

# Pacemaker and Defibrillator Code Set Details

CPT Procedures	
Code	Description
33202	Insertion of epicardial electrode(s); open incision
33203	Insertion of epicardial electrode(s); endoscopic approach
33206	Insertion of new or replacement of permanent pacemaker with transvenous electrode(s); atrial
33207	Insertion of new or replacement of permanent pacemaker with transvenous electrode(s); ventricular
33208	Insertion of new or replacement of permanent pacemaker with transvenous electrode(s); atrial and ventricular
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)
33212	Insertion of pacemaker pulse generator only; with existing single lead
33213	Insertion of pacemaker pulse generator only; with existing dual leads
33221	Insertion of pacemaker pulse generator only; with existing multiple leads
33214	Upgrade of implanted pacemaker system, conversion of single chamber system to dual chamber system
33215	Repositioning of previously implanted transvenous pacemaker or implantable defibrillator electrode
33216	Insertion of a single transvenous electrode, permanent pacemaker or implantable defibrillator
33217	Insertion of 2 transvenous electrodes, permanent pacemaker or implantable defibrillator
33218	Repair of single transvenous electrode, permanent pacemaker or implantable defibrillator
33220	Repair of 2 transvenous electrodes for permanent pacemaker or implantable defibrillator
33221	Insertion of pacemaker pulse generator only; with existing multiple leads
33222	Relocation of skin pocket for pacemaker
33223	Relocation of skin pocket for implantable defibrillator
33224	Insertion of pacing electrode, cardiac venous system, for left ventricular pacing, with attachment to previously placed pacemaker or implantable defibrillator pulse generator
33225	Insertion of pacing electrode, cardiac venous system, for left ventricular pacing, at time of insertion of implantable defibrillator or pacemaker pulse generator
33226	Repositioning of previously implanted cardiac venous system electrode
33227	Removal of permanent pacemaker pulse generator with replacement of pacemaker pulse generator; single lead system
33228	Removal of permanent pacemaker pulse generator with replacement of pacemaker pulse generator; dual lead system
33229	Removal of permanent pacemaker pulse generator with replacement of pacemaker pulse generator; multiple lead system
33230	Insertion of implantable defibrillator pulse generator only; with existing dual leads
33231	Insertion of implantable defibrillator pulse generator only; with existing multiple leads
33233	Removal of permanent pacemaker pulse generator only
33234	Removal of transvenous pacemaker electrode(s); single lead system, atrial or ventricular
33235	Removal of transvenous pacemaker electrode(s); dual lead system
33236	Removal of permanent epicardial pacemaker and electrodes by thoracotomy; single lead system, atrial or ventricular

<b>33237</b>	<b>Removal of permanent epicardial pacemaker and electrodes by thoracotomy; dual lead system</b>
<b>33238</b>	<b>Removal of permanent transvenous electrode(s) by thoracotomy</b>
<b>33240</b>	<b>Insertion of implantable defibrillator pulse generator only; with existing single lead</b>
<b>33241</b>	<b>Removal of implantable defibrillator pulse generator only</b>
<b>33243</b>	<b>Removal of single or dual chamber implantable defibrillator electrode(s); by thoracotomy</b>
<b>33244</b>	<b>Removal of single or dual chamber implantable defibrillator electrode(s); by transvenous extraction</b>
<b>33249</b>	<b>Insertion or replacement of permanent implantable defibrillator system, with transvenous lead(s), single or dual chamber</b>
<b>33262</b>	<b>Removal of implantable defibrillator pulse generator with replacement of implantable defibrillator pulse generator; single lead system</b>
<b>33263</b>	<b>Removal of implantable defibrillator pulse generator with replacement of implantable defibrillator pulse generator; dual lead system</b>
<b>33264</b>	<b>Removal of implantable defibrillator pulse generator with replacement of implantable defibrillator pulse generator; multiple lead system</b>
<b>33270</b>	<b>Insertion or replacement of permanent subcutaneous implantable defibrillator system, with subcutaneous electrode, including defibrillation threshold evaluation, induction of arrhythmia, evaluation of sensing for arrhythmia termination, and programming or reprogramming of sensing or therapeutic parameters, when performed</b>
<b>33271</b>	<b>Insertion of subcutaneous implantable defibrillator electrode</b>
<b>33272</b>	<b>Removal of subcutaneous implantable defibrillator electrode</b>
<b>33273</b>	<b>Repositioning of previously implanted subcutaneous implantable defibrillator electrode</b>

