Implantable Cardioverter Defibrillators

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Medical Guideline Disclaimer

 The treating physician or primary care provider must submit to EmblemHealth the clinical evidence that the patient meets the criteria for the treatment or surgical procedure. Without this documentation and information, EmblemHealth will not be able to properly review the request for prior authorization. The clinical review criteria expressed below reflects how EmblemHealth determines whether certain services or supplies are medically necessary. EmblemHealth established the clinical review criteria based upon a review of currently available clinical information (including clinical outcome studies in the peer reviewed published medical literature, regulatory status of the technology, evidence-based guidelines of public health and health research agencies, evidence-based guidelines and positions of leading national health professional organizations, views of physicians practicing in relevant clinical areas, and other relevant factors). EmblemHealth expressly reserves the right to revise these conclusions as clinical information changes and welcomes further relevant information. Each benefit program defines which services are covered. The conclusion that a particular service or supply is medically necessary does not constitute a representation or warranty that this service or supply is covered and/or paid for by EmblemHealth, as some programs exclude coverage for services or supplies that EmblemHealth considers medically necessary. If there is a discrepancy between this guideline and a member's benefits program, the benefits program will govern. In addition, coverage may be mandated by applicable legal requirements of a state, the Federal Government or the Centers for Medicare & Medicaid Services (CMS) for Medicare and Medicaid members. All coding and web site links are accurate at time of publication. EmblemHealth Services Company LLC, ("EmblemHealth") has adopted the herein policy in providing management, administrative and other services to EmblemHealth Plan, Inc., EmblemHealth Insurance Company, EmblemHealth Services Company, LLC and Health Insurance Plan of Greater New York (HIP) related to health benefit plans offered by these entities. All of the aforementioned entities are affiliated companies under common control of EmblemHealth Inc.

(Skip Definitions and go directly to clinical criteria)

Definitions

Transvenous implantable cardiac defibrillator (**ICD**) (Aka thoracotomy systems)	Device designed to monitor heart rate, recognize ventricular fibrillation (VF) or ventricular tachycardia (VT) and deliver electrical shock to terminate these arrhythmias in order to reduce the risk of sudden cardiac death (SCD). The reasons for device-implantation are twofold: 1. Primary prevention — those patients at high risk for SCD who *have not* experienced life-threatening VTs or VF 2. Secondary prevention — those patients *who have* experienced a potentially life-threatening episode of VT (i.e., near SCD) The standard ICD involves placement of a generator in the subcutaneous tissue of the chest wall. Transvenous leads are attached to the generator and threaded intravenously into the endocardium. The leads sense and transmit information on cardiac rhythm to the generator which analyzes the rhythm information and produces an electrical shock when a malignant arrhythmia is recognized.
Subcutaneous implantable cardiac defibrillator (**S-ICD**) (Aka nonthoracotomy systems)	A defibrillator device that is implanted is implanted under the skin on the side of the chest below the arm pit. The pulse generator is connected to the electrode which is implanted under the skin from the device pocket along the rib margin to the breastbone with the use of the insertion tool. The electrodes sense the cardiac rhythm and deliver countershocks through the subcutaneous tissue of the chest wall. The S-ICD does not require a thoracotomy and does not employ transvenous leads. The goal of this device is to reduce lead-related complications.

