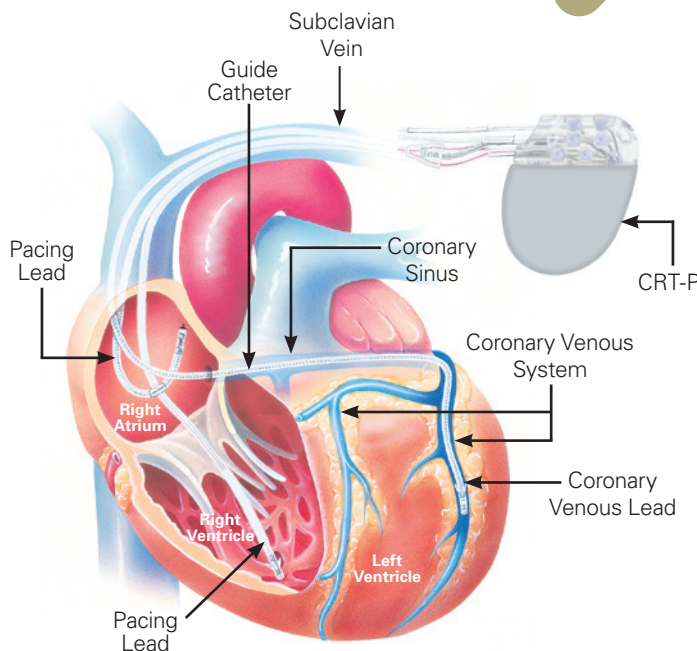


Cardiac Resynchronization Therapy Pacemaker (CRT-P) Coding Overview

GuidePoint

Simplifying Reimbursement

Cardiac Rhythm Management and Electrophysiology



Updated January 2010

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 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 into 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. **Pacing leads** are inserted into the right ventricle and right atrium, under **fluoroscopy (71090)**
3. A **guiding catheter** is inserted into the subclavian vein.
4. The coronary sinus (cs) is cannulated with the guide catheter via the coronary sinus ostium (opening).
5. In most cases, a **venogram** is required to visualize the coronary venous system prior to inserting the left ventricular lead.
6. A **guide wire** is inserted through the guide catheter, into the coronary venous system to the desired branch vein.
7. Under **fluoroscopy**, the **left ventricular coronary venous lead (+33225)** is inserted over the guide wire and into a branch of the coronary venous system.
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

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 2010* for specific guidelines.)

Initial CRT-P system implant, Venogram of the coronary sinus; with fluoroscopy

Hospital Inpatient ICD-9-CM Codes ¹	Hospital Outpatient* CPT® Codes ²	Physician CPT® Codes ²
<p>00.50 Implantation of cardiac resynchronization pacemaker without mention of defibrillator, total system [CRT-P]</p> <p><i>Note: Device testing during procedure — omit code</i></p> <ul style="list-style-type: none"> • Biventricular pacemaker • Biventricular pacing without internal cardiac defibrillator • BiV pacemaker • 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 • That with CRT-P generator and one or more leads <p>Excludes:</p> <ul style="list-style-type: none"> • Implantation of cardiac resynchronization defibrillator, total system [CRT-D] (00.51) • Insertion or replacement of any type pacemaker device (37.80–37.87) • Replacement of cardiac resynchronization: <ul style="list-style-type: none"> – defibrillator, pulse generator only [CRT-D] (00.54) – pacemaker, pulse generator only [CRT-P] (00.53) <p>88.63 Phlebography of other intrathoracic veins using contrast material</p>	<ul style="list-style-type: none"> • 33208 Insertion or replacement of permanent pacemaker with transvenous electrodes; atrial and ventricular +33225 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) 71090 Insertion pacemaker, fluoroscopy and radiography, radiological supervision and interpretation 	<ul style="list-style-type: none"> • 33208 Insertion or replacement of permanent pacemaker with transvenous electrodes; atrial and ventricular +33225 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) 71090–26** Insertion pacemaker, fluoroscopy and radiography, radiological supervision and interpretation

Replacement of CRT-P pulse generator visualized under fluoroscopic guidance

Hospital Inpatient ICD-9-CM Codes ¹	Hospital Outpatient* CPT® Codes ²	Physician CPT® Codes ²
<p>00.53 Implantation or replacement of cardiac resynchronization pacemaker, pulse generator only [CRT-P]</p> <p><i>Note: Device testing during procedure —omit code</i></p> <ul style="list-style-type: none"> • Implantation of CRT-P device with removal of any existing CRT-P or other pacemaker device <p>Excludes:</p> <ul style="list-style-type: none"> • Implantation of cardiac resynchronization pacemaker, total system [CRT-P] (00.50) • Implantation or replacement of cardiac resynchronization defibrillator, pulse generator only [CRT-D] (00.54) • Insertion or replacement of any type pacemaker device (37.80–37.87) 	<p>33213 Insertion or replacement of pacemaker pulse generator only; dual chamber</p> <p>33233 Removal of permanent pacemaker pulse generator</p> <p>71090 Insertion pacemaker, fluoroscopy and radiography, radiological supervision and interpretation</p>	<p>33213 Insertion or replacement of pacemaker pulse generator only; dual chamber</p> <p>33233-51** Removal of permanent pacemaker pulse generator</p> <p>71090-26** Insertion pacemaker, fluoroscopy and radiography, radiological supervision and interpretation</p>

