ACO # 37 – Risk-Standardized Acute Admission Rates for Patients With Heart Failure

Measure Information Form (MIF)

Release Notes/Summary of Changes

This is an addendum to the MIF released in spring 2015. This addendum reflects conversion to Version 22 HCCs which allows for ICD-10 mapping

Data Source

- Medicare inpatient claims
- Medicare outpatient claims
- Medicare beneficiary enrollment data
- Accountable Care Organization (ACO) assignment file

Measure Set ID

- ACO #37

Version Number and Effective Date

- Version 1.0, effective 12/31/2015

CMS Approval Date

- 12/31/2015

NQF ID

- N/A; measure has not yet been submitted to the National Quality Forum (NQF) for endorsement.

Date Endorsed

- N/A

Care Setting

- Hospital

Unit of Measurement

- ACO

Measurement Duration

- Calendar Year

Measurement Period

- Calendar Year

Measure Type

- Outcome

Measure Scoring

- Risk-standardized acute admission rate (RSAAR)

Payer Source

- Medicare fee-for-service (FFS)

Improvement Notation

- Lower RSAAR scores indicate better quality.

Measure Steward

- Centers for Medicare & Medicaid Services (CMS)

Copyright / Disclaimer

- This quality measure was developed for CMS by Yale New Haven Hospital Health Services Corporation Center for Outcomes Research and Evaluation (CORE) in 2014.

Measure Description

- Rate of risk-standardized acute, unplanned hospital admissions among Medicare fee-for-service (FFS) beneficiaries 65 years and older with heart failure who are assigned to the Accountable Care Organization (ACO).

Rationale

The goal of this measure is to evaluate and to improve the quality of care for patients with heart failure cared for by ACOs. These patients account for a significant proportion of Medicare beneficiaries and they experience high morbidity and costs associated with their disease. These patients need efficient, coordinated, and patient-centered care management. They also benefit from provider support and infrastructure that facilitate effective chronic disease management. This measure is focused on hospital admissions for acute illness as the outcome because these admissions are often sentinel events associated with high morbidity as well as physical and emotional stress; they also result in high costs for both the patient and the ACO. Research shows that effective health care can lower the risk of admission for these vulnerable groups of patients.

This measure is intended to incentivize ACOs to provide high-quality, coordinated care that focuses on the whole patient. ACOs were conceptualized and created to achieve the goals of improved care, improved population health, and lower cost. Consistent with this mission, we envision that the measure will incentivize providers participating in ACOs to collaborate to provide the best system of clinical care and to partner with health and non-health related organizations in their communities, as appropriate, to improve the health of their patient population.

Clinical Recommendation Statement

Research shows that effective health care can lower the risk of admission for patients with heart failure [1-4]. For example, efforts to improve coordination and navigation of the healthcare system, along with home-based interventions and exercise-based rehabilitation therapy among patients with heart failure may reduce the risk of hospitalization [1, 5-8].

It is our vision that these measures will illuminate variation among ACOs in hospital admission rates and incentivize ACOs to develop efficient and coordinated chronic disease management strategies that anticipate and respond to patients' needs and preferences. This vision is consistent with ACOs' commitment to deliver patient-centered care that fulfills the goals of

the Department of Health and Human Services' National Quality Strategy – improving population health, providing better care, and lowering healthcare costs [9].