Arrhythmia (aka dysrhythmia)	Problems that affect the electrical system of the heart muscle, producing abnormal heart rhythms and may be classified as either atrial or ventricular, depending on which part of the heart they originate from.
Atrial fibrillation	A condition in which the atrium (the heart's two upper chambers) produce uncoordinated electrical signals.
Ejection fraction (**EF**) or left ventricular ejection fraction (**LVEF**)	Percentage of blood ejected from the left ventricle with each heartbeat Normal LVEF readings are in the 58-70% range.
QRS complex	Refers to a portion of a tracing within an electrocardiogram that represents the spread of the electrical impulse through the ventricles. A prolonged QRS interval indicates a dyssynchrony of the right and left ventricle and is an important selection criterion for a biventricular pacemaker.
Cardiac arrest (**CA**) Sudden cardiac death (**SCD**)	A cardiac arrest is triggered by an electrical malfunction in the heart that causes arrhythmia. (This differs from a "heart attack, which is secondary to impeded blood flow [i.e. myocardial infarction]) Sudden cardiac death is the result of an abrupt loss of heart function (i.e., cardiac arrest)
Cardiomyopathy (**CM**)	A disease in which the heart muscle becomes inflamed affecting cardiac function. There are multiple types of CM, (with the three main types being dilated, hypertrophic and restrictive: ▪ Dilated — the most common form, in which the heart cavity is enlarged and stretched (cardiac dilation). The heart is weak and doesn't pump normally, and most individuals develop congestive heart failure. Abnormal heart rhythms and disturbances in the heart's electrical conduction may also occur. ▪ Hypertrophic (HCM) — the muscle mass of the left ventricle enlarges or "hypertrophies." In one form of the disease, the wall between the two pumping chambers becomes enlarged and obstructs the blood flow from the left ventricle. In the other form of the disease, non-obstructive hypertrophic cardiomyopathy, the enlarged muscle doesn't obstruct blood flow. ▪ Ischemic Dilated (IDCM) — left ventricular systolic dysfunction associated with marked stenosis (at least 75% narrowing) of at least one of the three major coronary arteries or a documented history of MI. ▪ Nonischemic Dilated (NIDCM) — left ventricular systolic dysfunction (or disease of the heart muscle) that is not associated with coronary artery disease (CAD) or narrowing of the coronary arteries. There are a few different types of NIDCM, but all involve thickening of the walls of the heart and progressive weakening of the pumping efficiency of the heart. ▪ Restrictive — the least common type in the United States. The myocardium of the ventricles becomes excessively "rigid," making it more difficult for the ventricles to fill with blood between heartbeats. This type of cardiomyopathy is usually due to another disease process.
Myocardial infarction (**MI**)	A myocardial infarction (aka heart attack) is a clinical (or pathologic) event caused by myocardial ischemia in which there is evidence of myocardial injury or necrosis. Prior MI is defined as any of the following: ▪ Pathological Q waves with or without symptoms in the absence of non-ischemic causes

	▪ Imaging evidence of a region of loss of viable myocardium that is thinned and fails to contract in the absence of a non-ischemic cause ▪ Pathological findings of a prior MI
Syncope	An episode where the individual experiences loss of consciousness lasting at least several seconds. If the person only experiences extreme dizziness but with no actual loss of consciousness, this is termed "Pre-Syncope."
Ventricular fibrillation (**Vfib or VF**)	Condition in which the heart's electrical activity becomes disordered. When this happens, the heart's lower (pumping) chambers contract in a rapid, unsynchronized fashion (the ventricles "quiver" rather than beat) and the heart pumps little or no blood.
Ventricular tachyarrhythmias	Rapid heartbeat that may be regular or irregular arising from the ventricle or pumping chamber of the heart. Two common tachyarrhythmias are ventricular tachycardia and ventricular fibrillation.
Ventricular tachycardia (**Vtach or VT**)	Fast regular heart rate that starts in the lower chambers (ventricles). VT may result from serious heart disease and usually requires prompt treatment.
American College of Cardiology Foundation (**ACCF**)/American Heart Association (**AHA**) Stages of Heart Failure (**HF**)	**A**: At high risk for HF but without structural heart disease or symptoms of HF **B**: Structural heart disease but without signs **C**: Structural heart disease with prior or current symptoms of HF **D**: Refractory HF requiring specialized interventions
New York Heart Association (**NYHA**) Functional Classification System	**Class I** (Mild): No limitation of physical activity. Ordinary physical activity does not cause undue fatigue, palpitation, or dyspnea (shortness of breath). **Class II** (Mild): Slight limitation of physical activity. Comfortable at rest, but ordinary physical activity results in fatigue, palpitation, or dyspnea. **Class III** (Moderate): Marked limitation of physical activity. Comfortable at rest, but less-than-ordinary activity causes fatigue, palpitation, or dyspnea. **Class IV** (Severe): Unable to carry out any physical activity without discomfort. Symptoms of cardiac insufficiency at rest. If any physical activity is undertaken, discomfort is increased.

Related Medical Guidelines

Automatic External Defibrillators
Cardiac Resynchronization Therapy (Biventricular Pacing) — MCG #ACG: A-0167 (AC)

Guideline

Implantable cardiac defibrillation therapy using an FDA-approved ICD (thoracotomy system) or S-ICD (non-thoracotomy system) is considered medically necessary when the following criteria (I–III) are met:

I. Transvenous ICD — adults

Considered medically necessary when member is not a candidate for cardiac revascularization (i.e., coronary artery bypass graft [CABG] or percutaneous transluminal coronary angioplasty [PTCA]) is not clinically appropriate and **one** of the following criteria (**1 or 2**) is met:

