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Clinical Appropriateness Guidelines

Cardiovascular

Appropriate Use Criteria: Cardiac Implantable Electronic Devices

Proprietary

Table of Contents

Description and Application of the Guidelines

The Carelon Clinical Appropriateness Guidelines (hereinafter “the Carelon Clinical Appropriateness Guidelines” or the “Guidelines”) are designed to assist providers in making the most appropriate treatment decision for a specific clinical condition for an individual. The Guidelines establish objective and evidence-based criteria for medical necessity determinations, where possible, that can be used in support of the following:

- To establish criteria for when services are medically necessary
- To assist the practitioner as an educational tool
- To encourage standardization of medical practice patterns
- To curtail the performance of inappropriate and/or duplicate services
- To address patient safety concerns
- To enhance the quality of health care
- To promote the most efficient and cost-effective use of services

The Carelon guideline development process complies with applicable accreditation and legal standards, including the requirement that the Guidelines be developed with involvement from appropriate providers with current clinical expertise relevant to the Guidelines under review and be based on the most up-to-date clinical principles and best practices. Resources reviewed include widely used treatment guidelines, randomized controlled trials or prospective cohort studies, and large systematic reviews or meta-analyses. Carelon reviews all of its Guidelines at least annually.

Carelon makes its Guidelines publicly available on its website. Copies of the Guidelines are also available upon oral or written request. Additional details, such as summaries of evidence, a list of the sources of evidence, and an explanation of the rationale that supports the adoption of the Guidelines, are included in each guideline document.

Although the Guidelines are publicly available, Carelon considers the Guidelines to be important, proprietary information of Carelon, which cannot be sold, assigned, leased, licensed, reproduced or distributed without the written consent of Carelon. Use of the Guidelines by any external AI entity without the express written permission of Carelon is prohibited.

Carelon applies objective and evidence-based criteria, and takes individual circumstances and the local delivery system into account when determining the medical appropriateness of health care services. The Carelon Guidelines are just guidelines for the provision of specialty health services. These criteria are designed to guide both providers and reviewers to the most appropriate services based on a patient’s unique circumstances. In all cases, clinical judgment consistent with the standards of good medical practice should be used when applying the Guidelines. Guideline determinations are made based on the information provided at the time of the request. It is expected that medical necessity decisions may change as new information is provided or based on unique aspects of the patient’s condition. The treating clinician has final authority and responsibility for treatment decisions regarding the care of the patient and for justifying and demonstrating the existence of medical necessity for the requested service. The Guidelines are not a substitute for the experience and judgment of a physician or other health care professionals. Any clinician seeking to apply or consult the Guidelines is expected to use independent medical judgment in the context of individual clinical circumstances to determine any patient’s care or treatment.

The Guidelines do not address coverage, benefit or other plan specific issues. Applicable federal and state coverage mandates take precedence over these clinical guidelines, and in the case of reviews for Medicare Advantage Plans, the Guidelines are only applied where there are not fully established CMS criteria. If requested by a health plan, Carelon will review requests based on health plan medical policy/guidelines in lieu of the Carelon Guidelines. Pharmaceuticals, radiotracers, or medical devices used in any of the diagnostic or therapeutic interventions listed in the Guidelines must be FDA approved or conditionally approved for the intended use. However, use of an FDA approved or conditionally approved product does not constitute medical necessity or guarantee reimbursement by the respective health plan.

The Guidelines may also be used by the health plan or by Carelon for purposes of provider education, or to review the medical necessity of services by any provider who has been notified of the need for medical necessity

review, due to billing practices or claims that are not consistent with other providers in terms of frequency or some other manner.

General Clinical Guideline

Clinical Appropriateness Framework

Critical to any finding of clinical appropriateness under the guidelines for a specific diagnostic or therapeutic intervention are the following elements:

- Prior to any intervention, it is essential that the clinician confirm the diagnosis or establish its pretest likelihood based on a complete evaluation of the patient. This includes a history and physical examination and, where applicable, a review of relevant laboratory studies, diagnostic testing, and response to prior therapeutic intervention.
- The anticipated benefit of the recommended intervention is likely to outweigh any potential harms, including from delay or decreased access to services that may result (net benefit).
- Widely used treatment guidelines and/or current clinical literature and/or standards of medical practice should support that the recommended intervention offers the greatest net benefit among competing alternatives.
- There exists a reasonable likelihood that the intervention will change management and/or lead to an improved outcome for the patient.

Providers may be required to submit clinical documentation in support of a request for services. Such documentation must a) accurately reflect the clinical situation at the time of the requested service, and b) sufficiently document the ordering provider's clinical intent.

If these elements are not established with respect to a given request, the determination of appropriateness will most likely require a peer-to-peer conversation to understand the individual and unique facts that would justify a finding of clinical appropriateness. During the peer-to-peer conversation, factors such as patient acuity and setting of service may also be taken into account to the extent permitted by law.

Simultaneous Ordering of Multiple Diagnostic or Therapeutic Interventions

Requests for multiple diagnostic or therapeutic interventions at the same time will often require a peer-to-peer conversation to understand the individual circumstances that support the medical necessity of performing all interventions simultaneously. This is based on the fact that appropriateness of additional intervention is often dependent on the outcome of the initial intervention.

Additionally, either of the following may apply:

- Current literature and/or standards of medical practice support that one of the requested diagnostic or therapeutic interventions is more appropriate in the clinical situation presented; or
- One of the diagnostic or therapeutic interventions requested is more likely to improve patient outcomes based on current literature and/or standards of medical practice.

Repeat Diagnostic Intervention

In general, repeated testing of the same anatomic location for the same indication should be limited to evaluation following an intervention, or when there is a change in clinical status such that additional testing is required to determine next steps in management. At times, it may be necessary to repeat a test using different techniques or protocols to clarify a finding or result of the original study.

Repeated testing for the same indication using the same or similar technology may be subject to additional review or require peer-to-peer conversation in the following scenarios:

- Repeated diagnostic testing at the same facility due to technical issues
- Repeated diagnostic testing requested at a different facility due to provider preference or quality concerns
- Repeated diagnostic testing of the same anatomic area based on persistent symptoms with no clinical change, treatment, or intervention since the previous study
- Repeated diagnostic testing of the same anatomic area by different providers for the same member over a short period of time

Repeat Therapeutic Intervention

In general, repeated therapeutic intervention in the same anatomic area is considered appropriate when the prior intervention proved effective or beneficial and the expected duration of relief has lapsed. A repeat intervention requested prior to the expected duration of relief is not appropriate unless it can be confirmed that the prior intervention was never administered. Requests for on-going services may depend on completion of previously authorized services in situations where a patient's response to authorized services is relevant to a determination of clinical appropriateness.