Single chamber pacemaker upgrade to CRT-P, with insertion of right atrial lead, and insertion of left ventricular lead with fluoroscopy and coronary sinus venogram

Hospital Inpatient ICD-9-CM Codes ¹	Hospital Outpatient* CPT® Codes ²	Physician CPT® Codes ²
<p>00.50 Implantation of cardiac resynchronization pacemaker without mention of defibrillation, total system [CRT-P]</p> <p><i>Note: Device testing during procedure —omit code</i></p> <ul style="list-style-type: none"> • Biventricular pacemaker • Biventricular pacing without internal cardiac defibrillator • BiV pacemaker • 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 • That with CRT-P generator and one or more leads <p>Excludes:</p> <ul style="list-style-type: none"> • Implantation of cardiac resynchronization defibrillator, total system [CRT-D] (00.51) • Insertion or replacement of any type pacemaker device (37.80–37.87) • Replacement of cardiac resynchronization: <ul style="list-style-type: none"> – defibrillator, pulse generator only [CRT-D] (00.54) – pacemaker, pulse generator only [CRT-P] (00.53) <p>88.63 Phlebography of other intrathoracic veins using contrast material</p>	<p>• 33214 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)</p> <p>+33225 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)</p> <p>71090 Insertion pacemaker, fluoroscopy and radiography, radiological supervision and interpretation</p>	<p>• 33214 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)</p> <p>+33225 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)</p> <p>71090–26** Insertion pacemaker, fluoroscopy and radiography, radiological supervision and interpretation</p>

+ Add-on code ● Moderate sedation

Dual chamber pacemaker upgrade to CRT-P (left ventricular lead insertion and pulse generator upgrade), with coronary sinus venogram and fluoroscopic visualization of leads

Hospital Inpatient ICD-9-CM Codes ¹	Hospital Outpatient* CPT® Codes ²	Physician CPT® Codes ²
<p>00.53 Implantation or replacement of cardiac resynchronization pacemaker, pulse generator only [CRT-P]</p> <p><i>Note: Device testing during procedure —omit code</i></p> <ul style="list-style-type: none"> • Implantation of CRT-P device with removal of any existing CRT-P or other pacemaker device <p>Excludes:</p> <ul style="list-style-type: none"> • Implantation of cardiac resynchronization pacemaker, total system [CRT-P] (00.50) • Implantation or replacement of cardiac resynchronization defibrillator, pulse generator only [CRT-D] (00.54) • Insertion or replacement of any type pacemaker device (37.80–37.87) <p>88.63 Phlebography of other intrathoracic veins using contrast material</p>	<ul style="list-style-type: none"> • 33213 Insertion or replacement of pacemaker pulse generator only; dual chamber • 33233 Removal of permanent pacemaker pulse generator +33225 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) 71090 Insertion pacemaker, fluoroscopy and radiography, radiological supervision and interpretation 	<ul style="list-style-type: none"> • 33213 Insertion or replacement of pacemaker pulse generator only; dual chamber • 33233-51** Removal of permanent pacemaker pulse generator +33225 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) 71090-26** Insertion pacemaker, fluoroscopy and radiography, radiological supervision and interpretation