1. **Primary prevention** — high SCD risk without occurrence of a life-threatening VT or VF and **≥ 1** (a–i):

a. Ischemic cardiomyopathy with NYHA functional Class I symptoms and **both**:
    i. History of myocardial infarction (MI) ≥ 40 days prior to ICD treatment
    ii. LVEF ≤ 30%
b. Ischemic cardiomyopathy with NYHA functional Class II or Class III symptoms and **both**:
    i. History of MI ≥ 40 days prior to ICD treatment
    ii. LVEF ≤ 35%
c. Nonischemic dilated cardiomyopathy and **all**:
    i. LVEF ≤ 35%
    ii. Reversible causes excluded
    iii. Refractory to optimal medical therapy (defined as 3 months of maximally titrated doses, as tolerated, of an ACE inhibitor, beta-blocker and diuretic)
d. Hypertrophic cardiomyopathy (HCM) with **≥ 1** of the following major SCD risk factors:
    i. History of premature HCM-related sudden death in ≥ 1 first degree relative at < 50 years of age
    ii. LVH ≥ 30 mm
    iii. Documented VT with heart rates ≥ 120 beats per minute on 24-hour Holter monitor
    iv. Left ventricular wall thickness ≥ 3cm
    v. Hypotensive response to exercise treadmill testing (ETT)
    vi. Prior unexplained syncope that is inconsistent with neurocardiogenic origin
e. Documented LMNA gene mutations (lamin A/C deficiency) with **either**:
    i. Cardiomyopathy
    ii. Symptomatic cardiac arrhythmias
f. Long QT syndrome (LQTS) and **any**:
    i. Prior cardiac arrest
    ii. Syncope and/or VT while on beta blocker pharmacotherapy
    iii. Asymptomatic with **≥1** of the following risk factors for SCD:
        - ☑ QTc greater than 500 msec
        - ☑ LQT2 or LQT3
        - ☑ Family history of sudden death
g. Brugada syndrome (BrS) and **≥ 1**:

i. Prior cardiac arrest

ii. Spontaneous sustained VT with/without syncope

iii. Spontaneous diagnostic type 1 ECG with positive history of syncope, seizure or nocturnal agonal respiration after noncardiac causes have been ruled out

iv. Development of VF during programmed electrical stimulation

h. Catecholaminergic polymorphic ventricular tachycardia (CPVT) and **≥ 1**:

i. Prior cardiac arrest

ii. Recurrent syncope

iii. Polymorphic/bidirectional VT unresponsive to medical management or left cardiac sympathetic denervation

i. Cardiac sarcoidosis, giant cell myocarditis or Chagas disease (regardless of LV ejection fraction)

j. LV non-compaction cardiomyopathy with either of the following:

i. Positive family SCD history

ii. Impaired LVEF of < 50 %

k. Arrhythmogenic right ventricular dysplasia (ARVD)

2. **Secondary prevention** — Member has experienced occurrence of life-threatening clinical event associated with ventricular arrhythmic events (e.g., sustained VT) when reversible causes (e.g., acute ischemia, drug toxicity, electrolyte abnormalities, etc.) have been excluded

II. Transvenous ICD — pediatrics

Considered medically necessary when **≥ 1** of the following criteria (1–9) are met:

1. Prior cardiac arrest after reversible causes excluded
2. Symptomatic sustained VT in association with congenital heart disease in members who have undergone hemodynamic and electrophysiologic evaluation
3. Congenital heart disease with recurrent syncope of undetermined origin in the presence of either ventricular dysfunction or inducible ventricular arrhythmias
4. Hypertrophic cardiomyopathy (HCM) with ≥ 1 of the following SCD risk factors:
    a. History of premature HCM-related sudden death in ≥ 1 first-degree relative at < 50 years of age
    b. Massive left ventricular hypertrophy
    c. Prior unexplained syncope that is inconsistent with neurocardiogenic origin
5. Documented LMNA gene mutations (lamin A/C deficiency) with **≥ 1**:
    a. Cardiomyopathy
    b. Symptomatic cardiac arrhythmias

6. Long QT syndrome (LQTS) and **> 1**:
    a. Prior cardiac arrest
    b. Recurrent syncopal events while on beta blocker pharmacotherapy
7. Brugada syndrome (BrS) and **≥ 1**:
    a. Prior cardiac arrest
    b. Documented spontaneous sustained ventricular tachycardia (VT) with/without syncope
    c. Spontaneous diagnostic type 1 ECG with a history of syncope, seizure or nocturnal agonal respiration after noncardiac causes have been excluded
    d. Development of VF during programmed electrical stimulation
8. Catecholaminergic polymorphic ventricular tachycardia (CPVT) and **≥ 1**:
    a. Prior cardiac arrest
    b. Recurrent syncope
    c. Polymorphic/bidirectional VT unresponsive to medical management or left cardiac sympathetic denervation