Cardiac Resynchronization Therapy

General Information

Description and Scope

Disparity in the timing of regional ventricular contraction, mechanical dyssynchrony, is seen in some patients with congestive heart failure and has adverse prognostic implications. Over the past 2 decades it has been established that biventricular pacing is associated with improved outcomes and/or well-being in some patients with mechanical dyssynchrony. This treatment is known as cardiac resynchronization therapy (CRT). This guideline addresses the appropriate use of CRT.

Pacing of the left ventricle for CRT is achieved either via the coronary sinus (in which case the pacing lead is epicardial) or by implanting a wireless pacemaker on the endocardial surface of endocardium. Endocardial wireless pacemakers are triggered by ultrasound emitted from a transmitter which is triggered by the right ventricular pacing device. Both traditional transvenous and wireless CRT are addressed in this guideline. Evidence supporting the use of wireless left ventricular pacing is evolving. Thus far, published studies have been limited by small sample size, lack of a randomized control group, restriction to highly specialized centers, and short follow-up duration. Furthermore, wireless CRT is not FDA approved at this time.

Before consideration is given to CRT, reversible causes of heart failure should be excluded or corrected (e.g., ischemia, tachycardia-mediated cardiomyopathy, or alcohol), and the patient should be reassessed following an adequate trial of guideline-directed pharmacological therapy.

Cardiac resynchronization therapy devices, whether used to prolong survival or improve well-being, should be reserved for patients whose general health is such that survival with meaningful quality of life (with the device) is expected to exceed one year.

This guideline outlines the clinical scenarios in which CRT is considered appropriate. Although many patients for whom CRT is deemed appropriate will also meet criteria for an implantable cardioverter defibrillator (ICD), patients who meet criteria for both CRT and ICD are managed with a single device capable of performing both functions. Such devices are known as CRT-implantable cardioverter-defibrillator (CRT-D) devices to differentiate them from CRT-pacemaker (CRT-P) devices, which perform pacing function and are not capable of providing defibrillation.

Definitions

Guideline-directed medical therapy(GDMT) for heart failure with reduced ejection fraction (HFrEF): Maximum tolerated doses of appropriately titrated medication (to include a medication from each of the following four(4) classes: beta blockers, ACEI/ARB/ARNI, mineralocorticoid receptor antagonists, and $SGLT_2$ inhibitors). When a particular medication class is contraindicated, guideline-directed medical therapy definition can exclude that class.

New York Heart Association (NYHA) functional class: Symptom-based classification of the severity of heart failure as outlined below.

- Class I. Individuals with cardiac disease but without resulting limitation of physical activity; ordinary physical activity does not cause undue fatigue, palpitation, dyspnea, or anginal pain; symptoms only occur on severe exertion.
- Class II. Individuals with cardiac disease resulting in slight limitation of physical activity; they are comfortable at rest; ordinary physical activity (e.g., moderate physical exertion, such as carrying shopping bags up several flights of stairs) results in fatigue, palpitation, dyspnea, or anginal pain.
- Class III. Individuals with cardiac disease resulting in marked limitation of physical activity; they are comfortable at rest; less than ordinary activity causes fatigue, palpitation, dyspnea, or anginal pain.

- Class IV. Individuals with cardiac disease resulting in inability to carry on any physical activity without discomfort; symptoms of heart failure or the anginal syndrome may be present even at rest; if any physical activity is undertaken, discomfort is increased.

Clinical Indications

CRT-P device implantation

CRT-P is considered medically necessary when, following an adequate trial* of guideline-directed medical therapy for congestive heart failure, ALL of the following are present:

- Sinus rhythm
- Left ventricular ejection fraction (LVEF) ≤ 35%
- Prolonged QRS duration with **EITHER** of the following:
    - ≥ 150 milliseconds (any morphology)
    - 130-149 milliseconds with LBBB morphology
- NYHA class II, class III, or ambulatory class IV heart failure symptoms
- Correctable causes of congestive heart failure (e.g., ischemia, tachycardia-mediated cardiomyopathy) have been appropriately addressed

In this context, an **adequate trial of guideline-directed medical therapy means either 3 months of therapy following diagnosis or 40 days of therapy following the most recent myocardial infarction.*

***Note**: Some patients who meet all criteria above may also meet criteria for an implantable defibrillator. In such situations, at the discretion of the provider (and following discussion with the patient), either CRT-D or CRT-P is considered appropriate.*

CRT-P is considered medically necessary when, following an adequate trial* of guideline-directed medical therapy for congestive heart failure, ALL of the following are present:

- Atrial fibrillation
- Left ventricular ejection fraction (LVEF) ≤ 35%
- QRS duration ≥ 130 milliseconds (***Note**: Patients who undergo AV node ablation and have a post-ablation paced QRS duration of ≥ 130 milliseconds can be considered to have met this criterion*)
- NYHA class III or ambulatory class IV
- Strategy to ensure high rate (≥ 90%) biventricular capture (adequate rate control medications or planning AV node ablation) or expectation that sinus rhythm will be restored
- Correctable causes of congestive heart failure (e.g., ischemia, tachycardia-mediated cardiomyopathy) have been appropriately addressed

In this context, an **adequate trial of guideline-directed medical therapy means either 3 months of therapy following diagnosis or 40 days of therapy following the most recent myocardial infarction.*

***Note**: Some patients who meet all criteria above may also meet criteria for an implantable defibrillator. In such situations, at the discretion of the provider (and following discussion with the patient), either CRT-D or CRT-P is considered appropriate.*

CRT-P is considered medically necessary for patients who meet ALL of the following:

- Sinus rhythm or atrial fibrillation
- Criteria for permanent pacemaker implantation met or currently has an implanted electronic device with pacing capability
- Left ventricular ejection fraction (LVEF) < 50%
- NYHA class I-III
- Is expected to have (or has) high degree of ventricular pacing (close to 100%)
- Correctable causes of congestive heart failure (e.g., ischemia, tachycardia-mediated cardiomyopathy) have been appropriately addressed

CRT-P is considered medically necessary for patients with congenital heart disease who, following an adequate trial of guideline directed medical therapy, meet ALL of the following:

- The patient has a systemic left ventricle
- Left ventricular ejection fraction is < 45%
- There is ventricular dyssynchrony (ventricular pacing at least 40% or QRS duration z score at least 3)

CRT-P or CRT-D replacement is considered medically necessary when EITHER of the following apply:

- Generator end-of-life criteria are present
- The generator pocket needs to be opened for another reason (e.g., lead revision) and the device is within 3 years of reaching end-of-life criteria

Exclusions

Wireless CRT

Wireless CRT is considered **not medically necessary** in all scenarios.

