording, when performed, follow-up or limited study</p> <p><b>AND</b></p> <p><b>+93321-26**</b> Doppler echocardiography, pulsed wave and/or continuous wave with spectral display: follow-up or limited study (List separately in addition to codes for echocardiography imaging)</p>

*continued next page*

+ Add-on code

**CRT-P AV Optimization with Echocardiography (use codes as appropriate)**  
*(continued)*

<b>Hospital Inpatient</b> ICD-9-CM Codes <sup>1</sup>	<b>Hospital Outpatient*</b> CPT® Codes <sup>2,3</sup>	<b>Physician*</b> CPT® Codes <sup>2,3</sup>
	<p><b>OR</b>  <b>+93325</b>                      Doppler echocardiography color flow velocity mapping (List separately in addition to codes for echocardiography)</p> <p><b>AND</b>  <b>93281</b>                      Programming device evaluation with iterative adjustment of the implantable device to test the function of the device and select optimal permanent programmed values with physician analysis, review and report; multiple lead pacemaker system</p>	<p><b>OR</b>  <b>+93325-26**</b>                      Doppler echocardiography color flow velocity mapping (List separately in addition to codes for echocardiography)</p> <p><b>AND</b>  <b>93281-26**</b>                      Programming device evaluation with iterative adjustment of the implantable device to test the function of the device and select optimal permanent programmed values with physician analysis, review and report; multiple lead pacemaker system</p>

## Replacement of CRT-P pulse generator

<b>Hospital Inpatient</b> ICD-9-CM Codes <sup>1</sup>	<b>Hospital Outpatient*</b> CPT® Codes <sup>2,3</sup>	<b>Physician*</b> CPT® Codes <sup>2,3</sup>
<p><b>00.53 Implantation or replacement of cardiac resynchronization pacemaker, pulse generator only [CRT-P]</b></p> <p><i>Note: Device testing during procedure —omit code</i></p> <ul style="list-style-type: none"> <li>• Implantation of CRT-P device with removal of any existing CRT-P or other pacemaker device</li> </ul> <p><b>Excludes:</b></p> <ul style="list-style-type: none"> <li>• Implantation of cardiac resynchronization pacemaker, total system [CRT-P] (00.50)</li> <li>• Implantation or replacement of cardiac resynchronization defibrillator, pulse generator only [CRT-D] (00.54)</li> <li>• Insertion or replacement of any type pacemaker device (37.80–37.87)</li> </ul>	<p><b>33213</b> Insertion or replacement of pacemaker pulse generator only; dual-chamber</p> <p><b>33233</b> Removal of permanent pacemaker pulse generator</p>	<p><b>33213</b> Insertion or replacement of pacemaker pulse generator only; dual-chamber</p> <p><b>33233-51**</b> Removal of permanent pacemaker pulse generator</p>

## LV Lead extraction

<b>Hospital Inpatient</b> ICD-9-CM Codes <sup>1</sup>	<b>Hospital Outpatient*</b> CPT® Codes <sup>2,3</sup>	<b>Physician*</b> CPT® Codes <sup>2,3</sup>
<p><b>37.77 Removal of lead(s) [electrode] without replacement</b></p> <p><b>Removal:</b></p> <ul style="list-style-type: none"> <li>• Epicardial lead (transthoracic approach) transvenous lead(s)</li> </ul> <p><b>Excludes:</b></p> <ul style="list-style-type: none"> <li>• Removal of temporary transvenous pacemaker system – omit code</li> <li>• That with replacement of:                             <ul style="list-style-type: none"> <li>– atrial and/or ventricular lead(s) [electrode] (37.76)</li> <li>– epicardial lead [electrode] (37.74)</li> </ul> </li> </ul>	<p><b>33234</b> Removal of transvenous pacemaker electrode(s); single lead system, atrial or ventricular</p> <p><b>71090</b> Insertion pacemaker, fluoroscopy and radiography, radiological supervision and interpretation</p>	<p><b>33234</b> Removal of transvenous pacemaker electrode(s); single lead system, atrial or ventricular</p> <p><b>71090–26</b> Insertion pacemaker, fluoroscopy and radiography, radiological supervision and interpretation</p>

<b>CRT-P follow-up in person</b>		
<b>Hospital Inpatient</b> ICD-9-CM Codes <sup>1</sup>	<b>Hospital Outpatient*</b> CPT® Codes <sup>2,3</sup>	<b>Physician*</b> CPT® Codes <sup>2,3</sup>
<p><b>89.45 Artificial pacemaker rate check</b></p> <ul style="list-style-type: none"> <li>Artificial pacemaker function check NOS</li> <li>Bedside device check of pacemaker or cardiac resynchronization pacemaker [CRT-P]</li> <li>Interrogation only without arrhythmia induction</li> </ul> <p><b>Excludes:</b></p> <ul style="list-style-type: none"> <li>Catheter based invasive electrophysiologic testing (37.26)</li> <li>Non-invasive programmed electrical stimulation [NIPS] (arrhythmia induction) (37.20)</li> </ul>	<p><b>93281</b> Programming device evaluation with iterative adjustment of the implantable device to test the function of the device and select optimal permanent programmed values with physician analysis, review and report; multiple lead pacemaker system</p> <p><b>OR</b></p> <p><b>93288</b> Interrogation device evaluation (in person) with physician analysis, review and report, includes connection, recording and disconnection per patient encounter; single, dual, or multiple lead pacemaker system</p>	<p><b>93281-26**</b> Programming device evaluation with iterative adjustment of the implantable device to test the function of the device and select optimal permanent programmed values with physician analysis, review and report; multiple lead pacemaker system</p> <p><b>OR</b></p> <p><b>93288-26**</b> Interrogation device evaluation (in person) with physician analysis, review and report, includes connection, recording and disconnection per patient encounter; single, dual, or multiple lead pacemaker system</p>