III. **S-ICD — adults or pediatrics**

Considered medically necessary for members who meet the transvenous ICD clinical criteria above and who do not have symptomatic bradycardia, incessant VT (or spontaneous frequently recurring VT) that is reliably terminated with anti-tachycardia pacing or who have previous endocarditis or infection associated with conventional ICDs.

Note: EmblemHealth considers the use of a FDA-approved implantable cardioverter defibrillator (ICD) device, combined with cardiac resynchronization therapy (i.e., CRT/ICD), to be medically when Resynchronization (Biventricular Pacing) criteria are met (MCG #ACG: A-0167 (AC).

Limitations/Exclusions

The use of either a subcutaneous or transvenous ICD is considered investigational and not medically necessary for clinical conditions other than those listed above, as well as when the specific criteria are not met.

Implantable cardioverter defibrillators with a built -in ST-segment monitoring feature (aka ICD -based ischemia monitors) are not considered medically necessary for any indication (in adults or children) due to insufficient evidence of therapeutic value.

Cardioverter-defibrillators are not considered medically necessary when other disease processes are present that clearly and severely limit estimated life expectancy to less than one 1 year.

EmblemHealth will cover surveillance of ICDs as a face-to-face or remote service to monitor behavior of the device, to investigate symptoms such as post-event shock, and syncope, ICD malfunction or device failure. Surveillance of ICDs is also indicated to program device evaluation and adjustment and for patients prior to surgery or other procedures to modify or disable the device during the procedure. Remote

interrogation is a single 90-day service, while in-person interrogation can be reported for each day it is performed.

The replacement of an ICD pulse generator/leads is considered medically necessary when:

1. Equipment is damaged or malfunctioning
2. Manufacturer product labeling details medically necessary replacement scenario(s)
3. Change in member's medical condition

The placement of substernal electrode leads is considered investigational due to insufficient evidence of therapeutic value. (CPT: 0571T, 0572T, 0573T, 0574T, 0575T, 0576T, 0577T, 0578T, 0579T, 0580T and 0614T)

Revision History

Jul. 8, 2020	Added arrhythmogenic right ventricular dysplasia (ARVD) to adult transvenous ICD section
Jul. 24, 2020	Added that substernal leads are investigational

Applicable Procedure Codes

0650T	Programming device evaluation (remote) of subcutaneous cardiac rhythm monitor system, with iterative adjustment of the implantable device to test the function of the device and select optimal permanently programmed values with analysis, review and report by a physician or other qualified health care professional
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
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)
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
33243	Removal of single or dual chamber implantable defibrillator electrode(s); by thoracotomy
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 implantable defibrillator pulse generator with replacement of implantable defibrillator pulse generator; single lead system
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
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
93260	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 by a physician or other qualified health care professional; implantable subcutaneous lead defibrillator system
93261	Interrogation device evaluation (in person) with analysis, review and report by a physician or other qualified health care professional, includes connection, recording and disconnection per patient encounter; implantable subcutaneous lead defibrillator system
93282	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 by a physician or other qualified health care professional; single lead transvenous implantable defibrillator system
93283	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 by a physician or other qualified health care professional; dual lead transvenous implantable defibrillator system
93284	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 by a physician or other qualified health care professional; multiple lead transvenous implantable defibrillator system
93287	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 by a physician or other qualified health care professional; single, dual, or multiple lead implantable defibrillator system
93289	Interrogation device evaluation (in person) with analysis, review and report by a physician or other qualified health care professional, includes connection, recording and disconnection per patient encounter; single, dual, or multiple lead transvenous implantable defibrillator system, including analysis of heart rhythm derived data elements
93295	Interrogation device evaluation(s) (remote), up to 90 days; single, dual, or multiple lead implantable defibrillator system with interim analysis, review(s) and report(s) by a physician or other qualified health care professional
93296	Interrogation device evaluation(s) (remote), up to 90 days; single, dual, or multiple lead pacemaker system, leadless pacemaker system, or implantable defibrillator system, remote data acquisition(s), receipt of transmissions and technician review, technical support and distribution of results
93644	Electrophysiologic evaluation of subcutaneous implantable defibrillator (includes defibrillation threshold evaluation, induction of arrhythmia, evaluation of sensing for arrhythmia termination, and programming or reprogramming of sensing or therapeutic parameters)
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