Rationale

Much of the relevant data regarding the clinical utility of CRT are from several clinical trials published between 2002 and 2010, including MIRACLE, COMPANION, CARE-HF, REVERSE, MADIT-CRT, and RAFT. Among patients with heart failure, these studies have shown reductions in death and hospitalization for heart failure with CRT. Guideline criteria are based on the inclusion criteria for these studies and are in concordance with professional society guidelines.[13]

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Codes

The following code list is not meant to be all-inclusive. Authorization requirements will vary by health plan. Please consult the applicable health plan for guidance on specific procedure codes.

Specific CPT codes for services should be used when available. Nonspecific or not otherwise classified codes may be subject to additional documentation requirements and review.

CPT/HCPCS

00530	Anesthesia for permanent transvenous pacemaker insertion
00534	Anesthesia for transvenous insertion or replacement of pacing cardioverter/defibrillator
33208	Insertion of new or replacement of permanent pacemaker with transvenous electrode(s); atrial and ventricular
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)
33221	Insertion of pacemaker pulse generator only; with existing multiple leads
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)
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)
33226	Repositioning of previously implanted cardiac venous system (left ventricular) electrode (including removal, insertion and/or replacement of existing generator)
33229	Removal of permanent pacemaker pulse generator with replacement of pacemaker pulse generator; multiple lead system

33241	Removal of implantable defibrillator pulse generator only
33244	Removal of single or dual chamber pacing cardioverter-defibrillator electrode(s); by transvenous extraction
33249	Insertion or replacement of permanent implantable defibrillator system, with transvenous lead(s), single or dual chamber
33263	Removal of implantable defibrillator pulse generator with replacement of implantable defibrillator pulse generator; dual lead system
33264	Removal of implantable defibrillator pulse generator with replacement of implantable defibrillator pulse generator; multiple lead system
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
0515T	Insertion of wireless cardiac stimulator for left ventricular pacing, including device interrogation and programming, and imaging supervision and interpretation, when performed; complete system (includes electrode and generator [transmitter and battery])
0516T	Insertion of wireless cardiac stimulator for left ventricular pacing, including device interrogation and programming, and imaging supervision and interpretation, when performed; electrode only
0517T	Insertion of wireless cardiac stimulator for left ventricular pacing, including device interrogation and programming, and imaging supervision and interpretation, when performed; pulse generator component(s) (battery and/or transmitter) only
0518T	Removal of only pulse generator component(s) (battery and/or transmitter) of wireless cardiac stimulator for left ventricular pacing
0519T	Removal and replacement of wireless cardiac stimulator for left ventricular pacing; pulse generator component(s) (battery and/or transmitter)
0520T	Removal and replacement of wireless cardiac stimulator for left ventricular pacing; pulse generator component(s) (battery and/or transmitter), including placement of a new electrode
0521T	Interrogation device evaluation (in person) with analysis, review and report, includes connection, recording, and disconnection per patient encounter, wireless cardiac stimulator for left ventricular pacing
0522T	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, including review and report, wireless cardiac stimulator for left ventricular pacing
0861T	Removal of pulse generator for wireless cardiac stimulator for left ventricular pacing; both components (battery and transmitter)
0862T	Relocation of pulse generator for wireless cardiac stimulator for left ventricular pacing, including device interrogation and programming; battery component only
0863T	Relocation of pulse generator for wireless cardiac stimulator for left ventricular pacing, including device interrogation and programming; transmitter component only
C7537	Insertion of new or replacement of permanent pacemaker with atrial transvenous electrode(s), with 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)
C7538	Insertion of new or replacement of permanent pacemaker with ventricular transvenous electrode(s), with 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)
C7539	Insertion of new or replacement of permanent pacemaker with atrial and ventricular transvenous electrode(s), with 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)
C7540	Removal of permanent pacemaker pulse generator with replacement of pacemaker pulse generator, dual lead system, with 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)
G0448	Insertion or replacement of a permanent pacing cardioverter-defibrillator system with transvenous lead(s), single or dual chamber with insertion of pacing electrode, cardiac venous system, for left ventricular pacing

Implantable Cardioverter Defibrillators

General Information

Guideline Scope

This guideline addresses the appropriate clinical indications for transvenous and subcutaneous implantable cardioverter defibrillators (ICDs) for management of ventricular arrhythmia. Use of external defibrillators and cardiac resynchronization devices is not addressed in this section.

Definitions

Guideline-directed medical therapy (GDMT) for heart failure with reduced ejection fraction HFrEF: Maximum tolerated doses of appropriately titrated medication (to include a medication from each of the following four (4) classes: beta blockers, ACEI/ARB/ARNI, mineralocorticoid receptor antagonists, and $SGLT_2$ inhibitors). When a particular medication class is contraindicated, GDMT definition can exclude that class.

Sustained ventricular tachycardia: Ventricular tachycardia that persists for at least 30 seconds or requiring termination due to hemodynamic instability.

Structural heart disease: Left ventricular dysfunction (LVEF < 50%), prior myocardial infarction, moderate or severe valvular heart disease or complex congenital heart disease.

New York Heart Association (NYHA) functional class: Symptom-based classification of the severity of heart failure as outlined below.

