

GuidePoint



GuidePoint is simplifying reimbursement.

Physician Reimbursement Primer for Cardiac Rhythm Management

With Clinical Case Examples

**Boston
Scientific**
Delivering what's next.™

DISCLAIMER

Reimbursement information provided by Boston Scientific Corporation is gathered from third-party sources and is presented for illustrative purposes only. This information does not constitute reimbursement or legal advice. Boston Scientific makes no representation or warranty regarding this information or its completeness, accuracy, timeliness, or applicability with a particular patient. Boston Scientific specifically disclaims liability or responsibility for the results or consequences of any actions taken in reliance on information in this document. Boston Scientific encourages providers to submit accurate and appropriate claims for services. Laws, regulations, and payer policies concerning reimbursement are complex and change frequently. Providers are responsible for making appropriate decisions relating to coding and reimbursement submissions. Accordingly, Boston Scientific recommends that you consult with your payers, reimbursement specialist, and/or legal counsel regarding coding, coverage, and reimbursement matters. The information in this guide is current as of June 1, 2009. The Centers for Medicare & Medicaid Services (CMS) may initiate changes to coverage, coding, or payment guidelines at any time. Check the CMS website (www.cms.hhs.gov) for current information.

Copyright ©2009 by Boston Scientific Corporation

All rights reserved.

No part of this book may be reproduced in any form whatsoever without written permission from the publisher.

CPT Copyright 2008 American Medical Association. All rights reserved. CPT is a registered trademark of the American Medical Association. Applicable FARS/DFARS restrictions apply to government use. Fee schedules, relative value units, conversion factors, and/or related components are not assigned by the AMA and are not part of CPT, and the AMA is not recommending their use. The AMA does not directly or indirectly practice medicine or dispense medical services. The AMA assumes no liability for data contained or not contained herein.

Contents

Chapter 1: Introduction 1

- How This Guide Is Organized 1
- Terminology Used in This Guide 1

Chapter 2: Overview of Coding and Payment Systems 3

- The Reimbursement Process 3
- Hospital Outpatient and Ambulatory Surgical Center Services 4
 - Hospital Outpatient Prospective Payment System 4
 - Payment for Ambulatory Surgical Centers 5
- Inpatient Procedure and Diagnosis Coding 5
 - In-Patient Admission General Rules 5
 - ICD-9-CM Procedure Codes 6
 - MS-DRG Basics 6
 - MS-DRG Payments 6
- MS-DRG Logic for CRM Procedures 8
 - Pacemakers or Cardiac Resynchronization Therapy Pacemakers 8
 - ICD or Cardiac Resynchronization Therapy Defibrillator 8
 - Electrophysiology Study and Ablation 9

Chapter 3: Indications and Coverage Determinations 11

- National Coverage Determinations 11
 - Medicare NCD for Cardiac Pacemakers 11
 - Pacemaker—Evaluation Services 15
 - Medicare NCD for Implantable Cardioverter Defibrillators (ICDs) 16
 - Medicare NCD for Cardiac Resynchronization Therapy Pacemakers (CRT-Ps) 19
 - Medicare NCD for Cardiac Resynchronization Therapy Defibrillators (CRT-Ds) 19
 - Medicare NCD for Intracardiac Electrophysiology and Related Procedures 20
- ICD National Coverage 20
- National Coverage for Device Follow-up 20
- Local Coverage Determinations 21
 - Cardiac Resynchronization Therapy Pacemakers (CRT-Ps) 22
 - Cardiac Resynchronization Therapy Defibrillators (CRT-Ds) 22
 - Intracardiac Electrophysiology and Related Procedures 22

Chapter 4: Hospital and Physician Office Billing Processes 23

■ Hospital Coding and Charge Capture	23
Chargemaster-Driven Systems	23
HIM Review	24
■ Superbills	24

Chapter 5: Coding Overview 25

■ Pacemaker	25
Permanent Pacemaker Initial Implantation (33206–33208)	25
Pacemaker Generator Replacement (33212, 33213)	25
Pacemaker Generator Upgrade (33214)	26
Pacemaker Removal (33233)	26
Pacemaker Lead (Electrode) Insertion (33216, 33217)	26
Pacemaker Biventricular Lead (Electrode) Placement Into Cardiac Venous System (33224, 33225)	27
Pacemaker Lead (Electrode) Repositioning (33215, 33226)	28
Pacemaker Lead (Electrode) Removal (33234, 33235)	28
Pacemaker Lead (Electrode) Repair (33218, 33220)	29
Pacemaker Revision to Skin Pocket—Pacemaker Generators (33222)	30
Temporary Pacing (33210, 33211)	30
■ Implantable Cardioverter-Defibrillator (ICD)	31
ICD Initial Implant (33249)	31
ICD Generator Replacement (33240)	32
ICD Generator Removal (33241)	32
ICD Pacemaker Generator Lead (Electrode) Insertion (33216, 33217)	32
ICD Pacemaker Generator Biventricular Lead (Electrode) Placement Into Cardiac Venous System (33224, 33225)	33
ICD Pacemaker Generator Lead (Electrode) Repositioning (33215, 33226)	34
ICD Pacemaker Generator Lead Removal (Extraction) (33244)	34
ICD Pacemaker Generator Lead (Electrode) Repair (33218, 33220)	35
ICD Pacemaker Generator Revision to Skin Pocket (33223)	35
■ Testing Device and Leads	36
Testing Device and Leads (93640, 93641)	36
■ Non-Invasive and Invasive Program Stimulation (NIPS)	37
EP Study to Evaluate Therapy (93624)	37
EP Study to Evaluate ICD System (93642)	37
EP Study to Evaluate Pacemaker (93724)	37
■ Diagnostic EP Testing	38
Single-Site Studies (93600–93603, 93610, 93612, 93618)	38
Esophageal Electrocardiography (93615, 93616)	38
Mapping (Intracardiac) (93609, 93613)	39
Comprehensive EP Studies (93619, 93620)	39
Add-on Codes (93621, 93622, 93623)	40
■ Ablation	41

Ablation (93650, 93651, 93652).....	41
Intracardiac Echocardiography (93662).....	42

Chapter 6: Clinical Case Examples 45

■ Case Study 1.....	45
■ Case Study 2.....	45
■ Case Study 3.....	46
■ Case Study 4.....	46
■ Case Study 5.....	46
■ Case Study 6.....	47
■ References.....	49

Chapter 1

Introduction

Boston Scientific Cardiac Rhythm Management (CRM) is excited to present you with our *Physician Reimbursement Primer for Cardiac Rhythm Management*. The purpose of this guide is to introduce you, the health care professional, to the general mechanisms of the reimbursement systems that govern cardiac rhythm management services and procedures. We hope you find this guide to be useful in understanding the reimbursement landscape, how you must document diagnoses and treatment in the medical record, and how to establish medical necessity and generate appropriate payment¹.

Information within this guide is taken directly from the American Medical Association *Current Procedural Terminology (CPT®) 2009 Professional Edition*.

How This Guide Is Organized

The guide is organized as follows:

- Chapter 2 is a brief overview of the payment methods for outpatient and inpatient care. It describes the major coding systems that come into play in outpatient, ambulatory surgery center, and inpatient hospital settings.
- Chapter 3 explains various indications and coverage determinations for cardiac rhythm management devices. These policy statements govern the patient diagnoses that you must document to establish medical necessity for procedures and devices.
- Chapter 4 describes the billing processes employed in common care settings. These processes translate the diagnoses and procedures documented in the medical record into properly prepared insurance claims that are submitted for payment.
- Chapter 5 examines the outpatient procedural codes for reporting various CRM procedures and devices. It covers implantation of pacemakers and AICDs, testing devices and leads, non-invasive and invasive program stimulation, diagnostic electrophysiology studies, and percutaneous ablation.
- Chapter 6 presents actual case studies showing the appropriate outpatient procedural coding.

Terminology Used in This Guide

The following table defines abbreviations and acronyms that appear throughout this publication.

Acronym	Term
AICD	automatic implantable cardioverter/defibrillator
APC	Ambulatory Payment Classification
ASC	ambulatory surgery center
CC	complication/comorbidity
CCI	correct coding initiative (Medicare)
CIED	cardiovascular implantable electronic device
CMS	Centers for Medicare & Medicaid Services
CPT	Common Procedural Terminology

Acronym	Term
CRM	cardiac rhythm management
CRT-D	cardiac resynchronization therapy-defibrillator
CRT-P	cardiac resynchronization therapy-pacemaker
DFT	defibrillator threshold testing
DRG	Diagnosis-Related Group
EKG	electrocardiogram
EP	electrophysiology
HCPCS	Healthcare Common Procedure Coding System
HIM	health information management
ICD	implantable cardioverter-defibrillator
ILR	implantable loop recorder
IPPS	Inpatient Prospective Payment System
LCD	local coverage determination
LVEF	left ventricular ejection fraction
MA	Medicare Advantage (plan)
MCC	major complication/comorbidity
MI	myocardial infarction
MS-DRG	Medicare Severity Diagnosis-Related Group
NCD	national coverage determination
NIPS	noninvasive program stimulation
OCE	Outpatient Code Editor
OPPS	Outpatient Prospective Payment System
RTP	return to provider
SCD	sudden cardiac death

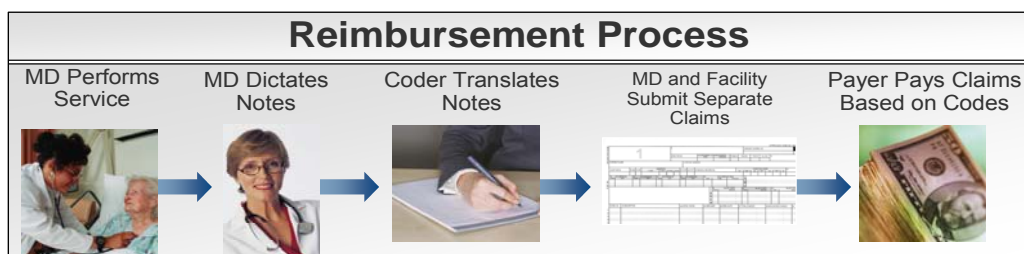
Chapter 2

Overview of Coding and Payment Systems

Medicare is a federally funded national health insurance program providing coverage to approximately 40 million Americans who are 65 or older, certain younger people with disabilities, and individuals with end-stage renal disease (ESRD)². Payment by Medicare is predicated on medical necessity.

The Reimbursement Process

As the illustration below shows, reimbursement is the end process of a series of steps involving the patient, the provider, and the payer.



It is important to remember that reimbursement consists of three main elements—coding, coverage, and payment.

- Coding—a language used to describe patient conditions and procedures. As a physician, there are two main types of codes you will be concerned with:
 - ▷ Procedure codes: Numerical descriptions of the procedures or services provided. In an outpatient setting or physician office, CPT procedure codes are used. In a hospital inpatient setting, ICD-9 procedure codes are used. For example:
33249 Insertion or repositioning of electrode lead(s) for single-chamber pacing cardioverter-defibrillator and insertion of pulse generator
 - ▷ Diagnosis codes: Numerical descriptions from the ICD-9 coding system that report the diagnosis of the patient. For example:
427.41 Ventricular fibrillation
- Coverage—the terms and conditions that define which products and services are eligible for payment
- Payment—the amount of money paid to a hospital/facility, physician, or supplier for services.

Coding and coverage will be explained in subsequent chapters. For now, let's focus on payment. Keep in mind that there are three payment mechanisms corresponding to the site of service at which procedures are performed.

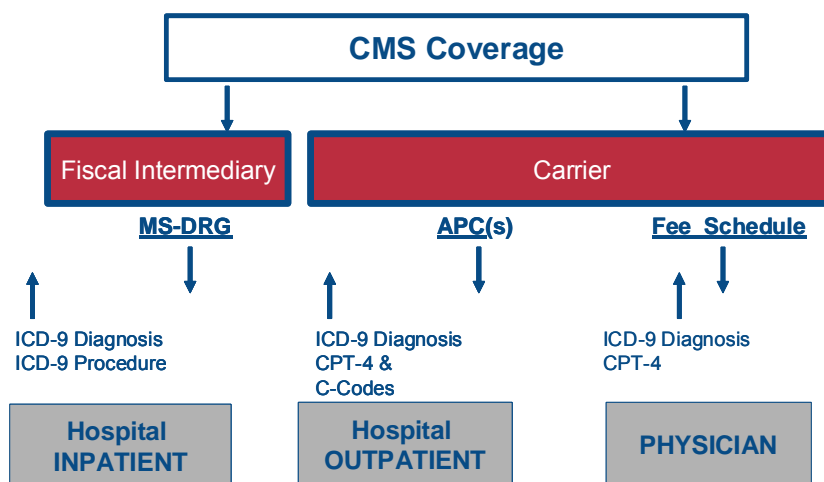
- Hospital inpatient—If a patient is formally admitted to the hospital as an inpatient, the hospital is reimbursed through an MS-DRG payment system (explained in more

detail below). This payment is intended to cover all hospital expenses (overhead, capital equipment, supplies, etc.) with the exception of physician labor³.

- Hospital outpatient—If a patient is treated in an outpatient setting, the facility is reimbursed through an APC payment system (explained in more detail below). This payment is intended to cover all facility expenses (overhead, capital equipment, supplies, etc.) with the exception of physician labor⁴.
- Physician—Physicians receive payment for each CPT procedure code based on the Medicare physician fee schedule. These payments are usually based on the physician's time, the complexity of the case, and other factors.

The following chart summarizes the Medicare payment process. You may find it helpful to refer to this chart when reviewing the information in this chapter about the different care settings, code types, and payment systems. (Note that fiscal intermediaries and carriers are in the process of being replaced by Part A/Part B Medicare Administrative Contractors, or A/B MACs.)

Medicare Payment Process



The above discussion is a brief overview of the three payment mechanisms. This guide would be incomplete if we did not provide you with further details on this topic. Below we revisit and explain each of the three payment mechanisms, using examples showing how each of them function. If you are satisfied with just a brief overview, then feel free to skip to the next chapter.