Surgeons often use a private cardiologist to assist in pacemaker placement. When the same surgeon is placing the generator and leads, look at codes 33206 to 33208, depending on if it is a single or a dual pacemaker.

A single pacemaker includes a pulse generator and one electrode inserted in either the atrium or the ventricle.

A dual pacemaker includes a pulse generator and two electrodes, one inserted into the right atrium and one inserted into the right ventricle. If the surgeon is strictly placing the generator and the cardiologist is placing the leads, then look at codes 33212, 33213, or 33221. Code selection also will depend on whether it is single or dual for the insertion of the generator.

If for some reasons the leads are placed epicardially, and not transvenously, look at codes 33202 and 33203 in conjunction with 33212, 33213, and 33221.

Sometimes, if the patient gains or loses a lot of weight, the pocket in which the generator is placed is no longer sufficient, and the generator can flip down. When that happens, a relocation of that pocket is necessary. For this, look at codes 33222 and 33223.

If for some reason the pacemaker needs to be removed for infection, or the battery has gone dead, report 33233.

When a pulse generator is removed and replaced during the same session, select a code from 33227–33229 depending on the type of pacemaker system.

- 33202 Insertion of epicardial electrode(s); open incision (eg, thoracotomy, median sternotomy, subxiphoid approach)
- 33203 endoscopic approach (eg, thoracoscopy, pericardioscopy)

(When epicardial lead placement is performed with insertion of the generator, report 33202, 33203 in conjunction with 33212, 33213, 33221, 33230, 33231, 33240)

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

(Do not report 33206-33208 in conjunction with 33227-33229)

(Do not report 33206, 33207, 33208 in conjunction with 33216, 33217)

(Codes 33206-33208 include subcutaneous insertion of the pulse generator and transvenous placement of electrode[s])

(For removal and replacement of pacemaker pulse generator and transvenous electrode(s), use 33233 in conjunction with either 33234 or 33235 and 33206-33208)

- 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)
- 33212 Insertion of pacemaker pulse generator only; with existing single lead
- 33213 with existing dual leads
- 33221 with existing multiple leads

(Do not report 33212, 33213, 33221 in conjunction with 33216-33217)

(Do not report 33212, 33213, 33221 in conjunction with 33233 for removal and replacement of the pacemaker pulse generator. Use 33227-33229, as appropriate, when pulse generator replacement is indicated)

(When epicardial lead placement is performed with insertion of generator, report 33202, 33203 in conjunction with 33212, 33213, 33221)

## **CPT Assistant, Summer 1994 Pages: 17-18 Category: Temporary Pacing**

“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)

Temporary pacing may be performed for patients with significant bradycardia, including heart block and sinus node dysfunction and in patients with syncope associated with slow heart rhythms caused by drugs. Most often only a ventricular electrode is used, but in patients with left ventricular hypertrophy, or sometimes in heart failure, a dual chamber temporary pacing system is used.

Codes 33210, 33211 identify the insertion or replacement of a single temporary transvenous pacing catheter (33210), atrial or ventricular, or of two temporary catheters (33211), atrial and ventricular for attachment to an external pulse generator. It is important to recognize the designation of these codes as a "separate procedure", rather than as a component of a more complex operation."