- Class I. Individuals with cardiac disease but without resulting limitation of physical activity; ordinary physical activity does not cause undue fatigue, palpitation, dyspnea, or anginal pain; symptoms only occur on severe exertion.
- Class II. Individuals with cardiac disease resulting in slight limitation of physical activity; they are comfortable at rest; ordinary physical activity, (e.g., moderate physical exertion, such as carrying shopping bags up several flights of stairs) results in fatigue, palpitation, dyspnea, or anginal pain.
- Class III. Individuals with cardiac disease resulting in marked limitation of physical activity; they are comfortable at rest; less than ordinary activity causes fatigue, palpitation, dyspnea or anginal pain;
- Class IV. Individuals with cardiac disease resulting in inability to carry on any physical activity without discomfort; symptoms of heart failure or the anginal syndrome may be present even at rest; if any physical activity is undertaken, discomfort is increased.

Clinical Indications

Transvenous Implantable Cardioverter Defibrillators

Transvenous ICD placement is considered medically necessary in ANY of the following scenarios when survival with good functional status for more than one year is anticipated:

- Following cardiac arrest due to ventricular fibrillation or tachycardia when no completely reversible cause can be identified
- Spontaneous sustained ventricular tachycardia in an individual with structural heart disease when no reversible cause of the arrhythmia is identified

- Syncope which is otherwise unexplained in an individual with structural heart disease in ANY of the following scenarios
    - Non ischemic dilated cardiomyopathy with left ventricular ejection fraction (LVEF) ≤ 35%
    - Left ventricular hypertrophy (without diagnostic criteria for hypertrophic cardiomyopathy) with left ventricular ejection fraction (LVEF) ≤ 35%
    - Left ventricular noncompaction with left ventricular ejection fraction (LVEF) <50%

*Note: Additional indications in patients with syncope are listed by specific diagnosis below

- Syncope which is otherwise unexplained in an individual with ischemic heart disease and inducible sustained monomorphic ventricular tachycardia on electrophysiology (EP) study
- Nonischemic dilated cardiomyopathy in an individual ≤ 70 years of age, when, following 90 days of GDMT, **BOTH** of the following are still present:
    - Left ventricular ejection fraction (LVEF) ≤ 35%
    - NYHA functional class II or III
- Ischemic cardiomyopathy when **ANY** of the following apply:
    - LVEF is ≤ 30% due to myocardial infarction ≥ 40 days previously in an individual with NYHA functional class I despite GDMT, who is at least 90 days post revascularization (if revascularization has been performed)
    - LVEF is ≤ 35% due to myocardial infarction ≥ 40 days previously in an individual with NYHA functional class II or III despite GDMT, who is at least 90 days post revascularization (if revascularization has been performed)
    - LVEF is ≤ 40% due to prior myocardial infarction in an individual who has spontaneous non-sustained ventricular tachycardia AND positive electrophysiology study performed ≥ 96 hours following myocardial infarction
- Congenital heart disease when **ANY** of the following apply:
    - History of cardiac arrest thought to be (or known to be) due to ventricular arrhythmia
    - Ventricular tachycardia with hemodynamic instability not amenable to other treatment options (e.g., surgical repair, ablation) and following institution of GDMT for ventricular dysfunction (if present)
    - Unexplained syncope in an individual with repaired congenital heart disease who has moderate LV dysfunction (LVEF < 40%) or marked left ventricular hypertrophy
- Established diagnosis of hypertrophic cardiomyopathy when **ANY** of the following apply:
    - Documented cardiac arrest
    - Documented ventricular fibrillation or sustained ventricular tachycardia
    - Syncope within the preceding 6 months suspected by clinical history to be arrhythmic
    - Maximum LV wall thickness ≥ 30 mm
    - Sudden cardiac death presumed related to hypertrophic cardiomyopathy in a first- or second-degree relative ≤ 50 years of age
    - LV apical aneurysm independent of size
    - Left ventricular ejection fraction < 50%
    - Late gadolinium enhancement (LGE) comprising 15% of LV mass in a patient aged 19 years or older

    - Non-sustained ventricular tachycardia (NSVT) defined as 3 or more brief episodes of consecutive ventricular beats and/or 1 prolonged burst of 10 beats, at a rate of > 130/min, over 24 to 48 hours of continuous ambulatory ECG monitoring
- Established diagnosis of arrhythmogenic right ventricular dysplasia when **ANY** of the following apply:
    - History of cardiac arrest
    - Sustained ventricular tachycardia
    - Left and/or right ventricular ejection fraction ≤ 35% in an individual who is on GDMT
    - Syncope thought to be (or known to be) due to ventricular arrhythmia
- Established diagnosis of long QT syndrome in an individual with syncope or ventricular tachycardia despite beta blocker therapy (or in whom beta blockers are contraindicated)
- Established diagnosis of short QT syndrome in an individual who has a history of cardiac arrest or sustained ventricular tachycardia or fibrillation
- Established diagnosis of Brugada syndrome in an individual with spontaneous type 1 electrocardiographic pattern when **ANY** of the following apply:
    - History of cardiac arrest
    - Sustained ventricular tachycardia or ventricular fibrillation
    - History of syncope thought to be (or known to be) due to ventricular arrhythmia
- Catecholaminergic polymorphic ventricular tachycardia in an individual with recurrent sustained ventricular tachycardia or recurrent syncope despite beta blocker therapy (or in whom beta blockers are contraindicated)
- Established diagnosis of cardiac sarcoidosis when **ANY** of the following apply:
    - History of cardiac arrest
    - LVEF ≤ 35% in an individual who is on GDMT
    - Spontaneous or induced sustained ventricular tachycardia
    - Indication for permanent pacemaker
    - LVEF > 35% with history of syncope or evidence of extensive myocardial scar by cardiac MRI or PET scan
- Phospholamban cardiomyopathy and **EITHER** of the following:
    - LVEF < 45%
    - Non-sustained ventricular tachycardia
- FLNC cardiomyopathy and LVEF < 45%
- Lamin A/C cardiomyopathy with **EITHER** of the following:
    - An indication for permanent pacemaker
    - At least 2 of the following apply:
        - LVEF < 45%
        - Non-sustained ventricular tachycardia
        - Male sex
- An outpatient who has met criteria for, and is awaiting, heart transplant or ventricular assist device and who is NYHA functional class IV
- Device replacement when **EITHER** of the following apply:
    - Generator end-of-life criteria are present

- The generator pocket needs to be opened for another reason (e.g., lead revision) **AND** the device is within 3 years of reaching end-of-life criteria

Subcutaneous Implantable Cardioverter Defibrillators

Subcutaneous ICD placement is considered medically necessary when ALL of the following criteria are met:

- **ONE** of the above criteria for transvenous ICD placement is present
- The individual does not require pacing for bradycardia, overdrive pacing for termination of ventricular tachycardia, or cardiac resynchronization
- The individual does not have incessant ventricular tachycardia
- At least **ONE** of the following applies:
  - Inability to secure venous access
  - Immunocompromised individual
  - Individual with recurrent transvenous lead-related, device-pocket, or systemic infections
  - Individual with endocarditis
  - Subcutaneous device is preferred due to younger age of patient

Exclusions

The use of substernal ICD is considered **not medically necessary** for all indications.