Hospital Outpatient and Ambulatory Surgical Center Services

Hospital Outpatient Prospective Payment System

Medicare established the Outpatient Prospective Payment System (OPPS) to reimburse mainly for hospital outpatient services. It is called a “prospective” payment system because Medicare pays a pre-determined rate for each service or procedure based on the average costs it expects a facility to incur.

Medicare classifies all services paid under this system into ambulatory payment classifications (APCs). Each APC contains procedures that are similar both clinically and in terms of the resources they require. Medicare then establishes a payment rate for each APC. Depending on the services provided, hospitals may be paid for more than one APC

for an encounter. Payment may be reduced for certain procedures performed in combination with others.

As an example, suppose a hospital outpatient department reports CPT code 33208:

33208 Dual-chamber pacemaker insertion with RA and RV lead insertion

Medicare will classify this procedure under APC 0655, Insertion/Replacement/Conversion of a Permanent Dual Chamber Pacemaker, for which the 2009 national base payment rate is \$ \$9,512.21. Medicare will adjust this amount by a local wage index, and reimburse the hospital.

Each year, CMS publishes a proposed and then final rule in the *Federal Register* to update the outpatient prospective payment system (OPPS). These annual revisions commonly include updating the payment rates and adding or deleting codes, among other changes.

Payment for Ambulatory Surgical Centers

The Medicare OPPS relative payment weight and rate information is used to determine payment rates for procedures performed in ambulatory surgical centers (ASCs). These are health care facilities that specialize in providing surgery and certain pain management and diagnostic services in an outpatient setting. The 2008 ASC payment update provided an increase in coverage of many CRM device-related procedures that have never been performed in this setting. Typically ASC payments for CRM services are 85 percent to 95 percent of outpatient payments.

Inpatient Procedure and Diagnosis Coding

In-Patient Admission General Rules

For a procedure to be performed in the inpatient setting, the physician must issue clear admission orders (“admit to hospital” versus “place in observation”), and the patient’s medical record must clearly and accurately document the medical justification.

Medical necessity is also guided by the following general rules for inpatient admissions:

- 1) Ascertain whether the procedure can be safely provided in an alternate site of service.
- 2) Document patient comorbidities and the underlying need for admission.
- 3) Clearly note “Admit to Inpatient Status” or “Place in Observation” (avoid vague terms such as “Admit”).
- 4) Communicate: Notify the director of admitting, utilization review director, and/or Medicare compliance officer.

In addition, patients are typically admitted on an inpatient basis only when they have an acute condition requiring treatment only in a hospital setting and, based on the physician’s assessment, are unlikely to be ready for discharge within 24 hours. If the non-emergent patient has comorbidities that require intense monitoring or hospitalization, that information must be clearly noted in the patient’s chart to support the medical necessity of an inpatient admission.

The Heart Rhythm Society has issued a position document on hospitalization criteria for pacemaker and ICD placement and EP/ablations. This document lists criteria that may be helpful for determining the appropriate setting for these procedures. It must be recognized and acknowledged that this determination is a clinical decision best made by the patient’s attending physician after a careful consideration of multiple clinical factors, including, but not limited to, the specific procedure planned, the urgency of the

procedure, the hemodynamic stability of the patient, patient co-morbidities, and the likelihood and consequences of complications arising from the procedure.

If physicians are unsure about the need, they may consider placing the patient in outpatient observation, as outpatient observation can be progressed to inpatient if the patient's condition warrants additional care and such need is clearly and accurately documented.

ICD-9-CM Procedure Codes

Hospitals report inpatient services and treatments using ICD-9-CM procedure codes, as opposed to the CPT and HCPCS procedure codes used in the outpatient setting. The ICD-9-CM codes for various inpatient procedures are identified in Chapter 5, Coding Overview.

MS-DRG Basics

Hospital inpatient care is paid under a Medicare Severity Diagnosis-Related Group (MS-DRG) system. CMS categorizes each inpatient case into an MS-DRG on the basis of several factors:

- Principal diagnosis and up to eight additional diagnoses
- Principal procedure and up to five additional procedures
- Patient's age
- Patient's sex
- Patient's discharge status.

As can be seen, the MS-DRG system represents a classification of patients into clinically cohesive groups having similar consumption of hospital resources and length of stay patterns.

MS-DRG Payments

Because complicated cases consume more resources than uncomplicated ones, CMS also established three different levels of severity for claims. The hierarchy, shown in the table below, is listed from highest to lowest.

MCC	Major complications or comorbidities
CC	Complication or comorbidity
Non-CC	Non-complication/comorbidity

With regard to heart failure, all acute heart failure is coded as an MCC, whereas chronic heart failure is coded as a CC, and congestive heart failure, (unspecified) and heart failure (unspecified) are coded as non-CCs. For this reason, you can see that accurate MS-DRG assignment requires physicians to document with specificity the type and location of heart failure. Classifying diagnoses to MCC, CC, or non-CC can mean a difference of thousands of dollars in reimbursement.

The following table shows the levels of severity for various congestive heart failure ICD-9-CM diagnosis codes and a sample of how the codes are listed in the ICD-9-CM code book.

* See *Medicare Quality Improvement Organization Manual*, Chapter 4, "Case Review," for a discussion of inpatient criteria. The chapter is available online at <http://www.cms.hhs.gov/manuals/downloads/qio110c04.pdf>.

Levels of Severity for Congestive Heart Failure

Level of severity	Type of heart failure	ICD-9-CM codes
MCC (Major Complication or Comorbidity)	Acute heart-failure	428.21—Acute systolic heart failure 428.23—Acute on chronic systolic heart failure 428.31—Acute diastolic heart failure 428.33—Acute on chronic diastolic heart failure 428.41—Acute systolic and diastolic heart failure 428.43—Acute on chronic systolic heart failure
CC (Complication or Comorbidity)	Chronic heart-failure	428.1—Left heart failure 428.20—Systolic heart failure NOS 428.22—Chronic systolic heart failure 428.30—Unspecified diastolic heart failure 428.32—Chronic diastolic heart failure 428.40—Systolic and diastolic heart failure 428.42—Chronic combined systolic and diastolic heart failure
Non-CC (Non Complication or Comorbidity)	Unspecific heart-failure	428.0—Congestive heart failure NOS 428.9—Heart failure NOS

Accuracy of the diagnosis and procedural coding, therefore, is essential to ensure that the case is assigned to the appropriate MS-DRG.

Other factors may impact the hospital's specific MS-DRG payment rates, such as a high percentage of low-income patients. Payment is also increased for unusually costly cases known as outliers. The additional outlier payment is designed to protect the hospital from large financial losses due to exceptionally expensive care. The following table shows sources of variation in MS-DRG payments among hospitals.

Variations in MS-DRG Payments Among Hospitals

	Variable	Influence on Base Payment
1	Geographic Wage Variations	Increase or decrease (+/-)
2	Indirect Medical Education (IME)	Increase (+)
3	Disproportionate Share Hospital (DSH)	Increase (+)

MS-DRG Logic for CRM Procedures

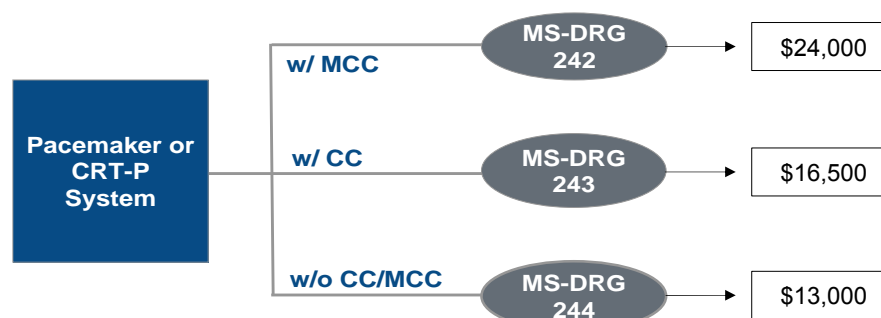
The following discussion describes the MS-DRG logic for CRM procedures. The inpatient payment system, as explained above, is driven by ICD-9-CM codes and assigned to an MS-DRG based on a hierarchy. Each MS-DRG represents a similar case complexity for reimbursement purposes.

Pacemakers or Cardiac Resynchronization Therapy Pacemakers

The MS-DRG logic for single/dual and CRT pacemaker implants divides cases into three tiers:

- The presence of an MCC diagnosis places the case in MS-DRG 242.
- If a CC is present, MS-DRG 243 with CC is assigned.
- If no CC or MCC is present, MS-DRG 244 is assigned.

The following case scenario demonstrates the logic. A patient has a single-chamber pacer for bradycardia. The patient develops class III heart failure and conduction delay. The single-chamber pacemaker is upgraded to a CRT-P system. Under the MS-DRG



Note: 2009 national average payments. Amounts have been rounded. Final rates may vary due to geographic differences.

system, heart failure unspecified (428.0) is designated as a non-CC; therefore, MS-DRG 244 is assigned. However, if the patient presented with chronic combined systolic and diastolic heart failure, code 428.42 and MS-DRG 243 would be assigned, as this code is a designated CC. If the patient had acute combined systolic and diastolic heart failure, code 428.41, then MS-DRG 242 would be assigned, as this code is an MCC.

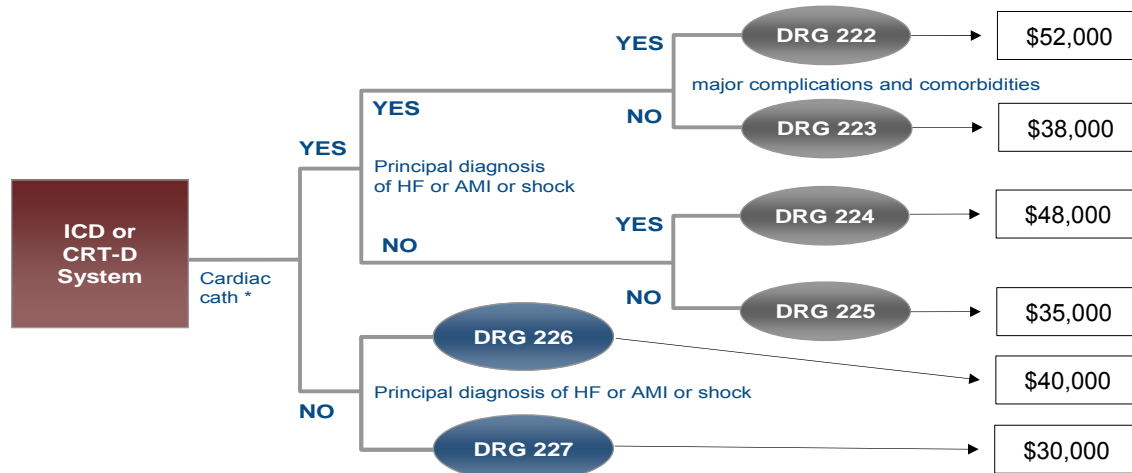
ICD or Cardiac Resynchronization Therapy Defibrillator

The MS-DRG logic for ICD and CRT-D system implants includes consideration of whether an MCC diagnosis is present.

- If no cardiac catheterization is performed, the presence of an MCC splits the DRGs into MS-DRG 226 or 227.
- If a cardiac catheterization is performed, the presence of a diagnosis of heart failure, acute myocardial infarction, or shock with an MCC diagnosis splits the DRGs into MS-DRG 222 or 223. Without a diagnosis of heart failure, acute myocardial infarction, or shock, the MCC diagnosis also splits the DRGs into MS-DRG 224 or 225.

As mentioned previously, acute heart failure is an MCC, chronic heart failure is a CC, and 428.9 or 428.0 as stand-alone codes are classified as a non-CC. The codes for acute myocardial infarction (initial episode) and cardiogenic shock are designated as MCCs.

The following case example demonstrates the logic. A patient presents with a dual-chamber ICD due to ventricular tachycardia (427.1) and needs the device upgraded to a



Note: 2009 national average payments. Amounts have been rounded. Final rates may vary due to geographic differences.

CRT-D due to Class III heart failure (428.0). No cardiac cath is performed; therefore, MS-DRG 226 is assigned, since 427.1 is a designated MCC. If an ICD generator only is implanted or replaced, MS-DRG 245 is assigned for this stand-alone procedure.

Electrophysiology Study and Ablation

The presence of an MCC diagnosis drives the logic for MS-DRGs relating to catheter ablation and EP studies:

- If an MCC diagnosis is present, the case groups to MS-DRG 250.
- If no MCC is present, MS-DRG 251 is assigned.

Chapter 3

Indications and Coverage Determinations

This chapter outlines the general coverage policies for CRM devices. CMS establishes national Medicare coverage policy, but its contractor payers may provide local guidance with more detailed—yet sometimes differing—billing and coding instructions.

National Coverage Determinations

The Centers for Medicare & Medicaid Services (CMS) publishes national coverage determinations (NCDs) to specify the extent to which Medicare will cover specific services, procedures, or technologies on a national basis. Local Medicare contractor payers are required to follow these NCDs where they exist. Where they do not exist, it is up to the Medicare contractor to make local coverage determinations (LCDs).

Roughly 90 percent of all health care services are covered at the local contractor level, and 10 percent at the national level through the publication of an NCD. Medicare has applicable NCDs for AICDs, cardiac pacemakers, and cardiac pacemaker follow-up services. They can be found at <http://www.cms.hhs.gov/CoverageGenInfo/>.

Medicare NCD for Cardiac Pacemakers⁵

Item/Service Description

Cardiac pacemakers are self-contained, battery-operated units that send electrical stimulation to the heart. They are generally implanted to alleviate symptoms of decreased cardiac output related to abnormal heart rate and/or rhythm. Pacemakers are generally used for persistent, symptomatic second- or third-degree atrioventricular (AV) block, and symptomatic sinus bradycardia.

Indications and Limitations of Coverage

Cardiac pacemakers are covered as prosthetic devices under the Medicare program, subject to the following conditions and limitations. While cardiac pacemakers have been covered under Medicare for many years, there were no specific guidelines for their use other than the general Medicare requirement that covered services be reasonable and necessary for the treatment of the condition. Services rendered for cardiac pacing on or after the effective dates of this instruction are subject to these guidelines, which are based on certain assumptions regarding the clinical goals of cardiac pacing. While some uses of pacemakers are relatively certain or unambiguous, many other uses require considerable expertise and judgment.