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)

(Do not report 33214 in conjunction with 33216, 33217, 33227, 33228, 33229)

33215 Repositioning of previously implanted transvenous pacemaker or implantable defibrillator (right atrial or right ventricular) electrode

33216 Insertion of a single transvenous electrode, permanent pacemaker or implantable defibrillator

(Do not report 33216 in conjunction with 33206, 33207, 33208, 33212, 33213, 33214, 33221, 33227, 33228, 33229, 33230, 33231, 33240, 33249, 33262, 33263, 33264)

33217 Insertion of 2 transvenous electrodes, permanent pacemaker or implantable defibrillator

(Do not report 33217 in conjunction with 33206, 33207, 33208, 33212, 33213, 33214, 33221, 33227, 33228, 33229, 33230, 33231, 33240, 33249, 33262, 33263, 33264)

(For insertion or replacement of a cardiac venous system lead, see 33224, 33225)

33218 Repair of single transvenous electrode, permanent pacemaker or implantable defibrillator

For repair of single permanent pacemaker or implantable defibrillator electrode with replacement of pulse generator, see 33227, 33228, 33229 or 33262, 33263, 33264 and 33218)

33220 Repair of 2 transvenous electrodes for permanent pacemaker or implantable defibrillator

(For repair of 2 transvenous electrodes for permanent pacemaker or implantable defibrillator with replacement of pulse generator, use 33220 in conjunction with 33228, 33229, 33263, 33264)

33222 Relocation of skin pocket for pacemaker

(Do not report 33222 in conjunction with 10140, 10180, 11042, 11043, 11044, 11045, 11046, 11047, 13100, 13101, 13102)

33223 Relocation of skin pocket for implantable defibrillator

Do not report 33223 in conjunction with 10140, 10180, 11042, 11043, 11044, 11045, 11046, 11047, 13100, 13101, 13102)

33224 Insertion of pacing electrode, cardiac venous system, for left ventricular pacing, with attachment to previously placed pacemaker or implantable defibrillator pulse generator (including revision of pocket, removal, insertion, and/or replacement of existing generator)

(When epicardial electrode placement is performed, report 33224 in conjunction with 33202, 33203)

+33225 Insertion of pacing electrode, cardiac venous system, for left ventricular pacing, at time of insertion of implantable defibrillator or pacemaker pulse generator (eg, for upgrade to dual chamber system) (List separately in addition to code for primary procedure)

(Use 33225 in conjunction with 33206, 33207, 33208, 33212, 33213, 33214, 33216, 33217, 33221, 33223, 33228, 33229, 33230, 33231, 33233, 33234, 33235, 33240, 33249, 33263, 33264)

(Use 33225 in conjunction with 33222 only with pacemaker pulse generator pocket relocation and with 33223 only with implantable defibrillator [ICD] pocket relocation)

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

33227 Removal of permanent pacemaker pulse generator with replacement of pacemaker pulse generator; single lead system

33228 dual lead system

33229 multiple lead system

(Do not report 33227, 33228, 33229 in conjunction with 33214, 33216, 33217, 33233)

(For removal and replacement of pacemaker pulse generator and transvenous electrode(s), use 33233 in conjunction with either 33234 or 33235 and 33206-33208)

33230 with existing dual leads

33231 with existing multiple leads

(Do not report 33230, 33231, 33240 in conjunction with 33216, 33217)

(Do not report 33230, 33231, 33240 in conjunction with 33241 for removal and replacement of the implantable defibrillator pulse generator. Use 33262, 33263, 33264, as appropriate, when pulse generator replacement is indicated)

(When epicardial lead placement is performed with insertion of generator, report 33202, 33203 in conjunction with 33230, 33231, 33240)

33233 Removal of permanent pacemaker pulse generator only

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

33235 dual lead system

33236 Removal of permanent epicardial pacemaker and electrodes by thoracotomy; single lead system, atrial or ventricular

33237 dual lead system

33238 Removal of permanent transvenous electrode(s) by thoracotomy

33240 Insertion of implantable defibrillator pulse generator only; with existing single lead

(Do not report 33240 in conjunction with 33271, 93260, 93261)