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Codes

The following code list is not meant to be all-inclusive. Authorization requirements will vary by health plan. Please consult the applicable health plan for guidance on specific procedure codes.

Specific CPT codes for services should be used when available. Nonspecific or not otherwise classified codes may be subject to additional documentation requirements and review.

CPT/HCPCS

00534	Anesthesia for transvenous insertion or replacement of pacing cardioverter-defibrillator
33202	Insertion of epicardial electrode(s); open incision (eg, thoracotomy, median sternotomy, subxiphoid approach)
33203	Insertion of epicardial electrode(s); endoscopic approach (eg, thoracoscopy, pericardioscopy)
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
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
33223	Relocation of skin pocket for implantable defibrillator
33230	Insertion of implantable defibrillator pulse generator only; with existing dual leads
33231	Insertion of implantable defibrillator pulse generator only; with existing multiple leads
33240	Insertion of implantable defibrillator pulse generator only; with existing single lead
33241	Removal of implantable defibrillator pulse generator only
33244	Removal of single or dual chamber implantable defibrillator electrode(s); by transvenous extraction
33249	Insertion or replacement of permanent implantable defibrillator system with transvenous lead(s), single or dual chamber
33262	Removal of pacing cardioverter-defibrillator pulse generator with replacement of pacing cardioverter-defibrillator pulse generator; single lead system
33263	Removal of pacing cardioverter-defibrillator pulse generator with replacement of pacing cardioverter-defibrillator pulse generator; dual lead system
33264	Removal of pacing cardioverter-defibrillator pulse generator with replacement of pacing cardioverter-defibrillator pulse generator; multiple lead system
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
33271	Insertion of subcutaneous implantable defibrillator electrode
33272	Removal of subcutaneous implantable defibrillator electrode
33273	Repositioning of previously implanted subcutaneous implantable defibrillator electrode
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
C1721	Cardioverter-defibrillator, dual chamber (implantable)
C1722	Cardioverter-defibrillator, single chamber (implantable)
C1777	Lead, cardioverter-defibrillator, endocardial single coil (implantable)
C1882	Cardioverter-defibrillator, other than single or dual chamber (implantable)
C1895	Lead, cardioverter-defibrillator, endocardial dual coil (implantable)
C1896	Lead, cardioverter-defibrillator, other than endocardial single or dual coil (implantable)
C1899	Lead, pacemaker/cardioverter-defibrillator combination (implantable)

Substernal Implantable Defibrillators

0571T	Insertion or replacement of implantable cardioverter-defibrillator system with substernal electrode(s), including all imaging guidance and electrophysiological evaluation (includes defibrillation threshold evaluation, arrhythmia termination, and programming or reprogramming of sensing or therapeutic parameters, when performed
0572T	Insertion of substernal implantable defibrillator electrode
0573T	Removal of substernal implantable defibrillator electrode
0574T	Repositioning of previously implanted substernal implantable defibrillator-pacing electrode
0580T	Removal of substernal implantable defibrillator pulse generator only
0614T	Removal and replacement of substernal implantable defibrillator pulse generator

Permanent Implantable Pacemakers

General Information

Guideline Scope

This guideline addresses the appropriate use of transvenous permanent implantable pacemakers for the management of bradyarrhythmias. Single and dual chamber leadless pacemakers are also addressed. While published reports indicate that AV synchrony can be achieved in most patients with leadless pacing devices in both the right atrium and right ventricle, there are no randomized studies comparing wireless dual chamber pacing to conventional transvenous dual chamber systems. Furthermore, complications related to dual chamber wireless systems were higher than would be expected with traditional transvenous systems.

Temporary pacemakers, pacemakers for management of heart failure (cardiac resynchronization therapy), and implantable defibrillators are not addressed. Occasionally, the clinical scenario requiring implantation of a permanent pacemaker arises during hospitalization for another reason (e.g., following valve replacement, bypass surgery, or myocardial infarction). These procedures do not require prior authorization and are therefore not addressed in this document.

For the appropriate use of cardiac resynchronization therapy and implantable cardioverter defibrillators, see the Cardiac Resynchronization Therapy and Implantable Cardioverter Defibrillators sections of this guideline, respectively.

Overriding Considerations

- An arrhythmia is considered “documented” when it has been permanently recorded such that a copy can be provided on request.
- An arrhythmia is considered “symptomatic” when symptoms have occurred at the same time as the arrhythmia. When symptoms and the arrhythmia are temporally separated, the arrhythmia cannot be described as symptomatic.
- In general, placement of a pacemaker is not appropriate in patients who are currently taking medications which cause bradyarrhythmias and/or conduction disturbance. Whenever possible, such medications should be discontinued unless there are no acceptable alternative therapies.
- The decision to treat bradyarrhythmias or conduction disturbance with a permanent pacemaker assumes that reversible causes (e.g., electrolyte disturbance, hypothermia, drug toxicity, hypothyroidism, infection, inflammation, ischemia, etc.) have been excluded.
- Except as specified, pacemaker device selection and utilization (manufacturer/capabilities/mode settings, etc.) are outside the scope of this guideline, are at the discretion of the physician, and should be optimized to the patient’s individual clinical situation.
- When a patient meets criteria for permanent pacemaker therapy and has an indication for cardiac resynchronization therapy or implantable defibrillator, a single device which meets all of the patient’s clinical needs should be selected.