<b>CRT-P interrogation (remote)</b>		
<b>Hospital Inpatient</b> ICD-9-CM Codes <sup>1</sup>	<b>Hospital Outpatient*</b> CPT® Codes <sup>2,3</sup>	<b>Physician*</b> CPT® Codes <sup>2,3</sup>
<p><b>Not Applicable; inappropriate site of service for this scenario.</b></p>	<p><b>Not Applicable; inappropriate site of service for this scenario.</b></p>	<p><b>93294</b> Interrogation device evaluation(s) (remote), up to 90 days, single, dual, or multiple lead pacemaker system with interim physician analysis, review(s) and reports(s)</p> <p><b>AND (if applicable)</b></p> <p><b>93296</b> Interrogation device evaluation(s) (remote), up to 90 days; single, dual, or multiple lead pacemaker system or implantable cardioverter defibrillator system, remote data acquisition(s), receipt of transmissions and technician review, technical support and distribution of results</p>

**CRT-P follow-up (remote) with analysis of Implantable Cardiovascular Monitor (ICM) data**

<b>Hospital Inpatient</b> ICD-9-CM Codes <sup>1</sup>	<b>Hospital Outpatient*</b> CPT® Codes <sup>2,3</sup>	<b>Physician*</b> CPT® Codes <sup>2,3</sup>
<p><b>Not Applicable; inappropriate site of service for this scenario.</b></p>	<p><b>93294</b>                      Interrogation device evaluation(s) (remote), up to 90 days, single, dual, or multiple lead pacemaker system with interim physician analysis, review(s) and reports(s)</p> <p><b>AND (if applicable)</b></p> <p><b>93296</b>                      Interrogation device evaluation(s) (remote), up to 90 days; single, dual, or multiple lead pacemaker system or implantable cardioverter defibrillator system, remote data acquisition(s), receipt of transmissions and technician review, technical support and distribution of results</p> <p><b>AND</b></p> <p><b>93297</b>                      Interrogation device evaluation(s), (remote) up to 30 days; implantable cardiovascular monitor system, including analysis of 1 or more recorded physiologic cardiovascular data elements from all internal and external sensors, physician analysis, review(s) and report(s)</p>	<p><b>93294</b>                      Interrogation device evaluation(s) (remote), up to 90 days, single, dual, or multiple lead pacemaker system with interim physician analysis, review(s) and reports(s)</p> <p><b>AND (if applicable)</b></p> <p><b>93296</b>                      Interrogation device evaluation(s) (remote), up to 90 days; single, dual, or multiple lead pacemaker system or implantable cardioverter defibrillator system, remote data acquisition(s), receipt of transmissions and technician review, technical support and distribution of results</p> <p><b>AND</b></p> <p><b>93297</b>                      Interrogation device evaluation(s), (remote) up to 30 days; implantable cardiovascular monitor system, including analysis of 1 or more recorded physiologic cardiovascular data elements from all internal and external sensors, physician analysis, review(s) and report(s)</p>

<sup>1</sup> Ingenix. Updatable 2009 ICD-9-CM Expert for Hospitals, Volumes 1, 2 and 3. 6th Revision. Salt Lake City, UT: 2008

<sup>2</sup> Heart Rhythm Society. CPT Coding Guide for Heart Rhythm Procedures and Services, 2008. Washington D.C.: 2008.

<sup>3</sup> American Medical Association. Current Procedural Terminology (CPT) 2009. Professional Edition. Chicago, IL: 2008. Current Procedural Terminology (CPT) is copyright 2008 American Medical Association (AMA). All Rights Reserved. No fee schedules, basic units, relative values, or related listings are included in CPT. The AMA assumes no liability for the data contained herein. Applicable FARS/DFARS restrictions apply to government use. CPT is a registered trademark of the American Medical Association.

\* As of January 1, 2005, the Centers for Medicare and Medicaid Services (CMS) requires hospitals to report all device category codes (C-codes) on Medicare outpatient claims when medical devices are used in conjunction with procedure(s) billed. If C-codes are not identified on submitted Medicare outpatient claims, the claim(s) will be returned to the hospital for correction. Find C-codes for CRM devices at <http://www.bostonscientific.com/crm/reimbursement>. Also find C-codes for CRM devices and related accessories (e.g., introducers, catheters, sheaths) at <http://www.cms.hhs.gov/transmittals/downloads/A03076.pdf> and [http://www.cms.hhs.gov/HospitalOutpatientPPS/04\\_passthrough\\_payment.asp](http://www.cms.hhs.gov/HospitalOutpatientPPS/04_passthrough_payment.asp).

\*\* Modifiers 26 (professional component) and 51 (multiple procedures) are for physician billing only. See the *AMA Current Procedural Terminology 2009* for complete descriptions. Historically, third-party payers have used –51 modifier in various ways that may affect payment. Always verify appropriate usage with payers.

**Note:** *The CPT coding scenarios in this document are from the Heart Rhythm Society's (HRS) CPT coding guide. The ICD-9-CM scenarios are not from the HRS coding guide. However, they were formulated using 2009 ICD-9-CM terminology and following Medicare coding guidelines.*

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