(Use 33240, as appropriate, in addition to the epicardial lead placement codes to report the insertion of the generator when done by the same physician during the same session)

33241 Removal of implantable defibrillator pulse generator only

(Do not report 33241 in conjunction with 93260, 93261)

(Do not report 33241 in conjunction with 33230, 33231, 33240 for removal and replacement of the implantable defibrillator pulse generator. Use 33262, 33263, 33264, as appropriate, when pulse generator replacement is indicated))

(For removal and replacement of an implantable defibrillator pulse generator and electrode[s], use 33241 in conjunction with either 33243 or 33244 and 33249 for transvenous electrode[s] or 33270 and 33272 for subcutaneous electrode)

33243 Removal of single or dual chamber implantable defibrillator electrode(s); by thoracotomy

33244 by transvenous extraction

33249 Insertion or replacement of permanent implantable defibrillator system, with transvenous lead(s), single or dual chamber

(Do not report 33249 in conjunction with 33216, 33217)

(For removal and replacement of an implantable defibrillator pulse generator and transvenous electrodes), use 33241 in conjunction with either 33243 or 33244 and 33249)

(For insertion of transvenous implantable defibrillator lead(s), without thoracotomy, use 33216 or 33217)

33262 Removal of implantable defibrillator pulse generator with replacement of implantable defibrillator pulse generator; single lead system

(Do not report 33262 in conjunction with 33271, 93260, 93261)

33263 dual lead system

33264 multiple lead system

(Do not report 33262, 33263, 33264 in conjunction with 33216, 33217, 33241)

(For removal of electrode[s] by thoracotomy in conjunction with pulse generator removal or replacement, use 33243 in conjunction with 33241 or 33262, 33263, 33264)

(For removal of electrode[s] by transvenous extraction in conjunction with pulse generator removal or replacement, use 33244 in conjunction with 33241, or 33262, 33263, 33264)

(For repair of implantable defibrillator pulse generator and/or leads, see 33218, 33220)

(For removal of subcutaneous electrode in conjunction with implantable defibrillator pulse generator removal or replacement, use 33272 in conjunction with 33241 or 33262)

33270 Insertion or replacement of permanent subcutaneous implantable defibrillator system, with subcutaneous electrode, including defibrillation threshold evaluation, induction of arrhythmia, evaluation of sensing for arrhythmia termination, and programming or reprogramming of sensing or therapeutic parameters, when performed

(Do not report 33270 in conjunction with 33271, 93260, 93261, 93644)

(For removal and replacement of an implantable defibrillator pulse generator and subcutaneous electrode, use 33241 in conjunction with 33270 and 33272)

(For insertion of subcutaneous implantable defibrillator lead(s), use 33271)

33271 Insertion of subcutaneous implantable defibrillator electrode

(Do not report 33271 in conjunction with 33240, 33262, 33270, 93260, 93261)

(For insertion or replacement of a cardiac venous system lead, see 33224, 33225)

33272 Removal of subcutaneous implantable defibrillator electrode

33273 Repositioning of previously implanted subcutaneous implantable defibrillator electrode

(Do not report 33272, 33273 in conjunction with 93260, 93261)

## **CPT Assistant August 2016, pages 5-6, Cardiovascular Guidelines: Questions and Answers**

“In the CPT® 2016 code set, the guidelines related to the pacemaker and implantable defibrillator codes were revised. The following frequently asked questions are meant to serve as a useful tool to help refresh and promote accurate coding related to pacemaker and implantable defibrillator services.

Question: What are the components of a pacemaker system with lead(s)?

Answer: A pacemaker system with lead(s) includes a pulse generator containing electronics, a battery, and one or more leads.

Question: How many electrodes are in a lead?

Answer: A lead consists of one or more electrodes, as well as conductor wires, insulation, and a fixation mechanism.

Question: Where are pulse generators placed?

Answer: Pulse generators are placed in a subcutaneous "pocket" created in either a subclavicular site or just above the abdominal muscles and just below the ribcage.