Definitions

Extracted from 2018 ACC/AHA/HRS guideline on the evaluation and management of patients with bradycardia and cardiac conduction delay.[13]

Symptomatic arrhythmia: For purposes of guideline interpretation, symptomatic arrhythmia refers to a documented arrhythmia that is directly responsible for development of the clinical manifestations of syncope or presyncope, transient dizziness or lightheadedness, heart failure symptoms, or confusional states resulting from

cerebral hypoperfusion attributable to slow heart rate. For an arrhythmia to be considered symptomatic, a temporal association between the arrhythmia and symptoms must be demonstrated.

Sinus node dysfunction refers to dysfunction of the sinus node or surrounding atrial tissue which may give rise to any of the following rhythm disturbances:

- Sinus bradycardia (sinus rate < 50 bpm)
- Ectopic atrial bradycardia (atrial depolarization attributable to an atrial pacemaker other than the sinus node with a rate < 50 bpm)
- Sinoatrial exit block: Evidence that blocked conduction between the sinus node and adjacent atrial tissue is present. (Multiple electrocardiographic manifestations including "group beating" of atrial depolarization and sinus pauses).
- Sinus pause: Sinus node depolarizes > 3 seconds after the last atrial depolarization
- Sinus node arrest: No evidence of sinus node depolarization
- Tachycardia-bradycardia ("tachy-brady") syndrome: Sinus bradycardia, ectopic atrial bradycardia, or sinus pause alternating with periods of abnormal atrial tachycardia, atrial flutter, or atrial fibrillation. The tachycardia may be associated with suppression of sinus node automaticity and a sinus pause of variable duration when the tachycardia terminates.
- Chronotropic incompetence: Broadly defined as the inability of the heart to increase its rate commensurate with increased activity or demand, in many studies translates to failure to attain 80% of expected heart rate reserve during exercise.
- Isorhythmic dissociation: Atrial depolarization (from either the sinus node or ectopic atrial site) is slower than ventricular depolarization (from an atrioventricular nodal, His bundle, or ventricular site).

Atrioventricular block is the slowing or absence of impulse conduction at the atrioventricular (AV) node. It may manifest as any of the following:

- First-degree atrioventricular block: P waves associated with 1:1 atrioventricular conduction and a PR interval > 200 milliseconds
- Second-degree atrioventricular block: P waves with a constant rate (< 100 bpm) where atrioventricular conduction is present but not 1:1
    - Mobitz type I: P waves with a constant rate (< 100 bpm) with a periodic single nonconducted P wave associated with P waves before and after the nonconducted P wave with inconstant PR intervals
    - Mobitz type II: P waves with a constant rate (< 100 bpm) with a periodic single nonconducted P wave associated with other P waves before and after the nonconducted P wave with constant PR intervals (excluding 2:1 atrioventricular block)
    - 2:1 atrioventricular block: P waves with a constant rate (or near constant rate because of ventriculophasic sinus arrhythmia) rate (< 100 bpm) where every other P wave conducts to the ventricles
    - Advanced, high-grade or high-degree atrioventricular block: ≥ 2 consecutive P waves at a constant physiologic rate that do not conduct to the ventricles with evidence for some atrioventricular conduction
- Third-degree atrioventricular block (complete heart block): No evidence of atrioventricular conduction

Infranodal block: Atrioventricular conduction block where clinical evidence or electrophysiologic evidence suggests that the conduction block occurs distal to the atrioventricular node

Vagally mediated atrioventricular block: Any type of atrioventricular block mediated by heightened parasympathetic tone

Complex ventricular ectopy: Multifocal ectopy, sustained or non-sustained ventricular tachycardia, bigeminy, couplets, triplets or R-on-T premature ventricular complexes

Neuromuscular diseases: Conduction system dysfunction is a feature of some neuromuscular diseases. For purposes of guideline interpretation, patients can be considered to have a neuromuscular disease if they have any of the following: myotonic dystrophy (type 1), Emery-Dreifuss muscular dystrophy, limb girdle (type 1b) muscular dystrophy, dystrophinopathies (Duchenne or Becker muscular dystrophy), or Kearns-Sayre syndrome.

Clinical Indications

Transvenous pacemaker

Documented sinus node dysfunction

Permanent pacemaker placement is considered medically necessary for documented sinus node dysfunction when the patient takes no medications which would cause sinus node dysfunction (or withholding/dose reduction of such medications would be contraindicated) and **ANY** of the following apply:

- Symptomatic arrhythmias with sinus node dysfunction when symptoms are clearly attributable to the arrhythmia
- Symptomatic chronotropic incompetence
- Symptomatic tachy-brady syndrome when the symptoms are clearly attributable to bradyarrhythmia

***Note**: In the absence of symptoms which can be temporally correlated with sinus node dysfunction, there is no minimum heart rate or pause duration at which permanent pacemaker placement would be considered appropriate.*

Documented atrioventricular (AV) block

Permanent pacemaker placement is considered medically necessary for documented AV block when reversible causes of AV block are absent, the patient takes no medications which would cause AV node dysfunction (or withholding such medications would be contraindicated), and **ANY** of the following apply:

- Acquired third-degree AV block (symptomatic or asymptomatic)
- Acquired high grade second-degree block (symptomatic or asymptomatic)
- Acquired Mobitz type II second-degree AV block (symptomatic or asymptomatic)
- Symptomatic Mobitz type I second-degree AV block when symptoms are clearly attributable to the AV block
- Symptomatic first-degree AV block when PR interval is ≥ 300 milliseconds and symptoms are clearly attributable to the AV block
- Permanent atrial fibrillation and symptomatic bradycardia
- Neuromuscular disease with expected survival more than one year and **ANY** of the following:
    - Third-degree AV block
    - Second-degree AV block (type 1, type 2, 2:1 AV block, and high-grade AV block)
    - PR interval > 240 milliseconds
    - HV interval ≥ 70 milliseconds
- Infiltrative cardiomyopathy (e.g., sarcoidosis, amyloidosis) with expected survival more than one year and **ANY** of the following:
    - Third-degree AV block
    - Second-degree (Mobitz type II)
    - High-grade AV block

- Congenital heart disease with **ANY** of the following:
    - Symptomatic bradycardia related to AV block
    - Congenital complete AV block with **ANY** of the following:
        - Bradycardia (symptomatic or asymptomatic)
        - Escape rhythm with a wide QRS complex
        - Mean daytime heart rate < 50 beats per minute
        - Complex ventricular ectopy
        - Ventricular dysfunction
- Postoperative AV block that is not expected to resolve with **ANY** of the following:
    - Third-degree AV block
    - Second-degree (Mobitz type II)
    - High-grade AV block