+ Add-on code • Moderate sedation

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

Hospital Inpatient ICD-9-CM Codes ¹	Hospital Outpatient* CPT® Codes ²	Physician CPT® Codes ²
<p>88.72 Diagnostic ultrasound of the heart</p> <ul style="list-style-type: none"> Echocardiography Transesophageal echocardiography <p>Excludes:</p> <ul style="list-style-type: none"> Echocardiography of heart chambers (37.28) Intracardiac echocardiography (ICE) (37.28) Intravascular (IVUS) imaging of coronary vessels (00.24) <p>89.45 Artificial pacemaker rate check</p> <ul style="list-style-type: none"> Artificial pacemaker function check NOS Bedside device check of pacemaker or cardiac resynchronization pacemaker [CRT-P] Interrogation only without arrhythmia induction <p>Excludes:</p> <ul style="list-style-type: none"> Catheter based invasive electrophysiologic testing (37.26) Non-invasive programmed electrical stimulation [NIPS] (arrhythmia induction) (37.20) 	<p>93306 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>OR 93307 Echocardiography, transthoracic, real-time with image documentation (2D), includes M-mode recording, when performed, complete, without spectral or color Doppler echocardiography</p> <p>OR 93308 Echocardiography, transthoracic, real-time with image documentation (2D), includes M-mode recording, when performed, follow-up or limited study</p> <p>AND +93321 Doppler echocardiography, pulsed wave and/or continuous wave with spectral display, follow-up or limited study</p> <p>(List separately in addition to codes for echocardiography imaging)</p> <p>OR +93325 Doppler echocardiography color flow velocity mapping</p> <p>(List separately in addition to codes for echocardiography)</p> <p>AND 93281 Programming device evaluation (in person) 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>93306 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>OR 93307-26** Echocardiography, transthoracic, real-time with image documentation (2D), includes M-mode recording, when performed, complete, without spectral or color Doppler echocardiography</p> <p>OR 93308-26** Echocardiography transthoracic real-time with image documentation (2D), includes M-mode recording, when performed, follow-up or limited study</p> <p>AND +93321-26** Doppler echocardiography, pulsed wave and/or continuous wave with spectral display: follow-up or limited study</p> <p>(List separately in addition to codes for echocardiography imaging)</p> <p>OR +93325-26** Doppler echocardiography color flow velocity mapping</p> <p>(List separately in addition to codes for echocardiography)</p> <p>AND 93281-26** Programming device evaluation (in person) 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>

+ Add-on code

LV lead extraction visualized under fluoroscopic guidance

Hospital Inpatient ICD-9-CM Codes ¹	Hospital Outpatient* CPT® Codes ²	Physician CPT® Codes ²
<p>37.77 Removal of lead(s) [electrode] without replacement</p> <p>Removal:</p> <ul style="list-style-type: none"> • Epicardial lead (transthoracic approach) • Transvenous lead(s) <p>Excludes:</p> <ul style="list-style-type: none"> • Removal of temporary transvenous pacemaker system – omit code • That with replacement of: <ul style="list-style-type: none"> – atrial and/or ventricular lead(s) [electrode] (37.76) – epicardial lead [electrode] (37.74) <p>88.63 Phlebography of other intrathoracic veins using contrast material</p>	<p>33234 Removal of transvenous pacemaker electrode(s); single lead system, atrial or ventricular</p> <p>71090 Insertion pacemaker, fluoroscopy and radiography, radiological supervision and interpretation</p>	<p>33234 Removal of transvenous pacemaker electrode(s); single lead system, atrial or ventricular</p> <p>71090–26** Insertion pacemaker, fluoroscopy and radiography, radiological supervision and interpretation</p>

CRT-P follow-up (in person)

Hospital Inpatient ICD-9-CM Codes ¹	Hospital Outpatient* CPT® Codes ²	Physician CPT® Codes ²
<p>89.45 Artificial pacemaker rate check</p> <ul style="list-style-type: none"> Artificial pacemaker function check NOS Bedside device check of pacemaker or cardiac resynchronization pacemaker [CRT-P] Interrogation only without arrhythmia induction <p>Excludes:</p> <ul style="list-style-type: none"> Catheter based invasive electrophysiologic testing (37.26) Non-invasive programmed electrical stimulation [NIPS] (arrhythmia induction) (37.20) 	<p>93281 (if applicable) Programming device evaluation (in person) 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>OR</p> <p>93288 (if applicable) 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>93281 Programming device evaluation (in person) 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>OR</p> <p>93288 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>

CRT-P follow-up (remote)

Hospital Inpatient ICD-9-CM Codes ¹	Hospital Outpatient* CPT® Codes ²	Physician CPT® Codes ²
<p>Not Applicable; inappropriate site of service for this scenario.</p>	<p>93294 (if applicable) 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>AND (if applicable)</p> <p>93296 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>93294 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>AND (if applicable)</p> <p>93296 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

Hospital Inpatient ICD-9-CM Codes ¹	Hospital Outpatient* CPT® Codes ²	Physician CPT® Codes ²
<p><i>Not Applicable; inappropriate site of service for this scenario.</i></p>	<p>93294 (if applicable) 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>AND</p> <p>93296 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>AND</p> <p>93297 (if applicable) 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>93294 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>AND (if applicable)</p> <p>93296 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>AND</p> <p>93297 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>

- ¹ American Medical Association. 2010 ICD-9-CM For Hospitals, Volumes 1, 2 and 3. Professional Edition. Chicago, IL: 2009.
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- * 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/HospitalOutpatientPPS/Downloads/DeviceCats_OPSPUpdate.pdf.
- ** Modifiers 26 (professional component) and 51 (multiple procedures) are for physician billing only. See the *AMA Current Procedural Terminology 2010* for complete descriptions. Always verify appropriate usage with payers.

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