Applicable ICD-10 Diagnosis Codes

B57.0	Acute Chagas' disease with heart involvement
B57.2	Chagas' disease (chronic) with heart involvement
D86.85	Sarcoid myocarditis
I01.1	Acute rheumatic endocarditis
I01.2	Acute rheumatic myocarditis
I21.01	ST elevation (STEMI) myocardial infarction involving left main coronary artery
I21.02	ST elevation (STEMI) myocardial infarction involving left anterior descending coronary artery
I21.09	ST elevation (STEMI) myocardial infarction involving other coronary artery of anterior wall
I21.11	ST elevation (STEMI) myocardial infarction involving right coronary artery
I21.19	ST elevation (STEMI) myocardial infarction involving other coronary artery of inferior wall
I21.21	ST elevation (STEMI) myocardial infarction involving left circumflex coronary artery
I21.29	ST elevation (STEMI) myocardial infarction involving other sites
I21.3	ST elevation (STEMI) myocardial infarction of unspecified site
I21.4	Non-ST elevation (NSTEMI) myocardial infarction
I21.9	Acute myocardial infarction
I21.A1	Myocardial infarction type 2
I21.A9	Other myocardial infarction type
I22.0	Subsequent ST elevation (STEMI) myocardial infarction of anterior wall
I22.1	Subsequent ST elevation (STEMI) myocardial infarction of inferior wall
I22.2	Subsequent non-ST elevation (NSTEMI) myocardial infarction
I22.8	Subsequent ST elevation (STEMI) myocardial infarction of other sites
I22.9	Subsequent ST elevation (STEMI) myocardial infarction of unspecified site
I24.0	Acute coronary thrombosis not resulting in myocardial infarction
I24.1	Dressler's syndrome
I24.8	Other forms of acute ischemic heart disease
I24.9	Acute ischemic heart disease, unspecified
I25.10	Atherosclerotic heart disease of native coronary artery without angina pectoris
I25.110	Atherosclerotic heart disease of native coronary artery with unstable angina pectoris
I25.111	Atherosclerotic heart disease of native coronary artery with angina pectoris with documented spasm
I25.118	Atherosclerotic heart disease of native coronary artery with other forms of angina pectoris
I25.119	Atherosclerotic heart disease of native coronary artery with unspecified angina pectoris
I25.2	Old myocardial infarction
I25.5	Ischemic cardiomyopathy
I25.6	Silent myocardial ischemia
I25.810	Atherosclerosis of coronary artery bypass graft(s) without angina pectoris
I25.811	Atherosclerosis of native coronary artery of transplanted heart without angina pectoris
I25.812	Atherosclerosis of bypass graft of coronary artery of transplanted heart without angina pectoris
I25.82	Chronic total occlusion of coronary artery
I25.83	Coronary atherosclerosis due to lipid rich plaque

I25.84	Coronary atherosclerosis due to calcified coronary lesion
I25.89	Other forms of chronic ischemic heart disease
I25.9	Chronic ischemic heart disease, unspecified
I33.0	Acute and subacute infective endocarditis
I33.9	Acute and subacute endocarditis, unspecified
I38	Endocarditis, valve unspecified
I40.1	Isolated myocarditis
I42.0	Dilated cardiomyopathy
I42.1	Obstructive hypertrophic cardiomyopathy
I42.2	Other hypertrophic cardiomyopathy
I42.3	Endomyocardial (eosinophilic) disease
I42.4	Endocardial fibroelastosis
I42.5	Other restrictive cardiomyopathy
I42.6	Alcoholic cardiomyopathy
I42.7	Cardiomyopathy due to drug and external agent
I42.8	Other cardiomyopathies
I42.9	Cardiomyopathy, unspecified
I43	Cardiomyopathy in diseases classified elsewhere
I45.81	Long QT syndrome
I45.89	Other specified conduction disorders
I46.2	Cardiac arrest due to underlying cardiac condition
I46.8	Cardiac arrest due to other underlying condition
I46.9	Cardiac arrest, cause unspecified
I47.1	Supraventricular tachycardia
I47.2	Ventricular tachycardia
I47.9	Paroxysmal tachycardia, unspecified
I49.01	Ventricular fibrillation
I49.02	Junctional premature depolarization
I49.3	Ventricular premature depolarization
I49.8	Other specified cardiac arrhythmias
I49.9	Cardiac arrhythmia, unspecified
I50.21	Acute systolic (congestive) heart failure
I50.22	Chronic systolic (congestive) heart failure
I50.23	Acute on chronic systolic (congestive) heart failure
I50.41	Acute combined systolic (congestive) and diastolic (congestive) heart failure
I50.42	Chronic combined systolic (congestive) and diastolic (congestive) heart failure
I50.43	Acute on chronic combined systolic (congestive) and diastolic (congestive) heart failure
I50.84	End stage heart failure
I50.9	Heart failure, unspecified
Q24.8	Other specified congenital malformations of heart