Question: How is a dual chamber pacemaker system with two leads implanted?

Answer: A dual chamber pacemaker system with two leads includes a pulse generator, in which one lead is implanted in the right atrium and the other lead implanted in the right ventricle. In certain circumstances, an additional lead may be required to achieve pacing of the left ventricle (biventricular pacing).

Question: If the removal of a transvenous electrode (s) is attempted by transvenous extraction, but is unsuccessful, what CPT code(s) should be reported?

Answer: If removal of a transvenous electrode (s) was attempted by transvenous extraction, but was unsuccessful, report code 33234, Removal of transvenous pacemaker electrode(s); single lead system, atrial or ventricular with modifier 52, Reduced Services, or modifier 53, Discontinued Procedure. Depending on the circumstances as to why the procedure was stopped, modifier 52 is reportable if no anesthesia was administered and the physician elected to terminate the procedure. However, modifier 53 would be applicable if anesthesia was administered and the procedure was terminated due to extenuating circumstances.

Question: When the battery of a pacemaker system with lead(s) or implantable defibrillator is changed, what codes are reported?

Answer: When the battery of a pacemaker system with lead(s) or implantable defibrillator is changed, it is actually the pulse generator that is changed. If only a pulse generator (battery) is inserted or replaced without any right atrial and/or right ventricular lead(s) inserted or replaced, report the appropriate code for only the pulse generator insertion

or replacement based on the number of final existing lead(s) (33227-33229 or 33262-33264). The removal (without replacement) of only the pacemaker or implantable defibrillator pulse generator is reported with either code 33233, Removal of permanent pacemaker pulse generator only, or 33241, Removal of implantable defibrillator pulse generator only.

Question: Is it appropriate to report the device evaluation codes 93260, 93261, 93279-93299 for the pacemaker system with lead(s) together with the pulse generator and lead insertion or revision codes?

Answer: No, the device evaluation codes (93260, 93261, 93279-93299) for pacemaker system with lead(s) may not be reported in conjunction with pulse generator and lead insertion or revision codes (33206-33249, 33262-33264, 33270-33273), as this service is included in the insertion and revision codes.

Question: What CPT code should be reported for fluoroscopic evaluation of a diagnostic lead when lead insertion, replacement, or revision procedures are not performed?

Answer: Report code 76000, Fluoroscopy (separate procedure), up to 1 hour physician or other qualified health care professional time, other than 71023 or 71034 (eg, cardiac fluoroscopy)."

### **Category III Codes for Pacemaker - Leadless and Pocketless System**

In the CPT® 2016 code set, the guidelines for pacemaker or implantable defibrillator were revised to distinguish the reporting of pacemaker system with lead(s), which is reported with the aforementioned Category I codes (33202, 33203, 33206-33222, 33224-33229, 33233-33238), from leadless cardiac pacemaker system, which is reported with Category III codes (0387T-0391T).

0387T            Transcatheter insertion or replacement of permanent leadless pacemaker, ventricular

(For insertion, repositioning, or replacement of pacemaker systems with lead[s], use the appropriate epicardial [33202, 33203] or transvenous codes [33206-33222, 33224, 33225, 33226])

(Do not report 0387T in conjunction with 0388T, 0389T, 0390T, 0391T)

(Do not report 0387T in conjunction with 93566 for right ventriculography performed during leadless pacemaker insertion)

0388T            Transcatheter removal of permanent leadless pacemaker, ventricular

(For removal of pacemaker systems with lead[s], see the appropriate transvenous [33227, 33228, 33229,33233, 33234, 33235] or thoracotomy codes [33236, 33237, 33238])

(Do not report 0388T in conjunction with 0387T)

0389T            Programming device evaluation (in person) with iterative adjustment of the implantable device to test the function of the device and select optimal permanent programmed values with analysis, review and report, leadless pacemaker system

(Do not report 0389T in conjunction with 0387T, 0390T, 0391T)