Consequently, the medical necessity for permanent cardiac pacing must be viewed in the context of overall patient management. The appropriateness of such pacing may be conditional on other diagnostic or therapeutic modalities having been undertaken. Although significant complications and adverse side effects of pacemaker use are

relatively rare, they cannot be ignored when considering the use of pacemakers for dubious medical conditions, or marginal clinical benefit.

These guidelines represent current concepts regarding medical circumstances in which permanent cardiac pacing may be appropriate or necessary. As with other areas of medicine, advances in knowledge and techniques in cardiology are expected.

Consequently, judgments about the medical necessity and acceptability of new uses for cardiac pacing in new classes of patients may change as more conclusive evidence becomes available. This instruction applies only to permanent cardiac pacemakers, and does not address the use of temporary, non-implanted pacemakers.

The two groups of conditions outlined below deal with the necessity for cardiac pacing for patients in general. These are intended as guidelines in assessing the medical necessity for pacing therapies, taking into account the particular circumstances in each case. However, as a general rule, the two groups of current medical concepts may be viewed as representing:

- Group I: Single-chamber Cardiac Pacemakers—a) conditions under which single-chamber pacemaker claims may be considered covered without further claims development; and b) conditions under which single-chamber pacemaker claims would be denied unless further claims development shows that they fall into the covered category, or special medical circumstances sufficient to convince the contractor that the claim should be paid.
- Group II: Dual-chamber Cardiac Pacemakers—a) conditions under which dual-chamber pacemaker claims may be considered covered without further claims development, and b) conditions under which dual-chamber pacemaker claims would be denied unless further claims development shows that they fall into the covered categories for single- and dual-chamber pacemakers, or special medical circumstances exist sufficient to convince the contractor that the claim should be paid.

CMS opened the NCD on Cardiac Pacemakers to afford the public an opportunity to comment on the proposal to revise the language contained in the instruction. The revisions transfer the focus of the NCD from the actual pacemaker implantation procedure itself to the reasonable and necessary medical indications that justify cardiac pacing. This is consistent with our findings that pacemaker implantation is no longer considered routinely harmful or an experimental procedure.

Group I. Single-chamber Cardiac Pacemakers

Effective March 16, 1983

A. Nationally Covered Indications

Conditions under which cardiac pacing is generally considered acceptable or necessary, provided that the conditions are chronic or recurrent and not due to transient causes such as acute myocardial infarction, drug toxicity, or electrolyte imbalance. (In cases where there is a rhythm disturbance, if the rhythm disturbance is chronic or recurrent, a single episode of a symptom such as syncope or seizure is adequate to establish medical necessity).

1. Acquired complete (also referred to as third-degree) AV heart block.
2. Congenital complete heart block with severe bradycardia (in relation to age), or significant physiological deficits or significant symptoms due to the bradycardia.
3. Second-degree AV heart block of Type II (i.e., no progressive prolongation of P-R interval prior to each blocked beat. P-R interval indicates the time taken for an impulse to travel from the atria to the ventricles on an electrocardiogram).
4. Second-degree AV heart block of Type I (i.e., progressive prolongation of P-R interval prior to each blocked beat) with significant symptoms due to hemodynamic instability associated with the heart block.

5. Sinus bradycardia associated with major symptoms (e.g., syncope, seizures, congestive heart failure); or substantial sinus bradycardia (heart rate less than 50) associated with dizziness or confusion. The correlation between symptoms and bradycardia must be documented, or the symptoms must be clearly attributable to the bradycardia rather than to some other cause.
6. In selected and few patients, sinus bradycardia of lesser severity (heart rate 50-59) with dizziness or confusion. The correlation between symptoms and bradycardia must be documented, or the symptoms must be clearly attributable to the bradycardia rather than to some other cause.
7. Sinus bradycardia is the consequence of long-term necessary drug treatment for which there is no acceptable alternative when accompanied by significant symptoms (e.g., syncope, seizures, congestive heart failure, dizziness, or confusion). The correlation between symptoms and bradycardia must be documented, or the symptoms must be clearly attributable to the bradycardia rather than to some other cause.
8. Sinus node dysfunction with or without tachyarrhythmias or AV conduction block (i.e., the bradycardia-tachycardia syndrome, sino-atrial block, sinus arrest) when accompanied by significant symptoms (e.g., syncope, seizures, congestive heart failure, dizziness, or confusion).
9. Sinus node dysfunction with or without symptoms when there are potentially life-threatening ventricular arrhythmias or tachycardia secondary to the bradycardia (e.g., numerous premature ventricular contractions, couplets, runs of premature ventricular contractions, or ventricular tachycardia).
10. Bradycardia associated with supraventricular tachycardia (e.g., atrial fibrillation, atrial flutter, or paroxysmal atrial tachycardia) with high-degree AV block which is unresponsive to appropriate pharmacological management and when the bradycardia is associated with significant symptoms (e.g., syncope, seizures, congestive heart failure, dizziness, or confusion).
11. The occasional patient with hypersensitive carotid sinus syndrome with syncope due to bradycardia and unresponsive to prophylactic medical measures.
12. Bifascicular or trifascicular block accompanied by syncope which is attributed to transient complete heart block after other plausible causes of syncope have been reasonably excluded.
13. Prophylactic pacemaker use following recovery from acute myocardial infarction during which there was temporary complete (third-degree) and/or Mobitz Type II second-degree AV block in association with bundle branch block.
14. In patients with recurrent and refractory ventricular tachycardia, "overdrive pacing" (pacing above the basal rate) to prevent ventricular tachycardia.

Effective May 9, 1985

15. Second-degree AV heart block of Type I with the QRS complexes prolonged.

B. Nationally Noncovered Indications

Conditions which, although used by some physicians as a basis for permanent cardiac pacing, are considered unsupported by adequate evidence of benefit and therefore should not generally be considered appropriate uses for single-chamber pacemakers in the absence of the above indications. Contractors should review claims for pacemakers with these indications to determine the need for further claims development prior to denying the claim, since additional claims development may be required. The object of such further development is to establish whether the particular claim actually meets the conditions in A above. In claims where this is not the case or where such an event appears unlikely, the contractor may deny the claim.

1. Syncope of undetermined cause.
2. Sinus bradycardia without significant symptoms.

3. Sino-atrial block or sinus arrest without significant symptoms.
4. Prolonged P-R intervals with atrial fibrillation (without third-degree AV block) or with other causes of transient ventricular pause.
5. Bradycardia during sleep.
6. Right bundle branch block with left axis deviation (and other forms of fascicular or bundle branch block) without syncope or other symptoms of intermittent AV block.
7. Asymptomatic second-degree AV block of Type I unless the QRS complexes are prolonged or electrophysiological studies have demonstrated that the block is at or beyond the level of the His bundle (a component of the electrical conduction system of the heart).

Effective October 1, 2001

8. Asymptomatic bradycardia in post-myocardial infarction patients about to initiate long-term beta-blocker drug therapy.

Group II. Dual-chamber Cardiac Pacemakers

Effective May 9, 1985

A. Nationally Covered Indications

Conditions under dual-chamber cardiac pacing are considered acceptable or necessary in the general medical community unless conditions 1 and 2 under Group II. B. are present:

1. Patients in whom single-chamber pacing (ventricular pacing) at the time of pacemaker insertion elicits a definite drop in blood pressure, retrograde conduction, or discomfort.
2. Patients in whom the pacemaker syndrome (atrial ventricular asynchrony), with significant symptoms, has already been experienced with a pacemaker that is being replaced.
3. Patients in whom even a relatively small increase in cardiac efficiency will importantly improve the quality of life, e.g., patients with congestive heart failure despite adequate other medical measures.
4. Patients in whom the pacemaker syndrome can be anticipated, e.g., in young and active people.

Dual-chamber pacemakers may also be covered for the conditions as listed in Group I. A., if the medical necessity is sufficiently justified through adequate claims development. Expert physicians differ in their judgments about what constitutes appropriate criteria for dual-chamber pacemaker use. The judgment that such a pacemaker is warranted in the patient meeting accepted criteria must be based upon the individual needs and characteristics of that patient, weighing the magnitude and likelihood of anticipated benefits against the magnitude and likelihood of disadvantages to the patient.

B. Nationally Noncovered Indications

Whenever the following conditions (which represent overriding contraindications) are present, dual-chamber pacemakers are not covered:

1. Ineffective atrial contractions (e.g., chronic atrial fibrillation or flutter, or giant left atrium).
2. Frequent or persistent supraventricular tachycardias, except where the pacemaker is specifically for the control of the tachycardia.

3. A clinical condition in which pacing takes place only intermittently and briefly, and which is not associated with a reasonable likelihood that pacing needs will become prolonged, (e.g., the occasional patient with hypersensitive carotid sinus syndrome with syncope due to bradycardia and unresponsive to prophylactic medical measures).
4. Prophylactic pacemaker use following recovery from acute myocardial infarction during which there was temporary complete (third-degree) and/or Type II second-degree AV block in association with bundle branch block.

C. Other

All other indications for dual-chamber cardiac pacing for which CMS has not specifically indicated coverage remain nationally noncovered, except for Category B IDE clinical trials, or as routine costs of dual-chamber cardiac pacing associated with clinical trials, in accordance with section 310.1 of the NCD Manual. (This NCD last reviewed June 2004).

Pacemaker—Evaluation Services⁶

Item/Service Description

There are two general types of pacemakers in current use—single-chamber pacemakers, which sense and pace the ventricles of the heart, and dual-chamber pacemakers, which sense and pace both the atria and the ventricles. These differences require different monitoring patterns over the expected life of the units involved.

Indications and Limitations of Coverage

Medicare covers a variety of services for the post-implant follow-up and evaluation of implanted cardiac pacemakers. The following guidelines are designed to assist contractors in identifying and processing claims for such services.

Note: These new guidelines are limited to lithium battery-powered pacemakers, because mercury-zinc battery-powered pacemakers are no longer being manufactured and virtually all have been replaced by lithium units. Contractors still receiving claims for monitoring such units should continue to apply the guidelines published in 1980 to those units until they are replaced.

One fact of which contractors should be aware is that many dual-chamber units may be programmed to pace only the ventricles; this may be done either at the time the pacemaker is implanted or at some time afterward. In such cases, a dual-chamber unit, when programmed or reprogrammed for ventricular pacing, should be treated as a single-chamber pacemaker in applying screening guidelines.

The decision as to how often any patient's pacemaker should be monitored is the responsibility of the patient's physician, who is best able to take into account the condition and circumstances of the individual patient. These may vary over time, requiring modifications of the frequency with which the patient should be monitored. In cases where monitoring is done by some entity other than the patient's physician, such as a commercial monitoring service or hospital outpatient department, the physician's prescription for monitoring is required and should be periodically renewed (at least annually) to assure that the frequency of monitoring is proper for the patient.

Where a patient is monitored both during clinic visits and transtelephonically⁷, the contractor should be sure to include frequency data on both types of monitoring in evaluating the reasonableness of the frequency of monitoring services received by the patient.

Since there are more than 200 pacemaker models in service at any given point, and a variety of patient conditions that give rise to the need for pacemakers, the question of the appropriate frequency of monitorings is a complex one. Nevertheless, it is possible to develop guidelines within which the vast majority of pacemaker monitorings will fall, and contractors should do this, using their own data and experience, as well as the frequency guidelines that follow, in order to limit extensive claims development to those cases requiring special attention.

Pacemaker Clinic Services

1. General

Pacemaker monitoring is also covered when done by pacemaker clinics. Clinic visits may be done in conjunction with transtelephonic monitoring or as a separate service; however, the services rendered by a pacemaker clinic are more extensive than those currently possible by telephone. They include, for example, physical examination of patients and reprogramming of pacemakers. Thus, the use of one of these types of monitoring does not preclude concurrent use of the other.

2. Frequency Guidelines

The frequency of clinic visits is the decision of the patient's physician, taking into account, among other things, the medical condition of the patient. However, contractors can develop monitoring guidelines that will prove useful in screening claims. The following are recommendations for monitoring guidelines on lithium-battery pacemakers:

Medicare's Frequency Guidelines for Pacemaker Clinic Services

- For single-chamber pacemakers—twice in the first 6 months following implant, then once every 12 months
- For dual-chamber pacemakers—twice in the first 6 months, then once every 6 months

Pacemaker—Temporary

At this time there is no specific Medicare National Coverage Determination (NCD) for temporary pacemakers. It is important for medical providers to check with their local Medicare contractor or non-Medicare payers to determine patient coverage and coding/billing guidelines.

Note: Search the Medicare Coverage Database on the CMS website (<http://www.cms.hhs.gov/mcd/search.asp>) for coverage descriptions and updates.

Medicare NCD for Implantable Cardioverter Defibrillators (ICDs)⁸

Effective date of this version: January 27, 2005

Implementation date: January 27, 2005

Item/Service Description

A. General

The implantable automatic defibrillator is an electronic device designed to detect and treat life-threatening tachyarrhythmias. The device consists of a pulse generator and electrodes for sensing and defibrillating.

Indications and Limitations of Coverage

B. Covered Indications

1. Documented episode of cardiac arrest due to ventricular fibrillation (VF), not due to a transient or reversible cause (effective July 1, 1991).

2. Documented sustained ventricular tachyarrhythmia (VT), either spontaneous or induced by an electrophysiology (EP) study, not associated with an acute myocardial infarction (MI) and not due to a transient or reversible cause (effective July 1, 1999).
3. Documented familial or inherited conditions with a high risk of life-threatening VT, such as long QT syndrome or hypertrophic cardiomyopathy (effective July 1, 1999). Additional indications effective for services performed on or after October 1, 2003:
4. Coronary artery disease with a documented prior MI, a measured left ventricular ejection fraction (LVEF) ≤ 0.35 , and inducible, sustained VT or VF at EP study. (The MI must have occurred more than 40 days prior to defibrillator insertion. The EP test must be performed more than 4 weeks after the qualifying MI.)
5. Documented prior MI and a measured LVEF ≤ 0.30 and a QRS duration of > 120 milliseconds (the QRS restriction does not apply to services performed on or after January 27, 2005). Patients must not have:
 - a. New York Heart Association (NYHA) classification IV;
 - b. Cardiogenic shock or symptomatic hypotension while in a stable baseline rhythm;
 - c. Had a coronary artery bypass graft (CABG) or percutaneous transluminal coronary angioplasty (PTCA) within past 3 months;
 - d. Had an enzyme positive MI within past month (Effective for services on or after January 27, 2005, patients must not have had an acute MI in the past 40 days);
 - e. Clinical symptoms or findings that would make them a candidate for coronary revascularization; or
 - f. Any disease, other than cardiac disease (e.g., cancer, uremia, liver failure), associated with a likelihood of survival less than 1 year.