Bundle branch block or fascicular block

Permanent pacemaker placement is considered medically necessary for bundle branch block or fascicular block (with 1:1 atrioventricular conduction) when **ANY** of the following apply:

- Alternating bundle branch block
- Syncope of unknown cause in a patient who has bundle branch block and **EITHER** of the following:
    - HV interval ≥ 70 milliseconds
    - Evidence of infranodal block on electrophysiology study
- Neuromuscular disease with expected survival more than one year and **ANY** of the following:
    - HV interval ≥ 70 milliseconds
    - QRS duration > 120 milliseconds
    - Fascicular block
- Anderson-Fabry disease with expected survival more than one year and QRS duration > 110 milliseconds

Leadless pacemakers

Single chamber leadless pacemaker (right ventricular)

A single chamber leadless pacemaker (right ventricular) is considered **medically necessary** when **BOTH** of the following conditions apply:

- The individual has an indication for a pacemaker
- A leaded transvenous pacemaker cannot be placed because of **ONE** of the following:
    - Venous access issues
    - History of or high risk for cardiac implanted electronic device (CIED) infection
    - Prosthetic tricuspid valve

Dual chamber leadless pacemaker (right atrial and ventricular)

A dual chamber leadless pacemaker is considered **medically necessary** when **BOTH** of the following conditions apply:

- The individual has an indication for a pacemaker
- A leaded transvenous pacemaker cannot be placed because of **ONE** of the following:
  - Venous access issues
  - History of, or high risk for cardiac implanted electronic device (CIED) infection
- Prosthetic tricuspid valve

Device replacement

Device replacement is considered **medically necessary** in **ANY** of the following scenarios:

- Device interrogation indicates that the device is nearing end of life (elective replacement indicator)
- Device is not functioning correctly or cannot be reprogrammed to provide optimal pacemaker support
- Device needs to be explanted due to infection

Exclusions

Single chamber leadless pacemaker (right atrial)

Single chamber leadless pacemaker (right atrial) is considered **not medically necessary** in all scenarios.

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Codes

The following code list is not meant to be all-inclusive. Authorization requirements will vary by health plan. Please consult the applicable health plan for guidance on specific procedure codes.

Specific CPT codes for services should be used when available. Nonspecific or not otherwise classified codes may be subject to additional documentation requirements and review.

CPT/HCPCS

00530	Anesthesia for permanent transvenous pacemaker insertion
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

33212	Insertion of pacemaker pulse generator only; single existing single lead
33213	Insertion of pacemaker pulse generator only; with existing dual leads
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)
33215	Repositioning of previously implanted transvenous pacemaker or ICD (right atrial or right ventricular) 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 ICD
33220	Repair of 2 transvenous electrodes for permanent pacemaker or ICD
33222	Relocation of skin pocket for pacemaker
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
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
C1785	Pacemaker, dual-chamber, rate-responsive (implantable)
C1786	Pacemaker, single-chamber, rate-responsive (implantable)
C2619	Pacemaker, dual-chamber, non-rate-responsive (implantable)
C2620	Pacemaker, single-chamber, non-rate-responsive (implantable)
C2621	Pacemaker, other than single or dual chamber (implantable)

Single-chamber leadless pacemakers

33274	Transcatheter insertion or replacement of permanent leadless pacemaker, right ventricular, including imaging guidance (e.g., fluoroscopy, venous ultrasound, ventriculography, femoral venography) and device evaluation (e.g., interrogation or programming), when performed
33275	Transcatheter removal of permanent leadless pacemaker, right ventricular, including imaging guidance (eg, fluoroscopy, venous ultrasound, ventriculography, femoral venography), when performed
0823T	Transcatheter insertion of permanent single-chamber leadless pacemaker, right atrial, including imaging guidance (eg, fluoroscopy, venous ultrasound, right atrial angiography and/or right ventriculography, femoral venography, cavography) and device evaluation (eg, interrogation or programming), when performed
0824T	Transcatheter removal of permanent single-chamber leadless pacemaker, right atrial, including imaging guidance (eg, fluoroscopy, venous ultrasound, right atrial angiography and/or right ventriculography, femoral venography, cavography), when performed
0825T	Transcatheter removal and replacement of permanent single-chamber leadless pacemaker, right atrial, including imaging guidance (eg, fluoroscopy, venous ultrasound, right atrial angiography and/or right ventriculography, femoral venography, cavography) and device evaluation (eg, interrogation or programming), when performed

Dual-chamber leadless pacemakers

0795T	Transcatheter insertion of permanent dual-chamber leadless pacemaker, including imaging guidance (eg, fluoroscopy, venous ultrasound, right atrial angiography, right ventriculography, femoral venography) and device evaluation (eg, interrogation or programming), when performed; complete system (ie, right atrial and right ventricular pacemaker components)
0796T	Transcatheter insertion of permanent dual-chamber leadless pacemaker, including imaging guidance (eg, fluoroscopy, venous ultrasound, right atrial angiography, right ventriculography, femoral venography) and device evaluation (eg, interrogation or programming), when performed; right atrial pacemaker component (when an existing right ventricular single leadless pacemaker exists to create a dual-chamber leadless pacemaker system)
0797T	Transcatheter insertion of permanent dual-chamber leadless pacemaker, including imaging guidance (eg, fluoroscopy, venous ultrasound, right atrial angiography, right ventriculography, femoral venography) and device