(For programming device evaluations of pacemaker systems with lead[s], see 93279, 93280, 93281)

0390T            Peri-procedural device evaluation (in person) and programming of device system parameters before or after a surgery, procedure or test with analysis, review and report, leadless pacemaker system

(Do not report 0390T in conjunction with 0387T, 0389T, 0391T)

(For peri-procedural device evaluation of systems with lead[s], see 93286, 93287)

0391T            Interrogation device evaluation (in person) with analysis, review and report, includes connection, recording and disconnection per patient encounter, leadless pacemaker system

(Do not report 0391T in conjunction with 0387T, 0389T, 0390T)

(For interrogation device evaluation of systems with lead[s], see 93288, 93289)

# Pacemaker or Implantable Defibrillator

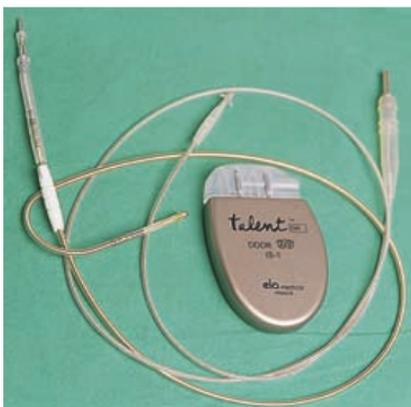
A pacemaker and implantable defibrillator (33202-33273) are devices that are inserted into the body to electrically shock the heart into regular rhythm (as illustrated in Figs. 21-5 and 21-6). When a pacemaker is inserted, a pocket is made and a generator and lead(s) are placed inside the chest (Fig. 21-7). Sometimes, only components of the pacemaker are reinserted, repaired, or replaced. You need to know three things about the service provided to correctly code the pacemaker:

1. Where the electrode (lead) is placed: atrium, ventricle, or both ventricle and atrium
2. Whether the procedure involves initial placement, replacement, upgrade or repair of all components or separate components of the pacemaker
3. The approach used to place the pacemaker (epicardial or transvenous)