Additional indications effective for services performed on or after January 27, 2005:

6. Patients with ischemic dilated cardiomyopathy (IDCM), documented prior MI, NYHA Class II and III heart failure, and measured LVEF $\leq 35\%$;
7. Patients with non-ischemic dilated cardiomyopathy (NIDCM) > 9 months, NYHA Class II and III heart failure, and measured LVEF $\leq 35\%$;
8. Patients who meet all current Centers for Medicare and Medicaid Services (CMS) coverage requirements for a cardiac resynchronization therapy (CRT) device and have NYHA Class IV heart failure.

All indications must meet the following criteria:

- a. Patients must not have irreversible brain damage from preexisting cerebral disease;
- b. MIs must be documented and defined according to the consensus document of the Joint European Society of Cardiology/American College of Cardiology Committee for the Redefinition of Myocardial Infarction*

Indications 3–8 (primary prevention of sudden cardiac death) must also meet the following criteria⁹:

- a. Patients must be able to give informed consent;
- b. Patients must not have:
 - Cardiogenic shock or symptomatic hypotension while in a stable baseline rhythm;
 - Had a CABG or PTCA within the past 3 months;
 - Had an acute MI within the past 40 days;
 - Clinical symptoms or findings that would make them a candidate for coronary revascularization;
 - Any disease, other than cardiac disease (e.g., cancer, uremia, liver failure), associated with a likelihood of survival less than 1 year.

- c. Ejection fractions must be measured by angiography, radionuclide scanning, or echocardiography;
- d. The beneficiary receiving the defibrillator implantation for primary prevention is enrolled in either a Food and Drug Administration (FDA)-approved category B investigational device exemption (IDE) clinical trial (42 CFR §405.201), a trial under the CMS Clinical Trial Policy (National Coverage Determination (NCD) Manual §310.1), or a qualifying data collection system including approved clinical trials and registries. Initially, an implantable cardiac defibrillator (ICD) database will be maintained using a data submission mechanism that is already in use by Medicare participating hospitals to submit data to the Iowa Foundation for Medical Care (IFMC)—a Quality Improvement Organization (QIO) contractor—for determination of reasonable and necessary quality improvement. Initial hypothesis and data elements are specified in this decision (Appendix VI) and are the minimum necessary to ensure that the device is reasonable and necessary. Data collection will be completed using the ICDA (ICD Abstraction Tool) and transmitted via QNet (Quality Network Exchange) to the IFMC, who will collect and maintain the database. Additional stakeholder-developed data collection systems to augment or replace the initial QNet system, addressing at a minimum the hypotheses specified in this decision, must meet the following basic criteria:
 - Written protocol on file;
 - Institutional review board review and approval;
 - Scientific review and approval by two or more qualified individuals who are not part of the research team;
 - Certification that investigators have not been disqualified.

For purposes of this coverage decision, CMS will determine whether specific registries or clinical trials meet these criteria.

- e. Providers must be able to justify the medical necessity of devices other than single lead devices. This justification should be available in the patient's medical record.
- 9. Patients with NIDCM > 3 months, NYHA Class II or III heart failure, and measured LVEF \leq 35%, only if the following additional criteria are also met:
 - a. Patients must be able to give informed consent;
 - b. Patients must not have:
 - Cardiogenic shock or symptomatic hypotension while in a stable baseline rhythm;
 - Had a CABG or PTCA within the past 3 months;
 - Had an acute MI within the past 40 days;
 - Clinical symptoms or findings that would make them a candidate for coronary revascularization;
 - Irreversible brain damage from preexisting cerebral disease;
 - Any disease, other than cardiac disease (e.g., cancer, uremia, liver failure), associated with a likelihood of survival less than 1 year;
 - c. Ejection fractions must be measured by angiography, radionuclide scanning, or echocardiography;
 - d. MIs must be documented and defined according to the consensus document of the Joint European Society of Cardiology/American College of Cardiology Committee for the Redefinition of Myocardial Infarction;^{*}

^{*} Alpert and Thygesen et al., 2000.
Criteria for acute, evolving or recent MI.

- e. The beneficiary receiving the defibrillator implantation for this indication is enrolled in either an FDA-approved category B IDE clinical trial (42 CFR §405.201), a trial under the CMS Clinical Trial Policy (NCD Manual §310.1), or a prospective data collection system meeting the following basic criteria:

- Written protocol on file;
- Institutional Review Board review and approval;
- Scientific review and approval by two or more qualified individuals who are not part of the research team;
- Certification that investigators have not been disqualified.

For purposes of this coverage decision, CMS will determine whether specific registries or clinical trials meet these criteria.

- f. Providers must be able to justify the medical necessity of devices other than single lead devices. This justification should be available in the patient's medical record.

C. Other Indications

All other indications for implantable automatic defibrillators not currently covered in accordance with this decision will continue to be covered under Category B IDE trials (42 CFR §405.201) and the CMS routine clinical trials policy (NCD Manual §310.1).

(This NCD last reviewed February 2005.)

Medicare NCD for Cardiac Resynchronization Therapy Pacemakers (CRT-Ps)

A cardiac resynchronization therapy pacemaker (CRT-P) utilizes biventricular pacing to coordinate the contraction of the ventricles with the intent of improving the hemodynamic status of the patient. This technology utilizes both conventional pacing technology as well as the addition of a third electrode that provides sensing and pacing capabilities in the left ventricle.

At this time there is no specific NCD for CRT-Ps. However, some Medicare contractors have developed LCDs for CRT-P that apply to certain regions. *It is important for medical providers to check with their local Medicare contractor or non-Medicare payers to determine patient coverage and coding/billing guidelines.*

Medicare NCD for Cardiac Resynchronization Therapy Defibrillators (CRT-Ds)

A cardiac resynchronization therapy defibrillator (CRT-D) utilizes biventricular pacing to coordinate the contraction of the ventricles and ICD capabilities to prevent ventricular tachyarrhythmias and ultimately the prevention of sudden cardiac death.

Either one of the following criteria satisfies the diagnosis for an acute, evolving or recent MI:

1) Typical rise and gradual fall (troponin) or more rapid rise and fall (CK-MB) of biochemical markers of myocardial necrosis with at least one of the following:

- a) ischemic symptoms;
- b) development of pathologic Q waves on the ECG;
- c) ECG changes indicative of ischemia (ST segment elevation or depression); or
- d) coronary artery intervention (e.g., coronary angioplasty).

2) Pathologic findings of an acute MI.

Criteria for established MI.

Any one of the following criteria satisfies the diagnosis for established MI:

1) Development of new pathologic Q waves on serial ECGs. The patient may or may not remember previous symptoms. Biochemical markers of myocardial necrosis may have normalized, depending on the length of time that has passed since the infarct developed.

2) Pathologic findings of a healed or healing MI.

At this time there is no specific NCD for CRT-Ds. However, some Medicare contractors have developed LCDs for CRT-D that apply to certain regions. *It is important for medical providers to check with their local Medicare contractor or non-Medicare payers to determine patient coverage and coding/billing guidelines.*

Medicare NCD for Intracardiac Electrophysiology and Related Procedures

Some cardiovascular procedures, such as pacemakers and cardioverter defibrillators, contain very clear national coverage criteria as defined by CMS. Other procedures, such as electrophysiology studies (EPS), do not have clearly defined coverage criteria at the national level. Some Medicare contractors have developed LCDs for EPS that apply to certain regions. *It is important for providers to check with their local Medicare contractor or non-Medicare payers to determine patient coverage and coding/billing guidelines.*

Note: Search the Medicare Coverage Database on the CMS website (<http://www.cms.hhs.gov/mcd/search.asp>) for coverage descriptions and updates.

ICD National Coverage

In the requirements for new ICD coverage, Medicare distinguishes between primary prevention of sudden cardiac death, meaning patients with no history of induced or spontaneous arrhythmia, and secondary prevention, meaning patients with a documented cardiac arrest or sustained ventricular tachyarrhythmia. For patients meeting the primary prevention indications, the providers (hospitals and physicians) must be able to justify the medical necessity of devices other than single-lead devices. This medical necessity must be documented in the patient's medical record.

National Coverage for Device Follow-up

There is an NCD for cardiac pacemaker evaluation services (post implant). There is no NCD, however, for ICD or CRT evaluation services (post implant). In the absence of national coverage guidelines, providers should consult their local Medicare contractor's guidance.

Code descriptors for the new 2009 CPT codes relating to cardiac device monitoring indicate minimum frequencies for in-person and remote monitoring¹⁰. As Medicare establishes local coverage policies around these codes, frequency will become a focal point for coverage. The Heart Rhythm Society (HRS) and the European Heart Rhythm Association (EHRA) have published the *HRS/EHRA Expert Consensus on the Monitoring of Cardiovascular Implantable Electronic Devices (CIED): Description of Techniques, Indications, Personnel, Frequency and Ethical Considerations*. This document makes recommendations for follow-up based on the type of cardiac device and may be helpful as a guide to reimbursement billing practices. It is available online at http://www.hrsonline.org/Policy/ClinicalGuidelines/upload/cieds_guidelines.pdf

The table below summarizes the CMS coverage decisions for follow-up pacemaker device evaluation services. It provides the key wording from the NCD for pacemaker evaluation services. As you can see, the decision regarding the required frequency for pacemaker follow-up is a very complex issue, and Medicare allows the physician to make a medical necessity judgment call based on the type of device.

Medicare Guidelines for Pacemaker Follow-Up Frequency

Types of pacemakers	There are two general types of pacemakers in current use: single-chamber pacemakers, which sense and pace the ventricles of the heart, and dual-chamber pacemakers, which sense and pace both the atria and the ventricles. These differences require different monitoring patterns over the expected life of the units involved.
Deciding frequency	The decision as to how often any patient's pacemaker should be monitored is the responsibility of the patient's physician, who is best able to take into account the condition and circumstances of the individual patient. These may vary over time, requiring modifications of the frequency with which the patient should be monitored. In cases where monitoring is done by some entity other than the patient's physician, such as a commercial monitoring service or hospital outpatient department, the physician's prescription for monitoring is required and should be periodically renewed (at least annually) to ensure that the frequency of monitoring is proper for the patient.
Developing local guidelines	Since there are over 200 pacemaker models in service at any given point, and a variety of patient conditions that give rise to the need for pacemakers, the question of the appropriate frequency of monitoring is a complex one. Nevertheless, it is possible to develop guidelines within which the vast majority of pacemaker monitoring will fall. Contractors should do this, using their own data and experience, as well as the frequency guidelines which follow, in order to limit extensive claims development to those cases requiring special attention.

As a result, each local contractor may have a frequency guideline for follow-up pacemaker services. Providers should check their local contractor's website for more details. To ensure appropriate payment, there are two good general rules:

- Always verify that the physician documentation establishes medical necessity for the frequency of device analysis.
- Also, local coverage policies may identify specific diagnosis codes that are required for establishing medical necessity for coverage and payment. These should also be documented by the physician.

Medicare currently does not have an NCD for remote monitoring of CRM technology other than transtelephonic pacemaker analysis. Most of these procedures and devices are covered at the local Medicare contractor level.

Local Coverage Determinations

A local coverage determination is a decision by a Medicare contractor payer about whether to cover a particular service based on whether the service is reasonable and necessary.

LCDs play an important role in ensuring appropriate payment for CRM services. They often give precise instructions on the diagnosis and procedure codes that must be reported in order to receive payment, as well as other billing guidance. You should become familiar with the requirements specified in the coverage decisions issued by the payer for your state or Medicare region.

Cardiac Resynchronization Therapy Pacemakers (CRT-Ps)

At this time there is no specific NCD for CRT-Ps. However, some Medicare contractors have developed LCDs for CRT-P that apply to certain regions. *It is important for medical providers to check with their local Medicare contractor or non-Medicare payers to determine patient coverage and coding/billing guidelines.*

Cardiac Resynchronization Therapy Defibrillators (CRT-Ds)

At this time there is no specific NCD for CRT-Ds. However, some Medicare contractors have developed LCDs for CRT-D that apply to certain regions. *It is important for medical providers to check with their local Medicare contractor or non-Medicare payers to determine patient coverage and coding/billing guidelines.*

Intracardiac Electrophysiology and Related Procedures

Some cardiovascular procedures, such as pacemakers and cardioverter defibrillators, contain very clear national coverage criteria as defined by CMS. Other procedures, such as electrophysiology studies (EPS), do not have clearly defined coverage criteria at the national level. Some Medicare contractors have developed LCDs for EPS that apply to certain regions. *It is important for providers to check with their local Medicare contractor or non-Medicare payers to determine patient coverage and coding/billing guidelines.*

Note: Search the Medicare Coverage Database on the CMS website (<http://www.cms.hhs.gov/mcd/search.asp>) for coverage descriptions and updates.

Chapter 4

Hospital and Physician Office Billing Processes

This chapter describes in general terms the typical billing processes in facilities and physician offices. Hospitals primarily employ charge-capture or health information management (HIM) systems, whereas physicians commonly use superbills. Regardless of the setting, the billing process involves office staff with specialized expertise who review the medical record and extract the necessary information to prepare a claim form that is then submitted to the payer.

Hospital Coding and Charge Capture

The process for generating hospital billing codes for cardiovascular services can vary from institution to institution. Although different workflows exist, two primary methods are used in the hospital setting:

- Charge capture at the point of care
- Health Information Management (HIM) review.

Chargemaster-Driven Systems

In a chargemaster-driven system, CPT codes are assigned to a specific hospital charge code and description of the procedure. The CPT codes are included in the hospital's chargemaster file (sometimes referred to as the "charge description master," or CDM), which is managed by the patient accounting department.