	evaluation (eg, interrogation or programming), when performed; right ventricular pacemaker component (when part of a dual-chamber leadless pacemaker system)
0798T	Transcatheter removal of permanent dual-chamber leadless pacemaker, including imaging guidance (eg, fluoroscopy, venous ultrasound, right atrial angiography, right ventriculography, femoral venography), when performed; complete system (ie, right atrial and right ventricular pacemaker components)
0799T	Transcatheter removal of permanent dual-chamber leadless pacemaker, including imaging guidance (eg, fluoroscopy, venous ultrasound, right atrial angiography, right ventriculography, femoral venography), when performed; right atrial pacemaker component
0800T	Transcatheter removal of permanent dual-chamber leadless pacemaker, including imaging guidance (eg, fluoroscopy, venous ultrasound, right atrial angiography, right ventriculography, femoral venography), when performed; right ventricular pacemaker component (when part of a dual-chamber leadless pacemaker system)
0801T	Transcatheter removal and replacement of permanent dual-chamber leadless pacemaker, including imaging guidance (eg, fluoroscopy, venous ultrasound, right atrial angiography, right ventriculography, femoral venography) and device evaluation (eg, interrogation or programming), when performed; dual-chamber system (ie, right atrial and right ventricular pacemaker components)
0802T	Transcatheter removal and replacement of permanent dual-chamber leadless pacemaker, including imaging guidance (eg, fluoroscopy, venous ultrasound, right atrial angiography, right ventriculography, femoral venography) and device evaluation (eg, interrogation or programming), when performed; right atrial pacemaker component
0803T	Transcatheter removal and replacement of permanent dual-chamber leadless pacemaker, including imaging guidance (eg, fluoroscopy, venous ultrasound, right atrial angiography, right ventriculography, femoral venography) and device evaluation (eg, interrogation or programming), when performed; right ventricular pacemaker component (when part of a dual-chamber leadless pacemaker system)
0804T	Programming device evaluation (in person) with iterative adjustment of implantable device to test the function of device and to select optimal permanent programmed values, with analysis, review, and report, by a physician or other qualified health care professional, leadless pacemaker system in dual cardiac chambers
C1605	Pacemaker, leadless, dual chamber (right atrial and right ventricular implantable components), rate-responsive, including all necessary components for implantation

History

Status	Review Date	Effective Date	Action
Revised	01/29/2026	09/19/2026	Combined Cardiac Resynchronization Therapy, Implantable Cardioverter Defibrillators, and Permanent Implantable Pacemakers guidelines into a single document. Clarifications and updates of definitions. Addition of criteria for CRT for patients with congenital heart disease. Addition of criteria for transvenous ICD placement. Liberalization of criteria for dual chamber leadless pacemakers and subsequent removal of dual-chamber leadless pacemakers from exclusions. Added references.
History of Cardiac Resynchronization Therapy guidelines			
Reaffirmed	07/17/2025	Unchanged	Independent Multispecialty Physician Panel (IMPP) review. Guideline reaffirmed.
Revised	01/23/2024	10/20/2024	IMPP review. Added exclusion for Wireless CRT. Added references. Added CPT codes 0515T, 0516T, 0517T, 0518T, 0519T, 0520T, 0521T, 0522T, 0861T, 0862T, 0863T.
Revised	07/18/2023	03/17/2024	IMPP review. Added CRT-D replacement appropriate when generator pocket opened for another reason near end of life of device (aligns with ICD guidelines). Added HCPCS code C7537, C7538, C7539, C7540; removed inpatient CPT 33243.
Updated	01/23/2024	Unchanged	IMPP review. Expanded guideline rationale. Updated references. Added required language to General Clinical Guideline per new Medicare regulations.

Status	Review Date	Effective Date	Action
Revised	05/09/2022	04/09/2023	IMPP review. Rephrased criteria around prolonged QRS duration for clarity. Updated references. Added CPT code 33221. Removed HCPCS code C1824.
Revised	05/26/2021	11/07/2021	IMPP review. Added indication for device replacement when generator end-of-life criteria are present.
Updated	08/26/2020	01/01/2021	Original effective date. Updated code set.
Revised	05/14/2020	-	Replaced “optimal” with “guideline directed” and moved note in CRT-P.
Reviewed	05/11/2029	-	IMPP review.
History of Implantable Cardioverter Defibrillators guidelines			
Updated codes 01/01/2026	n/a	Unchanged	Added CPT code 0614T.
Reaffirmed	07/17/2025	Unchanged	Independent Multispecialty Physician Panel (IMPP) review. Guideline reaffirmed.
Revised	04/15/2024	11/17/2024	IMPP review. Expanded criteria for transvenous ICD placement including LV aneurysm and LV late gadolinium enhancement. For subcutaneous ICD placement replaced specific patient age with the broader term “younger.” Added CPT code 0580T.
Revised	01/23/2024	10/20/2024	IMPP review. Transvenous ICD criteria expanded to include phospholamban, filamin-C, and lamin A/C cardiomyopathies. Added exclusion for substernal ICD. Added required language to General Clinical Guideline per new Medicare regulations.
Revised	07/18/2023 and 09/07/2023	03/17/2024	IMPP review. Transvenous ICD criteria expanded to allow replacement when the pocket is opened for another reason when device is near end of life; added age limit for individuals with non-ischemic dilated cardiomyopathy. Subcutaneous ICD placement criteria expanded for individuals ≤ 21 years of age. Updated references. Removed inpatient CPT code 33243.
Updated	n/a	09/10/2023	Added HCPCS C1899.
Revised	05/26/2021	11/07/2021	IMPP review. Added indication for device replacement when generator end-of-life criteria are present.
Updated	08/26/2020	01/01/2021	Original effective date. Updated code set.
Reviewed	12/12/2019	-	Literature review. Added CPT code 0571T.
Reviewed	11/28/2018	-	IMPP review.
History of Permanent Implantable Pacemakers guidelines			
Reaffirmed	07/17/2025	Unchanged	Independent Multispecialty Physician Panel (IMPP) review. Guideline reaffirmed.
Revised	01/23/2024	10/20/2024	IMPP review. Added criteria for device replacement. Added exclusions for right atrial single chamber and dual chamber leadless pacemakers. Added reference. Added CPT codes 0823T, 0824T, 0825T, and HCPCS code C1605.
Revised	07/18/2023	03/17/2024	IMPP review. Added new criteria for single chamber leadless pacemakers. Added CPT codes 00530, 33275, 0795T, 0796T, 0797T, 0798T, 0799T, 0800T, 0801T, 0802T, 0803T, 0804T. Added required language to General Clinical Guideline per new Medicare regulations.
Updated	-	10/01/2023	Added CPT codes 33215, 33216, 33217, 33218, 33220, 33222, 33233, 33234, 33235. Added HCPCS codes C1785, C1786, C2619, C2620, C2621.
Created/ Reaffirmed	08/29/2022	01/01/2023	IMPP review. Added references. Guidelines reaffirmed. Original effective date.
Reviewed	02/03/2020	01/01/2023	IMPP review.