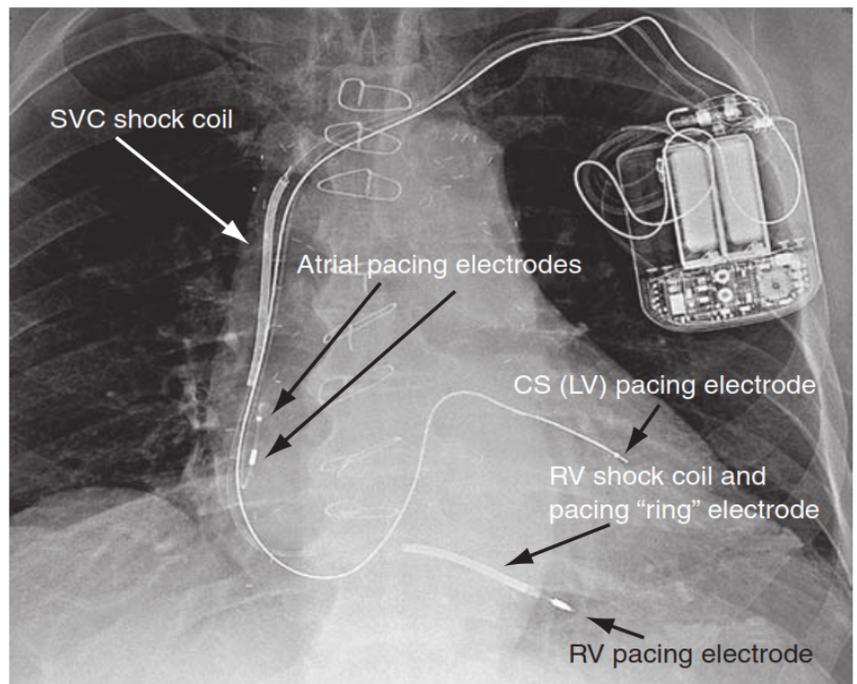


## CODING SHOT

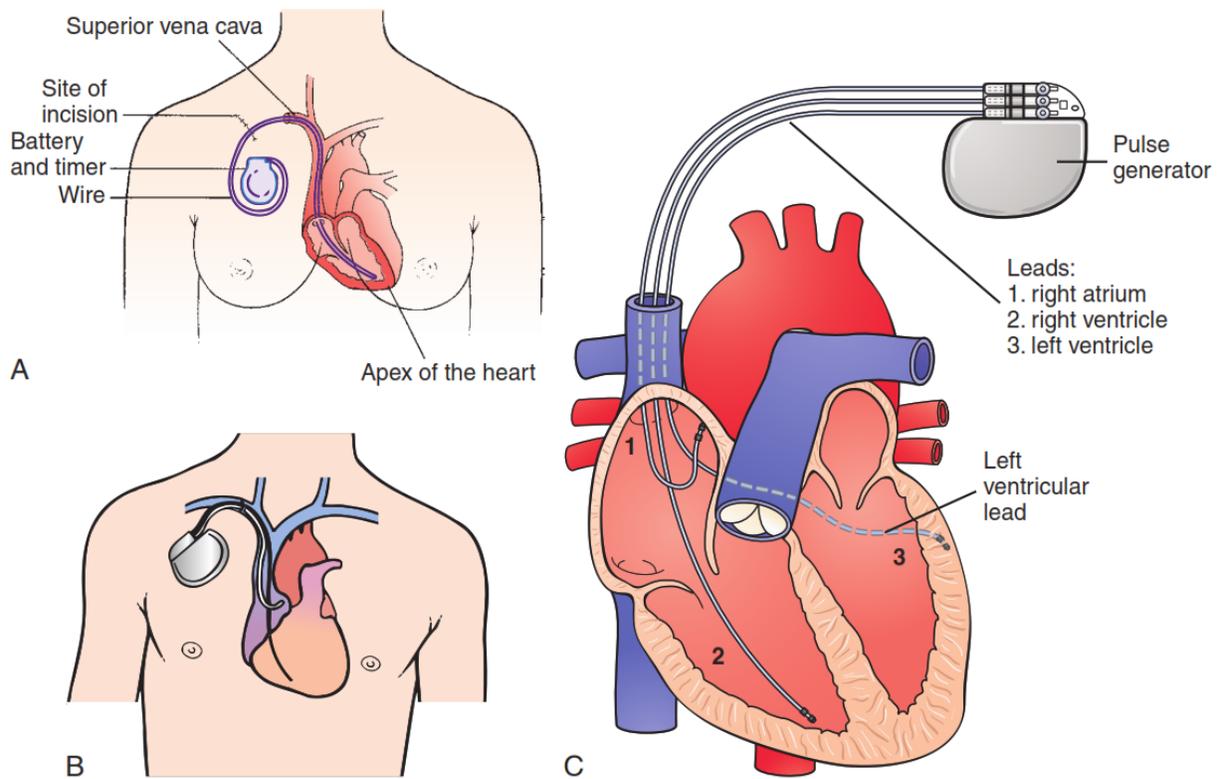
A single pacemaker has one lead (atrium or ventricle), a dual pacemaker has two leads (one lead in the right atrium and one in the right ventricle), and a biventricular pacemaker has three leads (one in the right atrium, one in the right ventricle, and one on the left ventricle via the coronary sinus vein).



**FIGURE 21-5** Permanent cardiac pacemaker unit.



**FIGURE 21-6** Left ventricular pacing.



**FIGURE 21-7** A, Single pacemaker insertion. B, Dual chamber pacemaker. C, Biventricular pacemaker.

**Approaches.** The two approaches that are used when inserting a pacemaker are epicardial (on the heart) and transvenous (through a vein), and the codes are divided according to the surgical approach.