A chargemaster will usually list a service description, the facility's corresponding internal code for the service, the revenue center code categorizing the service, any corresponding CPT or HCPCS code, and the dollar charge or price of the services. The listings for some CRM services on a typical chargemaster would resemble the following, with unit prices established locally by the facility:

NUMBER	DESCRIPTION	DEPT	REV CODE	CPT CODE	UNIT PRICE
4601340	INS/REPL TEMP PACER SC	46	481	33210	10530.00
4601357	INS/REPL TEMP PACER DC	46	481	33211	10530.00
4601365	INS/REPL PERM PACER AV	46	481	33208	16200.00
4601373	REPOSITION PACING-DEFIB LD	46	481	33215	10260.00
4601407	REM SC/DC ICD LD-TV EXTCT	46	481	33244	10260.00
4601415	REVISE SKIN POCKET PACER	46	481	33222	6383.00
4601423	REVISE SKIN POCKET DEFIB	46	481	33223	6383.00

* Above chart is a fictitious example.

Advantage of a chargemaster-driven process: Charges for the services and supplies are usually generated at the time of service, and a claim gets submitted to the payer within the finance department's prescribed window of time.

Disadvantage of a chargemaster-driven process: Unlike most other specialty departments, the charges entered for cardiovascular services are often not justified by the physician's report. The usual stated reason is that the dictated report is not available,

because the physician may not complete the dictation until hours or days later. However, the charges entered by the technical staff may not correlate to procedures defined in the physician's eventual report, thereby posing compliance risks.

HIM Review

In some hospitals, all code generation is performed in the HIM department or by a dedicated coder/biller. The coder is responsible for reviewing the physician's report and assigning the appropriate CPT and ICD-9-CM diagnosis codes.

Advantage of the HIM method: The physician's procedure report is reviewed before codes are assigned. Compliance, as well as more accurate coding and billing, result from this approach.

Disadvantages of the HIM review: The challenge of obtaining the physician's report on a timely basis, the inability of the HIM department to meet the added workload demand, and ensuring that the coding staff is competent and knowledgeable. The necessary skill set requires a working knowledge of vascular anatomy, CPT/HCPCS codes, and complex coding guidelines.

Superbills

In contrast to hospitals, physician practices often use superbills to initiate the billing process. A superbill is a paper or electronic checklist of the most frequent services and procedures a physician performs, as well as a list of the diagnosis codes most commonly assigned. Its main purpose is to enable the doctor to communicate the services he or she provided and to document why they were necessary, as indicated by one or more diagnosis codes.

Although it is possible for a superbill to be comprehensive, it is recommended that the office staff review the physician's dictated report to ensure that the superbill and the dictated report correlate. The office staff should have access to current resources that describe additional codes, guidelines, or code edits. The superbill will usually allow a space for identifying a code or service that is not included in the regular list.

It is not uncommon for claim denials to arise from mismatched procedure and diagnosis codes, if the physician identifies more than one of each on the same superbill. When more than one service or procedure is provided during a single encounter, your superbill must be able to clearly convey which diagnosis codes are associated with which service or procedure.

Chapter 5

Coding Overview

This chapter describes physician CPT coding for major CRM procedures as well as coding guidelines for reporting them.

Pacemaker

Permanent Pacemaker Initial Implantation (33206–33208)

- 33206 Insertion or replacement of permanent pacemaker with transvenous electrode(s); atrial
- 33207 Insertion or replacement of permanent pacemaker with transvenous electrode(s); ventricular
- 33208 Insertion or replacement of permanent pacemaker with transvenous electrode(s); atrial and ventricular

Documentation and Billing Tips

- If fluoroscopic guidance is documented, report code 71090. Assign modifier 26 to describe the professional component of hospital-based services.
- Check with individual payers regarding separate payment for 71090, as some payers may consider this bundled into the device-implant code.
- Codes include complete system implantation. Also report these codes for replacement if a lead is capped or removed (coded separately) and one or more new leads are inserted in addition to replacing the pulse generator.
- Interrogation testing of the leads and pulse generator is included in the codes.
- In the unusual circumstance that only the leads are placed without the pulse generator, report codes 33216 or 33217 as appropriate.
- If a full and complete diagnostic subclavian venogram is performed (medical necessity established, images obtained and findings documented), report it separately with codes 36005 and 75820. Code 36005 may need modifier 59 attached. If subclavian venogram is performed to determine vein patency or for roadmapping purposes, code 75820 and 36005 should not be billed.

Pacemaker Generator Replacement (33212, 33213)

- 33212 Insertion or replacement of pacemaker pulse generator only; single-chamber, atrial or ventricular
- 33213 Insertion or replacement of pacemaker pulse generator only; dual chamber

Documentation and Billing Tips

- These codes describe the generator replacement only. Code separately for removal of the existing pulse generator (33233).
- Report codes 33212–33213 if the chronic leads are reused. If a lead is capped or removed (coded separately) and a new lead is inserted in addition to replacing the pulse generator, report the procedure with code 33206–33208 as appropriate.

- Disconnection of leads, reconnection of leads, reprogramming of parameters, and testing of the leads and pulse generator are included in the codes.
- In the unusual circumstance that the leads have been placed without a pulse generator, report codes 33216 or 33217 as appropriate for the insertion, with code 33234 or 33235, as appropriate, for the removal of previously placed leads.

Pacemaker Generator Upgrade (33214)

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)

Documentation and Billing Tips

- The removal of the existing pacemaker generator is included with code 33214 and should not be coded separately.
- Disconnection of leads, reconnection of leads, reprogramming of parameters, and testing of the leads and pulse generator are included in the codes.
- If fluoroscopic guidance is documented, report code 71090. Assign modifier 26 to describe the professional component of services provided that are hospital-based. Check with individual payers regarding separate payment for 71090, as some payers may consider this bundled into the device-implant code.

Pacemaker Removal (33233)

33233 Removal of permanent pacemaker pulse generator

Documentation and Billing Tips

- Do not code separately if the pacemaker generator is upgraded from a single to a dual-chamber system (code 33214 includes removal of device).
- Disconnection of leads, reconnection of leads, reprogramming of parameters, and testing of the leads and pulse generator are included in the codes.
- Code separately for the replacement of a new pacemaker generator (33212 or 33213).
- Code separately for the extraction of the leads (33234 or 33235).
- If a lead is capped or removed (33234 or 33235) and a new lead is inserted in addition to replacing the pulse generator, report the procedure with code 33206–33208 as appropriate.
- If a full and complete diagnostic subclavian venogram is performed (medical necessity established, images obtained and findings documented), report it separately with codes 36005 and 75820. Code 36005 may need a 59 modifier attached. If subclavian venogram is performed to determine vein patency or for road-mapping purposes, code 75820 and 36005 should not be billed.

Pacemaker Lead (Electrode) Insertion (33216, 33217)

33216 Insertion of a transvenous electrode; single-chamber (one electrode), permanent pacemaker or single-chamber pacing cardioverter-defibrillator

33217 Insertion of a transvenous electrode; dual chamber (two electrodes) permanent pacemaker or dual chamber pacing cardioverter-defibrillator

Documentation and Billing Tips

- If a full and complete diagnostic subclavian venogram is performed (medical necessity established, images obtained and findings documented), report it separately with codes 36005 and 75820. Code 36005 may need a 59 modifier

attached. If subclavian venogram is performed to determine vein patency or for road-mapping purposes, code 75820 and 36005 should not be billed.

- The term “repositioning” has been transferred to code 33215.
- The restriction of “15 days or more” postoperative has been deleted.
- Modifier 59 may be applicable if a lead is replaced on the same day of service as previous implant.
- Disconnection of leads, reconnection of leads, reprogramming of parameters, and testing of leads and pulse generator are included in these codes for pacemaker devices. For ICD or CRT-D devices, defibrillator threshold testing of lead(s) and/or pulse generator is separately billable by codes 93640–93642.
- Temporary pacing is not included and should be reported separately (33210 or 33211).
- Extraction of a chronic lead is not included and should be reported separately (33234 or 33235).
- Codes 33216 and 33217 are applicable to both pacemaker generators and ICDs.
- If fluoroscopic guidance is documented, report code 71090. Assign modifier 26 to describe the professional component of hospital-based services. Check with individual payers regarding separate payment for 71090, as some payers may consider this bundled into the device-implant code.

Pacemaker Biventricular Lead (Electrode) Placement Into Cardiac Venous System (33224, 33225)

- 33224 Insertion of pacing electrode, cardiac venous system, for left ventricular pacing, with attachment to previously placed pacemaker or pacing cardioverter-defibrillator pulse generator (including revision of pocket, removal, insertion and/or replacement of generator)
- 33225 Insertion of pacing electrode, cardiac venous system, for left ventricular pacing, at time of insertion of pacing cardioverter-defibrillator or pace-maker pulse generator (including upgrade to dual chamber system) (List separately in addition to code for primary procedure)

Documentation and Billing Tips

- Code 33224 is reported when the lead placed within the coronary sinus is connected to an existing pacemaker generator or ICD.
- Code 33225 is reported when the lead placed within the coronary sinus is connected to a new pacemaker generator or ICD. In addition, it is also reported when the existing pacemaker generator or ICD is removed and replaced or upgraded.
- Report code 33225 in addition to the primary procedure—codes 33206, 33207, 33208, 33212, 33213, 33214, 33216, 33217, 33222, 33233, 33234, 33235, 33240, or 33249.
- Disconnection of leads, reconnection of leads, reprogramming of parameters, and testing of leads and pulse generator are included in these codes for pacemaker devices. For ICD or CRT-D devices, defibrillator threshold testing of lead(s) and/or pulse generator is separately billable by codes 93640–93642.
- If the leads are connected to a cardioverter-defibrillator and the device and leads are tested following induction of arrhythmia at the time of the initial implantation, code separately with 93641.
- If only the leads are tested following induction of arrhythmia at the time of the initial implantation, code separately with 93640.

- Temporary pacing is not included and should be reported separately (33210 or 33211).
- Extraction of chronic lead is not included and should be reported separately (33234 or 33235).
- If a full and complete diagnostic subclavian venogram is performed (medical necessity established, images obtained and findings documented), report it separately with codes 36005 and 75820. Code 36005 may need modifier 59 attached. If subclavian venogram is performed to determine vein patency or for road-mapping purposes, code 75820 and 36005 should not be billed.
- If fluoroscopic guidance is documented, report code 71090. Assign modifier 26 to describe the professional component of hospital-based services. Check with individual payers regarding separate payment for 71090, as some payers may consider this bundled into the device-implant code.
- Current AMA guidance is that the mapping of the coronary sinus by contrast injection is included within the new codes. Code 75860 (venography, sinus or jugular) should not be reported separately.
- If biventricular lead insertion into the coronary sinus is unsuccessful (failed attempt), for physician professional claims assign modifier 52 (reduced services) or 53 (discontinued service) to codes 33224 and 33225 as appropriate. Assign modifier 74 (discontinued service after administration of anesthesia) for hospital outpatient claims. Verify the policy of your local payer. Ensure that the documentation supports that the majority of work has been performed (such as “multiple attempts, venogram”).

Pacemaker Lead (Electrode) Repositioning (33215, 33226)

- 33215 Repositioning of previously implanted transvenous pacemaker or pacing cardioverter-defibrillator (right atrial or right ventricular) electrode
- 33226 Repositioning of previously implanted cardiac venous system (left ventricular) electrode (including removal, insertion and/or replacement of generator)

Documentation and Billing Tips

- Disconnection of leads, reconnection of leads, reprogramming of parameters, and testing of leads and pulse generator are included in these codes for pacemaker devices. For ICD or CRT-D devices, defibrillator threshold testing of lead(s) and/or pulse generator is separately billable by codes 93640–93642.
- If fluoroscopic guidance is documented, report code 71090. Assign modifier 26 to describe the professional component of hospital-based services. Check with individual payers regarding separate payment for 71090, as some payers may consider this bundled into the device-implant code.
- The term “repositioning” has been transferred to code 33215.
- The restriction of “15 days or more” postoperative has been deleted.
- Modifier 59 may be applicable, if a lead is replaced on the same day of service as previous implant.
- Temporary pacing is included and should not be reported separately.

Pacemaker Lead (Electrode) Removal (33234, 33235)

- 33234 Removal of transvenous pacemaker electrode(s); single lead system, atrial or ventricular
- 33235 Removal of transvenous pacemaker electrode(s); dual lead system

Documentation and Billing Tips

- Extraction is coded the same regardless of the method—traction, snare, or extraction devices.
- No additional coding is required if more than two leads are removed.
- Code separately for removal of the existing pulse generator, if it is replaced (33233).
- Code separately for the replacement of a new pacemaker generator (33212 or 33213).
- If a lead is inserted in addition to replacing the pulse generator, report the procedure with code 33206–33208 as appropriate.
- If a full and complete diagnostic subclavian venogram is performed (medical necessity established, images obtained and findings documented), report it separately with codes 36005 and 75820. Code 36005 may need modifier 59 attached. If subclavian venogram is performed to determine vein patency or for road-mapping purposes, code 75820 and 36005 should not be billed.
- If fluoroscopic guidance is documented, report code 71090. Assign modifier 26 to describe the professional component of hospital-based services. Check with individual payers regarding separate payment for 71090, as some payers may consider this bundled into the device-implant code.

Pacemaker Lead (Electrode) Repair (33218, 33220)

- 33218 Repair of single transvenous electrode for a single-chamber, permanent pacemaker or single-chamber pacing cardioverter-defibrillator
- 33220 Repair of two transvenous electrodes for a dual chamber permanent pacemaker or dual chamber pacing cardioverter-defibrillator

Documentation and Billing Tips

- Do not report twice if both electrodes are repaired.
- Code separately for the replacement with new pacemaker generator (33212 or 33213).
- Temporary pacing is not included and should be reported separately (33210 or 33211).
- Disconnection of leads, reconnection of leads, reprogramming of parameters, and testing of leads and pulse generator are included in these codes for pacemaker devices. For ICD or CRT-D devices, defibrillator threshold testing of lead(s) and/or pulse generator is separately billable by codes 93640–93642.