Q24.9	Congenital malformation of heart, unspecified
R55	Syncope and collapse
T82.110A	Breakdown (mechanical) of cardiac electrode, initial encounter
T82.110D	Breakdown (mechanical) of cardiac electrode, subsequent encounter
T82.110S	Breakdown (mechanical) of cardiac electrode, sequela
T82.111A	Breakdown (mechanical) of cardiac pulse generator (battery), initial encounter
T82.111D	Breakdown (mechanical) of cardiac pulse generator (battery), subsequent encounter
T82.111S	Breakdown (mechanical) of cardiac pulse generator (battery), sequela
T82.118A	Breakdown (mechanical) of other cardiac electronic device, initial encounter
T82.118D	Breakdown (mechanical) of other cardiac electronic device, subsequent encounter
T82.118S	Breakdown (mechanical) of other cardiac electronic device, sequela
T82.119A	Breakdown (mechanical) of unspecified cardiac electronic device, initial encounter
T82.119D	Breakdown (mechanical) of unspecified cardiac electronic device, subsequent encounter
T82.119S	Breakdown (mechanical) of unspecified cardiac electronic device, sequela
T82.120A	Displacement of cardiac electrode, initial encounter
T82.120D	Displacement of cardiac electrode, subsequent encounter
T82.120S	Displacement of cardiac electrode, sequela
T82.121A	Displacement of cardiac pulse generator (battery), initial encounter
T82.121D	Displacement of cardiac pulse generator (battery), subsequent encounter
T82.121S	Displacement of cardiac pulse generator (battery), sequela
T82.128A	Displacement of other cardiac electronic device, initial encounter
T82.128D	Displacement of other cardiac electronic device, subsequent encounter
T82.128S	Displacement of other cardiac electronic device, sequela
T82.129A	Displacement of unspecified cardiac electronic device, initial encounter
T82.129D	Displacement of unspecified cardiac electronic device, subsequent encounter
T82.129S	Displacement of unspecified cardiac electronic device, sequela
T82.190A	Other mechanical complication of cardiac electrode, initial encounter
T82.190D	Other mechanical complication of cardiac electrode, subsequent encounter
T82.190S	Other mechanical complication of cardiac electrode, sequela
T82.191A	Other mechanical complication of cardiac pulse generator (battery), initial encounter
T82.191D	Other mechanical complication of cardiac pulse generator (battery), subsequent encounter
T82.191S	Other mechanical complication of cardiac pulse generator (battery), sequela
T82.198A	Other mechanical complication of other cardiac electronic device, initial encounter
T82.198D	Other mechanical complication of other cardiac electronic device, subsequent encounter
T82.198S	Other mechanical complication of other cardiac electronic device, sequela
T82.199A	Other mechanical complication of unspecified cardiac device, initial encounter
T82.199D	Other mechanical complication of unspecified cardiac device, subsequent encounter
T82.199S	Other mechanical complication of unspecified cardiac device, sequela
T82.6XXA	Infection and inflammatory reaction due to cardiac valve prosthesis, initial encounter
T82.6XXD	Infection and inflammatory reaction due to cardiac valve prosthesis, subsequent encounter

T82.6XXS	Infection and inflammatory reaction due to cardiac valve prosthesis, sequela
T82.7XXA	Infection and inflammatory reaction due to other cardiac and vascular devices, implants and grafts, initial encounter
T82.7XXD	Infection and inflammatory reaction due to other cardiac and vascular devices, implants and grafts, subsequent encounter
T82.7XXS	Infection and inflammatory reaction due to other cardiac and vascular devices, implants and grafts, sequela
Z00.6	Encounter for examination for normal comparison and control in clinical research program
Z45.02	Encounter for adjustment and management of automatic implantable cardiac defibrillator
Z76.82	Awaiting organ transplant status
Z86.74	Personal history of sudden cardiac arrest

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