1. The **epicardial** approach involves opening the chest cavity and placing a lead on the epicardial sac of the heart. A pocket is formed in either the upper abdomen or under the clavicle, and the pacemaker generator is placed into the pocket. The wires are then connected to the pacemaker generator and the chest area is closed. Codes for the epicardial process are further divided based on the approach to the heart—thoracotomy, upper abdominal (xiphoid region), or endoscopic.
2. The **transvenous** approach involves accessing a vein (subclavian or jugular) and inserting an electrode (lead) into the vein. The pacemaker is affixed by creating a pocket into which the pacemaker generator is placed. The fluoroscopy views the internal structure by means of x-rays. Fluoroscopic guidance is included in 33206-33249. Diagnostic fluoroscopic guidance for diagnostic lead evaluation with lead insertion, replacement, or revision is reported with 76000. Transvenous codes are further divided based on the area of the heart into which the pacemaker is inserted. For example, 33207 (single-lead pacemaker) is reported for transvenous placement of a pacemaker into the ventricle of the heart. If the pacemaker electrodes were placed in both the atrium and ventricle, 33208 (dual-lead pacemaker) is reported.

The documentation in the medical record will indicate whether a pacemaker or implantable defibrillator was inserted or replaced.

The same set of criteria applies to choosing the correct implantable defibrillator codes:

1. Revision or replacement of lead(s)
2. Replacement, repair, removal of components
3. Approach used for insertion or repair



## CODING SHOT

A change of batteries in a pacemaker or an implantable defibrillator is a **removal** of the implanted generator and the **reimplantation** (insertion) of a new generator. Both the removal and the reimplantation are reported separately.

If electrophysiology (EP) is used to diagnose a condition that resulted in the insertion of a pacemaker or an implantable defibrillator, the EP is not included in the surgery code reported for the insertion. Rather, the EP is reported separately using the Medicine section codes 93600-93662.

### *Using the CPT, and ICD-10-CM manuals, code the following:*

- 1** Allen Jackson gets very tired walking up and down stairs. He has a hard time catching his breath and experiences instances when his heart feels as if it is beating fast. His physician has told him that he will require a pacemaker implantation. Allen goes to surgery and has a single-lead pacemaker implanted with a ventricular lead.

CPT Code: \_\_\_\_\_

- 2** Five days after the pacemaker is implanted, Allen (from Question 1) feels very dizzy and his electrocardiogram is showing some abnormalities. His physician returns him to the operating room and discovers that the pacemaker lead is malfunctioning. The pacemaker lead is replaced, and Allen recovers nicely.

CPT Code: \_\_\_\_\_

- 3** Five years later, the battery in Allen's pacemaker is found to have become depleted. He is also having some other symptoms that his physician believes necessitate not only a replacement pacemaker, but also an upgrade to a dual-lead device.

CPT Code: \_\_\_\_\_

- 4** A new patient with a chief complaint of sharp, intermittent retrosternal pain that is reduced by sitting up or leaning forward is evaluated by a cardiologist. Chest films reveal acute pulmonary edema with acute pericardial effusion. The physician performs a pericardiocentesis. (Code the procedure and diagnoses.)

CPT Code: \_\_\_\_\_

ICD-10-CM Codes: \_\_\_\_\_, \_\_\_\_\_

- 5** Resection of an endocardium primary malignant tumor in which cardiopulmonary bypass is required

CPT Code: \_\_\_\_\_

1. **33207** (Pacemaker, Heart, Insertion)
2. **33216-78** (Pacemaker, Heart, Insertion, Electrode).  
The patient had a single-lead pacemaker implanted. The replacement of the lead wire is reported as insertion of a new electrode, the removal of the defective electrode is not separately reported.
3. **33214** (Pacemaker, Conversion) also known as an upgrade
4. **33010** (Pericardiocentesis)  
ICD-10-CM: **J81.0** (Edema, lung, acute), **I30.0** (Pericarditis, acute, nonspecific)
5. **33120** (Tumor, Heart, Excision)  
ICD-10-CM: **C38.0** (Neoplasm, heart, Malignant Primary)