Pacemaker Revision to Skin Pocket—Pacemaker Generators (33222)

33222 Revision or relocation of skin pocket for pacemaker

Documentation and Billing Tips

- Current CMS CCI edits prohibit coding separately for a pocket revision when reporting the replacement of a pacemaker generator (33212–33213), when reporting the removal of a pacemaker generator (33233), or when reporting the insertion of a new left ventricular lead (33224).
- Temporary pacing is not included and should be reported separately (33210 or 33211).

Temporary Pacing (33210, 33211)

33210 Insertion or replacement of temporary transvenous single-chamber cardiac electrode or pacemaker catheter (separate procedure)

33211 Insertion or replacement of temporary transvenous dual chamber pacing electrodes (separate procedure)

Documentation and Billing Tips

- Temporary pacing is reported separately in pacemaker generator-dependent patients for electrode repair, pacer replacement, lead replacement, and/or pocket revision.
- Do not code temporary pacing separately for initial pacer insertion, EP diagnostic procedures, or ablation procedures.
- Code separately for the replacement of a pacemaker generator (33212 or 33213).
- If fluoroscopic guidance is documented, report code 71090. Assign modifier 26 to describe the professional component of hospital-based services. Check with individual payers regarding separate payment for 71090, as some payers may consider this bundled into the device-implant code.
- Disconnection of leads, reconnection of leads, reprogramming of parameters, and testing of leads and pulse generator are included in these codes for pacemaker devices. For ICD or CRT-D devices, defibrillator threshold testing of lead(s) and/or pulse generator is separately billable by codes 93640–93642.
- Code separately for the removal of an existing pulse generator, if it is replaced.
- If a full and complete diagnostic subclavian venogram is performed (medical necessity established, images obtained and findings documented), report it separately with codes 36005 and 75820. Code 36005 may need modifier 59 attached. If subclavian venogram is performed to determine vein patency or for road-mapping purposes, code 75820 and 36005 should not be billed.

The following are examples of typical pacemaker procedures and the corresponding codes and modifiers that would be used to report them. Note that a number of the codes may be subject to reduced payment when multiple procedures are reported.

Outpatient Procedure Coding for Pacemaker Clinical Examples

Pacemaker Clinical Examples	CPT Coding
Insertion of new RV lead and new pulse generator under fluoroscopic guidance	33207 71090-26
Replacement of single-chamber pulse generator that has reached end of life. The chronic ventricular lead is reused.	33212 33233*
Replacement of dual-chamber pulse generator that has reached end of life. Both leads are reused.	33213 33233*

Pacemaker Clinical Examples	CPT Coding
Replacement of a pacemaker that has reached end of life and a new ventricular lead is placed under fluoroscopic guidance. The chronic lead is capped.	33207 33233* 71090-26
Replacement of single-chamber pacemaker that has reached end of life, and ventricular lead under fluoroscopic guidance. Chronic RV lead is extracted.	33207 33233* 33234* 71090-26
New pulse generator and atrial lead under fluoroscopic guidance	33206 71090-26
New pulse generator, atrial lead and ventricular lead under fluoroscopic guidance	33208 71090-26
Replacement of single-chamber pacemaker that has reached end of life, and atrial lead under fluoroscopic guidance. Chronic RA lead is extracted.	33206 33233* 33234* 71090-26
Replacement of dual-chamber pacemaker that has reached end of life, and atrial lead under fluoroscopic guidance. Chronic RA lead is capped and RV lead is reused.	33206 33233* 71090-26
Replacement of a dual-chamber pulse generator that has reached end of life. Both chronic leads are extracted and replaced under fluoroscopic guidance. A temporary ventricular pacemaker is placed at the start of the procedure and removed when permanent pacemaker is working properly.	33208 33233* 33235* 33210-59* 71090-26

* Multiple procedure discounting may apply. Modifier 26 is applicable to physician payments only.

Implantable Cardioverter-Defibrillator (ICD)

ICD Initial Implant (33249)

33249 Insertion or repositioning of electrode lead(s) for single or dual chamber pacing cardioverter-defibrillator and insertion of pulse generator

Documentation and Billing Tips

- If fluoroscopic guidance is documented, report code 71090. Assign modifier 26 to describe the professional component of hospital-based services. Check with individual payers regarding separate payment for 71090, as some payers may consider this bundled into the device-implant code.
- If a full and complete diagnostic subclavian venogram is performed (medical necessity established, images obtained and findings documented), report it separately with codes 36005 and 75820. Code 36005 may need a 59 modifier attached. If subclavian venogram is performed to determine vein patency or for road-mapping purposes, code 75820 and 36005 should not be billed.
- Report code 33249 when a single-chamber ICD is upgraded to a dual-chamber system.
- Report code 33241 for the removal of the existing ICD pulse generator.
- If the leads are connected to a cardioverter-defibrillator and the device and leads are tested following induction of arrhythmia at the time of the initial implantation, report that procedure separately with code 93641.
- If only the leads are tested following induction of arrhythmia at the time of the initial implantation, report separately with code 93640.
- According to the Heart Rhythm Society, the placement of the subcutaneous lead (Sub-Q-array) is not coded separately. Consult with your local payer to confirm its policy.

ICD Generator Replacement (33240)

33240 Insertion of single or dual chamber pacing cardioverter defibrillator pulse generator

Documentation and Billing Tips

- Report code 33240 for the replacement of a device at “end of life.”
- Report codes 33249 for upgrading a single-chamber ICD to a dual-chamber system.
- Report code 33241 for the removal of the existing ICD.

ICD Generator Removal (33241)

33241 Subcutaneous removal of single or dual chamber pacing cardioverter-defibrillator pulse generator

Documentation and Billing Tips

- Disconnection of leads, reconnection of leads, and reprogramming of parameters are included in these codes. Defibrillator threshold testing of lead(s) and/or pulse generator is separately billable by codes 93640-93642.
- Report code 33240 for the replacement of a device at “end of life.”
- Report codes 33249 for upgrading a single-chamber ICD to a dual-chamber system.
- Code separately for the extraction of the leads (33244).

ICD Pacemaker Generator Lead (Electrode) Insertion (33216, 33217)

33216 Insertion of a transvenous electrode; single-chamber (one electrode), permanent pacemaker or single-chamber pacing cardioverter-defibrillator

33217 Insertion of a transvenous electrode; dual chamber (two electrodes) permanent pacemaker or dual chamber pacing cardioverter-defibrillator

The insertion of one or two leads (only) by transvenous technique is usually performed because one or more leads are defective. The generator is removed and the lead disconnected. The lead may be removed or capped. The subclavian or jugular vein is accessed, and a lead is advanced into the central venous system. Fluoroscopic guidance is utilized to place the lead into the right atrium, right ventricle or both. In the unusual circumstance that only the leads are placed, without a generating device, 33216 or 33217 is the appropriate code.

Documentation and Billing Tips

- If a full and complete diagnostic subclavian venogram is performed (medical necessity established, images obtained and findings documented), report it separately with codes 36005 and 75820. Code 36005 may need modifier 59 attached. If subclavian venogram is performed to determine vein patency or for road-mapping purposes, code 75820 and 36005 should not be billed.
- The term “repositioning” has been transferred to code 33215.
- The restriction of “15 days or more” postoperative has been deleted.
- Modifier 59 may be applicable, if a lead is replaced on the same day of service as previous implant.
- Disconnection of leads, reconnection of leads, reprogramming of parameters, and testing of leads and pulse generator are included in these codes for pacemaker devices. For ICD or CRT-D devices, defibrillator threshold testing of lead(s) and/or pulse generator is separately billable by codes 93640–93642.

- Temporary pacing is not included and should be reported separately (33210 or 33211).
- Extraction of a chronic lead is not included and should be reported separately (33244).
- Codes 33216 and 33217 are applicable to both pacemaker generators and ICDs.
- If fluoroscopic guidance is documented, report code 71090. Assign modifier 26 to describe the professional component of hospital-based services. Check with individual payers regarding separate payment for 71090, as some payers may consider this bundled into the device-implant code.

ICD Pacemaker Generator Biventricular Lead (Electrode) Placement Into Cardiac Venous System (33224, 33225)

- 33224 Insertion of pacing electrode, cardiac venous system, for left ventricular pacing, with attachment to previously placed pacemaker or pacing cardioverter-defibrillator pulse generator (including revision of pocket, removal, insertion and/or replacement of generator)
- 33225 Insertion of pacing electrode, cardiac venous system, for left ventricular pacing, at time of insertion of pacing cardioverter-defibrillator or pace-maker pulse generator (including upgrade to dual chamber system) (List separately in addition to code for primary procedure)

Documentation and Billing Tips

- Code 33224 is reported when the lead placed within the coronary sinus is connected to an existing pacemaker generator or ICD.
- Code 33225 is reported when the lead placed within the coronary sinus is connected to a new pacemaker generator or ICD. This code is also reported when the existing pacemaker generator or ICD is removed and replaced or upgraded.
- Report code 33225 in addition to the primary procedure—codes 33206, 33207, 33208, 33212, 33213, 33214, 33216, 33217, 33222, 33233, 33234, 33235, 33240, or 33249.
- Disconnection of leads, reconnection of leads, reprogramming of parameters, and testing of leads and pulse generator are included in these codes for pacemaker devices. For ICD or CRT-D devices, defibrillator threshold testing of lead(s) and/or pulse generator is separately billable by codes 93640–93642.
- If the leads are connected to a cardioverter-defibrillator and the device and leads are tested following induction of arrhythmia at the time of the initial implantation, report separately with code 93641.
- If only the leads are tested following induction of arrhythmia at the time of the initial implantation, report separately with code 93640.
- Temporary pacing is not included and should be reported separately (33210 or 33211).
- Extraction of a chronic lead is not included and should be reported separately (33244).
- If a full and complete diagnostic subclavian venogram is performed (medical necessity established, images obtained and findings documented), report it separately with codes 36005 and 75820. Code 36005 may need modifier 59 attached. If subclavian venogram is performed to determine vein patency or for road-mapping purposes, code 75820 and 36005 should not be billed.
- If fluoroscopic guidance is documented, report code 71090. Assign modifier 26 to describe the professional component of hospital-based services. Check with

individual payers regarding separate payment for 71090, as some payers may consider this bundled into the device-implant code.

- Current AMA guidance is that the mapping of the coronary sinus by contrast injection is included within the new codes. Code 75860 (venography, sinus or jugular) should not be reported separately.
- If biventricular lead insertion into the coronary sinus is unsuccessful (failed attempt), for physician professional claims assign modifier 52 (reduced services) or 53 (discontinued service) to codes 33224 and 33225 as appropriate. Assign modifier 74 (discontinued service after administration of anesthesia) for hospital outpatient claims. Verify the policy of your local payer. Ensure that the documentation supports that the majority of work has been performed (such as “multiple attempts, venogram”).

ICD Pacemaker Generator Lead (Electrode) Repositioning (33215, 33226)

33215 Repositioning of previously implanted transvenous pacemaker or pacing cardioverter-defibrillator (right atrial or right ventricular) electrode

33226 Repositioning of previously implanted cardiac venous system (left ventricular) electrode (including removal, insertion and/or replacement of generator)

Documentation and Billing Tips

- Disconnection of leads, reconnection of leads, reprogramming of parameters, and testing of leads and pulse generator are included in these codes for pacemaker devices. For ICD or CRT-D devices, defibrillator threshold testing of lead(s) and/or pulse generator is separately billable by codes 93640–93642. These code descriptions should be reviewed to determine appropriate assignment based on the device(s) tested subsequent to device replacement, repair, or repositioning.
- If fluoroscopic guidance is documented, report code 71090. Assign modifier 26 to describe the professional component of hospital-based services. Check with individual payers regarding separate payment for 71090, as some payers may consider this bundled into the device-implant code.
- The term “repositioning” has been transferred to code 33215.
- The restriction of “15 days or more” postoperative has been deleted.
- Modifier 59 may be applicable, if a lead is replaced on the same day of service as previous implant.
- Temporary pacing is included and should not be reported separately.

ICD Pacemaker Generator Lead Removal (Extraction) (33244)

33244 Removal of single or dual chamber pacing cardioverter defibrillator electrode(s); by transvenous extraction

Documentation and Billing Tips

- Extraction is coded the same regardless of the method—traction, snare, or extraction devices.
- No additional coding is required if more than two leads are removed.
- Code separately for the removal of the existing ICD pulse generator, if it is replaced.
- Code separately for the replacement of new pacemaker generator (33240).
- If a lead is inserted in addition to the replacement ICD pulse generator, report the procedure with code 33249.

- If a full and complete diagnostic subclavian venogram is performed (medical necessity established, images obtained and findings documented), report it separately with codes 36005 and 75820. Code 36005 may need a 59 modifier attached. If subclavian venogram is performed to determine vein patency or for road-mapping purposes, code 75820 and 36005 should not be billed.
- If fluoroscopic guidance is documented, report code 71090. Assign modifier 26 to describe the professional component of hospital-based services. Check with individual payers regarding separate payment for 71090, as some payers may consider this bundled into the device-implant code.

ICD Pacemaker Generator Lead (Electrode) Repair (33218, 33220)

- 33218 Repair of single transvenous electrode for a single-chamber, permanent pacemaker or single-chamber pacing cardioverter-defibrillator
- 33220 Repair of two transvenous electrodes for a dual chamber permanent pacemaker or dual chamber pacing cardioverter-defibrillator

Documentation and Billing Tips

- Do not report twice, if both electrodes are repaired.
- Code separately for the replacement of new pulse generator (33240).
- Temporary pacing is not included and should be reported separately (33210 or 33211).
- Disconnection of leads, reconnection of leads, reprogramming of parameters, and testing of leads and pulse generator are included in these codes for pacemaker devices. For ICD or CRT-D devices, defibrillator threshold testing of lead(s) and/or pulse generator is separately billable by codes 93640–93642. These code descriptions should be reviewed to determine appropriate assignment based on the device(s) tested subsequent to device replacement, repair, or repositioning.

ICD Pacemaker Generator Revision to Skin Pocket (33223)

- 33223 Revision of skin pocket for single or dual chamber pacing cardioverter-defibrillator

Documentation and Billing Tips

- Current CCI edits prohibit coding separately for a pocket revision when reporting the replacement of a new ICD pacemaker generator (33240).
- Current CCI edits prohibit coding separately for a pocket revision when reporting the removal of new pacemaker generator (33241).
- Current CCI edits prohibit coding separately for a pocket revision when the insertion of new left ventricular lead (code 33224) is reported.
- Temporary pacing is not included and should be reported separately (33210 or 33211).

Outpatient Procedure Coding for ICD Clinical Examples

ICD Clinical Examples	CPT Coding
Implantation and testing after induction of arrhythmia of new dual-chamber ICD, and RA and RV endocardial leads under fluoroscopic guidance	33249 93641-26 71090-26
Existing pacemaker is removed and the RA and RV leads are capped. New dual-chamber ICD generator and leads are implanted under fluoroscopic guidance and tested after induction of arrhythmia.	33233* 33249 93641-26 71090-26
Single-chamber ICD is upgraded to a dual-chamber ICD with addition of right atrial lead under fluoroscopic guidance. New lead and generator are tested after induction of arrhythmia.	33241* 33249 93641-26 71090-26
Existing dual-chamber ICD is replaced at battery "end of life" under fluoroscopic guidance. Leads and generator are tested after induction of arrhythmia.	33241 33240 93641-26
Implantation of new dual-chamber ICD, and RA and RV endocardial leads under fluoroscopic guidance. Due to patient's condition testing could not be performed.	33249 71090-26

* Multiple procedure discounting may apply
Modifier 26 is applicable to physician payments only.

Testing Device and Leads

Testing Device and Leads (93640, 93641)

- 93640 Electrophysiologic evaluation of single or dual chamber pacing cardioverter-defibrillator leads including defibrillation threshold evaluation (induction of arrhythmia, evaluation of sensing and pacing for arrhythmia termination) at time of initial implantation or replacement.
- 93641 Electrophysiologic evaluation of single or dual chamber pacing cardioverter-defibrillator leads including defibrillation threshold evaluation (induction of arrhythmia, evaluation of sensing and pacing for arrhythmia termination) at time of initial implantation or replacement; with testing of single- or dual chamber pacing cardioverter-defibrillator pulse generator.

Documentation and Billing Tips

- These codes apply only to testing the leads and ICD devices at the time of initial implantation or when an ICD device is replaced.
- Do not report these codes for the testing of the leads and pacemaker generator.
- The codes require that an arrhythmia was induced.
- Do not report both codes together in the same operative session.
- Report the appropriate testing with code 33240.
- If a comprehensive EP study (93619 or 93620) is performed prior to the implantation of the ICD on the same day of service, assign modifier 59 to code 93619 or 93620.
- Assign modifier 26 to describe the professional component of hospital-based services.

Non-Invasive and Invasive Program Stimulation (NIPS)

EP Study to Evaluate Therapy (93624)

93624 Electrophysiologic follow-up study with pacing and recording to test effectiveness of therapy, including induction or attempted induction of arrhythmia

Documentation and Billing Tips

- This procedure is typically not performed as an in-office ICD evaluation, but commonly in an EP lab.
- Report with code 93623 if other medications are evaluated.
- Do not report on the same day of service as the device implantation.
- Code 93624 is reserved for follow-up studies performed at a separate session or subsequent day to test the effectiveness of chronic therapy. NCCI edits prohibit 93624 with any of the ablation codes when performed at the same session or same day.
- Do not report this code for electronic analysis of the device.
- Assign modifier 26 to describe the professional component of hospital-based services.

EP Study to Evaluate ICD System (93642)

93642 Electrophysiologic evaluation of single or dual chamber pacing cardioverter-defibrillator (includes defibrillation threshold evaluation, induction of arrhythmia, evaluation of sensing and pacing for arrhythmia termination, and programming or reprogramming of sensing or therapeutic parameters)

Documentation and Billing Tips

- This procedure is typically not performed as an in-office ICD evaluation, but commonly in an EP lab.
- This code requires induction of arrhythmia.
- Report with code 93623 if other medications are evaluated.
- Do not report on the same day of service as the device implantation.
- Do not report this code for electronic analysis of the device.
- Assign modifier 26 to describe the professional component of hospital-based services.

EP Study to Evaluate Pacemaker (93724)

93724 Electronic analysis of antitachycardia pacemaker system (includes electrocardiographic recording, programming of device, induction and termination of tachycardia via implanted pacemaker, and interpretation of recordings)

Documentation and Billing Tips

- This procedure is typically not performed as an in-office device evaluation, but commonly performed in an EP lab.
- This code requires induction of arrhythmia.
- Report with code 93623 if other medications are evaluated.
- Do not report on the same day of service as the device implantation.

- Do not report this code for electronic analysis of the device.
- Assign modifier 26 to describe the professional component of hospital-based services.

Outpatient Procedure Coding for NIPS Clinical Examples

NIPS Clinical Examples	CPT Coding
Follow-up EP study is performed to evaluate the previously implanted ICD performance.	93642-26
Follow-up EP study is performed to evaluate the efficacy of a given therapy (for example, ablation).	93624-26
Follow-up EP study is performed to evaluate the previously implanted anti-tachycardia device.	93724-26

Modifier 26 is applicable to physician payments only.

Diagnostic EP Testing

Single-Site Studies (93600–93603, 93610, 93612, 93618)

- 93600 Bundle of His recording
- 93602 Intra-atrial recording
- 93603 Right ventricular recording
- 93610 Intra-atrial pacing
- 93612 Intraventricular pacing
- 93618 Induction of arrhythmia by electrical pacing

These codes represent recording, pacing, or an attempt at arrhythmia from only a single site within the heart. In most cases a comprehensive EP study is performed and reported by codes 93619 or 93620.

Documentation and Billing Tips

- Do not report the single-site codes with the codes for comprehensive EP study (93619 or 93620).
- Use a combination of these codes when a standard comprehensive study is not performed. For example, if only the bundle of His and right atrial recording is performed, report codes 93600 and 93602.
- Assign modifier 26 to describe the professional component of hospital-based services.
- Do not report fluoroscopic guidance separately.
- Current CCI edits prohibit the reporting of temporary pacing (33210–33211), cardioversion (92960–92961), and electrocardiogram (EKG) (93000–93042) with EP studies.

Esophageal Electrocardiography (93615, 93616)

- 93615 Esophageal recording of atrial electrogram with or without ventricular electrogram(s)
- 93616 Esophageal recording of atrial electrogram with or without ventricular electrogram(s); with pacing

Documentation and Billing Tips

- If only recordings are obtained to identify the mechanism of the arrhythmia, report code 93615.
- If the arrhythmia is terminated by esophageal pacing, report code 93616. This code includes both recording and pacing.
- Assign modifier 26 to describe the professional component of hospital-based services.
- Do not report fluoroscopic guidance separately.

Mapping (Intracardiac) (93609, 93613)

- 93609 Intraventricular and/or intra-atrial mapping of tachycardia site(s) with catheter manipulation to record from multiple sites to identify origin of tachycardia (List separately in addition to code for primary procedure)
- 93613 Intracardiac electrophysiologic 3-dimensional mapping (List separately in addition to code for primary procedure)

Documentation and Billing Tips

- 3D mapping should be clearly documented within the report.
- Mapping may be coded separately with the codes for comprehensive EP study (93619 and 93620).
- Mapping may be coded separately with ablation codes 93651 and 93652.
- Mapping may not be coded separately with ablation code 93650.
- Assign modifier 26 to describe the professional component of hospital-based services for code 93609 only. Code 93613 is not assigned a professional component in the Medicare physician fee schedule database.
- Do not report fluoroscopic guidance separately.

Comprehensive EP Studies (93619, 93620)

- 93619 Comprehensive electrophysiologic evaluation with right atrial pacing and recording, right ventricular pacing and recording, His bundle recording, including insertion and repositioning of multiple electrode catheters, without induction or attempted induction of arrhythmia
- 93620 Comprehensive electrophysiologic evaluation including insertion and repositioning of multiple electrode catheters with induction or attempted induction of arrhythmia; with right atrial pacing and recording, right ventricular pacing and recording, His bundle recording

Documentation and Billing Tips

- Report code 93619 if an induction is not attempted.
- Code 93619 includes all the elements of codes 93600, 93602, 93603, 93610, and 93612.
- Report code 93620 if an induction is attempted or accomplished.
- Code 93620 includes all of the elements of 93618 and 93619.
- Do not report the single-site evaluation codes with 93619 or 93620.
- Current CCI edits prohibit the reporting of temporary pacing (33210–33211), cardioversion (92960–92961), or EKG (93000–93042) with EP studies.

- Assign modifier 26 to describe the professional component of hospital-based services.
- Do not report fluoroscopic guidance separately.

Add-on Codes (93621, 93622, 93623)

- 93621 Comprehensive electrophysiologic evaluation including insertion and re-positioning of multiple electrode catheters with induction or attempted induction of arrhythmia; with left atrial pacing and recording from coronary sinus or left atrium (List separately in addition to code for primary procedure)
- 93622 Comprehensive electrophysiologic evaluation including insertion and re-positioning of multiple electrode catheters with induction or attempted induction of arrhythmia; with left ventricular pacing and recording (List separately in addition to code for primary procedure)

Documentation and Billing Tips

- Report code 93621 and 93622 with code 93620.
- Current CCI edits prohibit the reporting of temporary pacing (33210–33211), cardioversion (92960–92961), or EKG (93000–93042) with EP studies.
- Assign modifier 26 to describe the professional component of hospital-based services.
- Do not report fluoroscopic guidance separately.

93623 Programmed stimulation and pacing after intravenous drug infusion (List separately in addition to code for primary procedure)

Documentation and Billing Tips

- Report codes 93623 with codes 93619 and 93620.
- Current CCI edits prohibit the reporting of temporary pacing (33210–33211), cardioversion (92960–92961), or EKG (93000–93042) with EP studies.
- Assign modifier 26 to describe the professional component of hospital-based services.
- Do not report fluoroscopic guidance separately.
- Code 93623 may not be reported with ablation procedures.

Outpatient Procedure Coding for Electrophysiology Clinical Examples

EP Clinical Examples	CPT Coding
EP study is performed. Catheters are placed in	93620–26
RA, RV for pacing and recording, and in region	93621–26
of His bundle for recording. A fourth catheter is placed within coronary sinus for left atrial recording. SVT is induced. Additional testing is performed during isoproterenol administration.	93623–26
EP study is performed. Catheters are placed in RA for pacing and recording, and in region of His bundle for recording.	93600–26 93602–26 93610–26
EP study is performed. Catheters are placed in RV for pacing and recording, and in region of His bundle for recording.	93600–26 93603–26 93612–26
EP study is performed. Catheters are placed in RA, RV for pacing and recording, and in region of His bundle for recording. SVT is induced.	93620–26

EP Clinical Examples	CPT Coding
EP study is performed. Three catheters are placed: in RA, region of His bundle, and RV.	93619–26
EP study is performed. Three catheters are placed: in RA, region of His bundle, and RV. Additional testing is performed during isoproterenol administration.	93619–26 93623–26
EP study is performed. Three catheters are placed: in RA, region of His bundle, and RV. Additional testing is performed during isoproterenol administration. SVT is induced.	93620–26 93623–26
EP study is performed. Catheters are placed in RA, RV for pacing and recording, and region of His bundle for recording. A fourth catheter is placed within coronary sinus for left atrial recording. SVT is induced.	93620–26 93621–26
EP study is performed. Catheters are placed in RA, RV for pacing and recording, and region of His bundle for recording. A fourth catheter is placed within coronary sinus for left atrial recording. A fifth catheter is placed through the aortic valve for LV pacing and recording. SVT is induced.	93620–26 93621–26 93622–26

Note: Modifier 26 for professional billing only.

Ablation

Ablation (93650, 93651, 93652)

93650 Intracardiac catheter ablation of atrioventricular node function, atrioventricular conduction for creation of complete heart block, with or without temporary pacemaker placement

The patient has been diagnosed with an arrhythmia that can be treated optimally by an ablation in an area proximal to the bundle of His. A temporary pacing catheter is placed in the right ventricle, or, in some cases, a permanent pacemaker generator is implanted. An ablation catheter is placed transvenously proximal to the bundle of His. Energy applications, such as radiofrequency (RF), are delivered until permanent heart block is accomplished.

Documentation and Billing Tips

- Do not report fluoroscopic guidance separately.
- Code 93623 may not be reported with ablation procedures.
- This code includes temporary pacing.
- Code permanent pacemaker implantation separately.

93651 Intracardiac catheter ablation of arrhythmogenic focus; for treatment of supraventricular tachycardia by ablation of fast or slow atrioventricular pathways, accessory atrioventricular connections or other atrial foci, singly or in combination

93652 Intracardiac catheter ablation of arrhythmogenic focus; for treatment of ventricular tachycardia

Documentation and Billing Tips

- Code 93651 is reported for ablation of atrial tachycardia, pulmonary vein focus, or atrial flutter.
- Code 93651 is reported only once for simultaneous ablations or treatment of multiple atrial foci.
- Code 93652 is reported for ablation of ventricular tachycardia.

- Code 93652 is reported once regardless of the number of ventricular sites ablated.
- Code 93623 may not be reported with ablation procedures.
- Do not report fluoroscopic guidance separately.
- If mapping is performed during the ablation procedure, report code 93609 or 93613 as appropriate.
- Report code 93527 with modifier 59 for transseptal technique if the elements of cardiac catheterization are met. According to the Heart Rhythm Society, the reporting of 93527 should comply with all aspects of reporting and performance relating to catheterization, including pressure measurements. If all aspects are not performed, do not report 93527. Add modifier 22 to the ablation procedure if documentation supports transseptal technique (physician services only).
- If two physicians are required to complete the ablation procedure, assign one of the following modifiers:
80 (non-teaching hospital)
81 (teaching hospital)
- If a full and complete electrophysiology study is performed following the ablation to determine whether other areas are causing additional arrhythmia, the electrophysiology study should be coded separately. Only one electrophysiology study should be reported per operative session.
- In addition, ensure that the documentation supports the need for the assistant physician.

Intracardiac Echocardiography (93662)

93662 Intracardiac echocardiography during therapeutic/diagnostic intervention, including imaging supervision and interpretation (List separately in addition to code for primary procedure)

Documentation and Billing Tips

- Code 93662 is an add-on code and should be reported with codes 93620, 93621, 93622, 93651, or 93652 as appropriate.
- Do not report code 92961 with code 93662.
- Assign modifier 26 to describe the professional component of hospital-based services.
- Do not report fluoroscopic guidance separately.

Procedure Coding for EP and Ablation Clinical Examples

EP and Ablation Clinical Examples	CPT Coding
Ablation for SVT is performed.	93651
Ablation for SVT is performed. Isoproterenol is administered to determine efficacy of ablation.	93651
Ablation is performed at multiple pulmonary foci by transseptal technique.*	93651 93527–26, -59
Ablation is performed for complete heart block (AV conduction) and placement of ventricular pacemaker generator.	93650 33207
Ablation for SVT is performed with 3D mapping.	93651 93613
Transseptal approach is utilized to map (3D) and ablate accessory pathway.* Intracardiac echocardiography is performed.	93651 93613 93662–26 93527–26, -59

EP and Ablation Clinical Examples	CPT Coding
EP study is performed. Catheters are placed within the RA, RV, His bundle, LA (via CS), and retrograde across the aortic valve for LV pacing and recording. Programmed atrial and ventricular stimulation are performed, and 3D mapping is performed. Ablation for SVT is performed.	93620–26 93621–26 93622–26 93613 93651
EP study is performed. Catheters are placed within RA and RV for pacing and recording, and in the bundle of His for recording. 3D mapping is performed. Ablation for SVT is performed by placing a fifth catheter transseptally to ablate the accessory pathway.* Intracardiac echocardiography is performed.	93620–26 93621–26 93613 93662–26 93527–26, -59 93651
Radiofrequency ablation is performed for VT subsequent to 3D mapping for localization.	93652 93613

* Assumes catheterization parameters are met.

Note: Modifier 26 is for professional billing only.

Note: Report code 93527 for transseptal technique if the elements of cardiac catheterization are met. According to the Heart Rhythm Society, the reporting of 93527 should comply with all aspects of reporting and performance relating to catheterization, including pressure measurements. If all aspects are not performed, do not report 93527 but add modifier 22 to the ablation procedure (physician services only).

Chapter 6

Clinical Case Examples

This chapter presents case studies to further illustrate the reimbursement process*.

Case Study 1

Procedure Description:

The pocket was opened and leads were disconnected from the pacemaker. Stylets were inserted into the RA lead, and the lead was repositioned under fluoroscopic guidance into the appropriate locations. The lead was reconnected to the pacemaker, and the entire system was tested. Appropriate measurements were obtained, the pacemaker system was sutured back into the pocket, and the wound was closed.

Outpatient Coding:

Procedures	CPT Codes
RA lead repositioning	33215

Fluoroscopy is used to visualize appropriate lead placement. The description for CPT code 71090 does not mention use of fluoroscopy for “lead” insertion, only pacemaker system insertion. Therefore, payers have different interpretations of whether 71090 should be coded with only lead placement or replacement. Check with your local payer for appropriate reporting in this case.

Case Study 2

Procedure Description:

The patient was admitted to the hospital for brady-tachy syndrome with prolonged asystole and paroxysmal atrial flutter. The physician determined that a permanent dual-chamber pacemaker was necessary.

The physician created a pacemaker pocket in the clavicular region, and the leads were advanced into the venous system via the subclavian vein. Under fluoroscopic guidance, the leads were placed in the right atrium and the right ventricle. Following appropriate placement, the leads were attached to the pacemaker and the system was tested. All measurements obtained were appropriate. The pacemaker system was sutured into place and the wound was closed.

Outpatient Coding:

Procedures	CPT Codes
Dual-chamber pacemaker insertion with RA and RV lead insertion	33208
Fluoroscopy	71090

Case Study 3

Procedure Description:

The patient was admitted with complete heart block and pacemaker battery failure. The physician elected to replace the pacemaker.

Prior to the procedure, the physician programmed the pacemaker from bipolar to unipolar.

The pre-existing pocket was opened, and the pacemaker appeared normal upon inspection. The RV lead was disconnected from the pacemaker, and an external pacemaker was available, if external pacing was required. The RA and RV leads were disconnected from the old pacemaker and reattached to the new pacemaker. The pacemaker system was tested, and all measurements obtained were appropriate. The new pacemaker system was sutured back into the pocket and the wound was closed.

Outpatient Coding:

Procedures	CPT Codes
Pacemaker removal	33233
Dual-chamber pacemaker implant	33213

Case Study 4

Procedure Description:

The patient was admitted with brady-tachy syndrome with symptomatic slow atrial fibrillation.

The physician elected to implant a single-chamber permanent pacemaker. The physician created a pacemaker pocket in the clavicular region, and the RV lead was advanced into the venous system via the subclavian vein. Under fluoroscopic guidance, the lead was placed in the right ventricle. Following appropriate placement, the lead was attached to the pacemaker, and the system was tested. All measurements obtained were appropriate. The pacemaker system was sutured into place, and the wound was closed.

Outpatient Coding:

Procedures	CPT Codes
Single-chamber pacemaker implant with RV lead insertion	33207
Fluoroscopy	71090

Case Study 5

Reason for Exam: Chronic ischemic heart disease, unspecified

Impressions/Diagnosis: Ischemic cardiomyopathy with ejection fraction 23 percent, and prolonged QRS pair

Operative Procedure: Single-chamber ICD insertion

Estimated Blood Loss: 10 cc

Procedure Description:

With the patient in the recumbent position, the left neck and chest areas were prepped with Betadine and draped in a sterile fashion. Using 1% lidocaine for local anesthesia (20 cc), the area beneath the left clavicle was anesthetized. An incision was made beneath the clavicle and carried down to the pre-pectoral fascia. A few arterial bleeders were clamped and tied with #3-0 Vicryl. The Bovie was also used to achieve hemostasis. Using sharp and blunt dissection, the pacemaker pocket was created. Through this incision under fluoroscopic guidance, the left subclavian vein was easily engaged, and the guide wire was passed to the superior vena cava. Using an introducer kit #8 French the lead was introduced. The ventricular lead was positioned in the right ventricular apex. Tension on the lead was adjusted. The screw was unwound, and the screw was successfully deployed under fluoroscopic visualization. The lead was tested. The ventricular lead had a threshold of 1.0 volts at 0.5 ms and 1.5 mA, with a resistance of 630. The lead was placed to the generator. The set screws were tightened, and normal sensing and pacing were confirmed on the monitor. The lead had been individually sutured to pre-pectoral fascia with a single #0 Ethibond stick tie. This was looped around the overriding sheath. The pacemaker fit comfortably in the pocket.

Defibrillation threshold testing was then begun. Ventricular fibrillation was induced, and a single shock of 21 joules was delivered and resulted in conversion. After a two minute pause a second 21 joules shock was delivered and resulted in failure to convert. After another two minute pause a third 21 joules shock was delivered and resulted in successful cardioversion. The patient awoke from the anesthesia without difficulty.

The subcutaneous tissue was approximated with interrupted #3-0 Vicryl, and the skin closed with staples. The wound was dressed. The patient returned to the TCU in good condition. There were no complications.

Outpatient Coding:

Procedures	CPT Codes
Implantation of ICD, total system	33249
Fluoroscopy	71090
DFT Testing	93641

Case Study 6

Reason for Exam: Left Bundle Branch Block;
Congestive Heart Failure

Operative Procedure: Insertion of biventricular
defibrillator

Procedure Description:

The patient was placed in the recumbent position. The left neck and chest areas were prepped with Betadine and draped in sterile fashion. Using one percent lidocaine 20 cc the area beneath the left clavicle was anesthetized. An incision was made beneath the clavicle and carried down to the pre pectoral fascia. The Bovie was used to achieve hemostasis. Under fluoroscopic guidance through the incision the left subclavian vein was easily engaged. A guide wire was passed to the superior vena cava. A second stick in a similar fashion was made into the subclavian vein and a second guide wire passed to the superior vena cava. Using a pair of introducer kits, seven French and eight French, the ventricular lead was placed. The guide wire was retained. Using the other guide wire and a nine French sheath the right ventricular lead was placed. This lead was easily positioned in the right ventricular apex and the screw unwound with appropriate deployment of the screw confirmed on fluoroscopy. The lead was tested R wave 11.5,

resistance 577, threshold .4 volts at .5 with a shock resistance 41. The safe sheath was passed over the guide wire and threw it the rapid 0 sheath passed to the right atrium. A quadripolar electrode was used under simultaneous fluoroscopic and electrical monitoring to easily engaged the coronary sinus. The electrode was replaced with the balloon catheter and using 10 cc of Omnipaque a coronary sinus venogram was obtained. Approximately one hour and 30 minutes of time was next to utilize to engage one of the lateral branches off the coronary sinus tract the middle veins arose from an excessively acute angle and although the guide wire could be passed, the electrode would not tract along it. The upper veins repeatedly produced diaphragmatic\phrenic nerve stimulation. Eventually, a more medial branch of one of the upper lateral veins accepted the Easy Track model 4538 electrode without phrenic nerve stimulation. That left ventricular lead had a threshold of 3.5 volts, resistance 609 and R waves 3.4. With a finishing wire in place the sheath was cut free without disturbing electrode. The safe sheath was broken free. With the retained guide wire the atrial lead was inserted using a model 44 7 0 and positioned in the right atrial appendage with P. waves 4.0, resistance 432 and threshold .4 volts. The device was a Contak Renewal 3 model2. All of the electrodes were placed into the device, the set screws tightened and normal sensing and pacing confirmed. The device fit comfortably in the pocket in the subcutaneous tissue was approximated with interrupted 3 0 Vicryl. The anesthesiologist induced anesthesia and a single shock of 21 joules produced conversion of the ventricular fibrillation which had been induced by a shock on T. The wound was stable and dressed. The patient awoke from anesthesia. He was transferred to his room. There are no complications.

Outpatient Coding:

Procedures	CPT Codes
Implantation of biventricular defibrillator	33249
Fluoroscopy	71090
Insertion of LV lead via coronary sinus	33225
DFT testing	93641

*Individual symptoms, situations, circumstances, and results may vary. This information is not intended to be used for medical diagnosis or treatment or as a substitute for professional medical advice. Patients should consult a physician or qualified health care provider regarding their medical condition and appropriate medical treatment. This information is to be used in conjunction with other resource material, which may include the applicable patient handbook, device physician's manual, and any implant accessories instructions for use.

References

- ¹ Centers of Medicare and Medicaid Services. Glossary (search “Medical Necessity”). Last modified May 14, 2006. Available at: www.cms.hhs.gov/apps/glossary/default.asp?Letter=M&Language=English. Accessed June 15, 2009.
- ² Centers for Medicare and Medicaid Services. Glossary (search “Medicare”). Last modified July 27, 2005. Available at: <http://www.cms.hhs.gov/apps/glossary/default.asp?Letter=M&Language=English>. Accessed June 15, 2009.
- ³ Schmidt K, Ramsdell S, eds. DRG Expert: A comprehensive guidebook to the DRG classification system. 25th ed. Ingenix, Inc.; 2008.
- ⁴ Centers for Medicare and Medicaid Services. Final Changes to the Hospital Outpatient Prospective Payment System and CY2008 Payment Rates; Final Rule CMS-1392-FC, Federal Register November 1, 2007; 42 CFR Parts 410, 411, 412, 413, 414, 416, 419, 482, and 485. Available at: <http://www.cms.hhs.gov/HospitalOutpatientPPS/Downloads/cms1392fc.pdf>. Accessed June 15, 2009.
- ⁵ Centers for Medicare and Medicaid Services. National Coverage Determination for Cardiac Pacemakers (20.8). In: Medicare Coverage Database. Effective April 30, 2004. Available at: http://www.cms.hhs.gov/mcd/viewncd.asp?ncd_id=20.8&ncd_version=2&basket=ncd%3A20%2E8%3A2%3ACardiac+Pacemakers. Accessed June 15, 2009.
- ⁶ Centers for Medicare and Medicaid Services. National Coverage Determination for Cardiac Pacemaker Evaluation Services (20.8.1). In: Medicare Coverage Database. Effective October 1, 1984. Available at: http://www.cms.hhs.gov/mcd/viewncd.asp?ncd_id=20.8.1&ncd_version=1&basket=ncd%3A20%2E8%2E1%3A1%3ACardiac+Pacemaker+Evaluation+Services. Accessed June 15, 2009.
- ⁷ Centers for Medicare and Medicaid Services. Coverage determinations: Transtelephonic monitoring of cardiac pacemakers. In: Medicare National Coverage Determinations Manual. CMS Pub. 100-3; Chapter 1, Part 1, Section 20.8.1.1. October 3, 2003. Available at: http://www.cms.hhs.gov/manuals/downloads/ncd103c1_Part1.pdf. Accessed June 15, 2009.
- ⁸ Centers for Medicare and Medicaid Services. National Coverage Determination for Implantable Automatic Defibrillators (20.4). In: Medicare Coverage Database. Effective January 27, 2005. Available at: http://www.cms.hhs.gov/mcd/viewncd.asp?ncd_id=20.4&ncd_version=3&basket=ncd%3A20%2E4%3A3%3AImplantable+Automatic+Defibrillators and <http://www.cms.hhs.gov/transmittals/downloads/R29NCD.pdf>. Accessed June 15, 2009.
- ⁹ Heart Rhythm Society. Expanded ICD Coverage for Primary Prevention, February 23, 2005. Available at: <http://www.hrsonline.org/Policy/ICDRegistry/>. Accessed June 15, 2009.
- ¹⁰ American Medical Association. Current Procedural Terminology (CPT®) 2009. Professional Edition. Chicago, IL: 2008.

To order additional Primers, call 1.800.CARDIAC (227.3422),
ask for Customer Service, and request item CRM5-1033-0609.

GuidePoint is simplifying reimbursement.

**Boston
Scientific**

Delivering what's next.™

Cardiac Rhythm Management
Boston Scientific Corporation
4100 Hamline Avenue North
St. Paul, MN 55112-5798 USA
Tel: 651.582.4000 Fax: 651.582.4166
Medical Professionals:
1.800.CARDIAC (227.3422)
Patients and Families:
1.866.484.3268
www.bostonscientific.com

Copyright © 2009 by
Boston Scientific Corporation
or its affiliates. All rights reserved.

CRM5-1033-0609