References

1. Patient Protection and Affordable Care Act, 42 U.S.C., §3022 (2010).
2. Centers for Medicare & Medicaid Services (CMS). Medicare Health Support. 2012; https://www.cms.gov/Medicare/Medicare-General-Information/CCIP/. Accessed March 27, 2014.
3. Brown RS, Peikes D, Peterson G, Schore J, Razafindrakoto CM. Six features of Medicare coordinated care demonstration programs that cut hospital admissions of high-risk patients. Health Affairs. 2012 Jun 2012;31(6):1156-1166.
4. McCarthy D, Cohen A, Johnson MB. Gaining Ground: Care Management Programs to Reduce Hospital Admissions and Readmissions Among Chronically Ill and Vulnerable Patients. The Commonwealth Fund, New York. 2013.
5. Zhang NJ, Wan TT, Rossiter LF, Murawski MM, Patel UB. Evaluation of chronic disease management on outcomes and cost of care for Medicaid beneficiaries. Health policy (Amsterdam, Netherlands). May 2008;86(2-3):345-354.
6. Inglis SC, Pearson S, Treen S, Gallasch T, Horowitz JD, Stewart S. Extending the horizon in chronic heart failure: effects of multidisciplinary, home-based intervention relative to usual care. Circulation. Dec 5 2006;114(23):2466-2473.
7. Austin J, Williams WR, Ross L, Hutchison S. Five-year follow-up findings from a randomized controlled trial of cardiac rehabilitation for heart failure. European journal of cardiovascular prevention and rehabilitation: official journal of the European Society of Cardiology, Working Groups on Epidemiology & Prevention and Cardiac Rehabilitation and Exercise Physiology. Apr 2008;15(2):162-167.
8. Taylor RS, Sagar VA, Davies EJ, et al. Exercise-based rehabilitation for heart failure. The Cochrane database of systematic reviews. 2014;4:Cd003331.
9. U.S. Department of Health and Human Services. Multiple chronic conditions—A strategic framework: Optimum health and quality of life for individuals with multiple chronic conditions. December 2010; http://www.hhs.gov/ash/initiatives/mcc/mcc_framework.pdf. Accessed March 20, 2014

Technical Specifications

- Target Population

  ACO-assigned or aligned Medicare beneficiaries with heart failure

Denominator

- Denominator Statement

  The target population is ambulatory Medicare FFS beneficiaries aged 65 years and older assigned to the ACO with a diagnosis of heart failure.

- Denominator Details

  The targeted patient population is Medicare FFS beneficiaries aged 65 years and older assigned to the ACO during the measurement period with a diagnosis of heart failure. To be included in the cohort, patients must have one inpatient principal discharge diagnosis code of heart failure or two heart failure diagnosis codes in any position (Medicare Part A inpatient/outpatient and Part B Carrier claims) within one year prior to the measurement period. We allowed for prior year claims to define the cohort since there is no specified optimal frequency of follow-up visits among ambulatory, stable patients (i.e., patients without a change in their symptoms may never be hospitalized and may only be seen annually). To be included in the cohort, patients must be enrolled full-time in both Part A and B during the year prior to the measurement period. We excluded patients who were not enrolled full-time in Part A during the measurement period.

  Heart failure is defined using the International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) diagnosis codes or corresponding ICD-10 diagnosis codes identified in Medicare Part A inpatient/outpatient and Part B carrier claims data. Patients excluded from the cohort are identified using ICD-9-CM/ICD-10 procedure

codes in Medicare Part A outpatient claims and with a Medicare Denominator File. The ICD-9-CM codes that define the cohort are listed in Table 1 and cohort exclusions are listed in Table 2. (See Appendix Table 1 and Table 2 for ICD-10 CM codes)

Table 1. Denominator Details: ICD-9-CM Diagnosis Codes Used to Identify Heart Failure Cohort

ICD-9-CM Code	Description
398.91	Rheumatic heart failure
402.01	Malignant hypertensive heart disease with congestive heart failure (CHF)
402.11	Benign hypertensive heart disease with CHF
402.91	Hypertensive heart disease with CHF
404.01	Malignant hypertensive/renal disease with CHF
404.03	Malignant hypertensive/renal disease with CHF/Renal Failure
404.11	Benign hypertensive/renal disease with CHF
404.13	Benign hypertensive/renal disease with CHF/Renal Failure
404.91	Hypertensive/renal disease NOS with CHF
404.93	Hypertensive/renal disease NOS with CHF/Renal Failure
428.0	Congestive heart failure
428.1	Left heart failure
428.20	Systolic heart failure NOS
428.21	Acute systolic heart failure
428.22	Chronic systolic heart failure
428.23	Acute on chronic systolic heart failure
428.30	Diastolic heart failure NOS
428.31	Acute diastolic heart failure
428.32	Chronic diastolic heart failure
428.33	Acute on chronic diastolic heart failure
428.4	Systolic/diastolic heart failure NOS
428.41	Acute systolic/diastolic heart failure
428.42	Chronic systolic/diastolic heart failure
428.43	Acute/chronic systolic/diastolic heart failure
428.9	Heart failure NOS

- Denominator Exceptions and Exclusions
  1. Patients with left ventricular assist devices (LVADs).
     Rationale: We exclude these patients because while they have a high risk of admission, they are low in prevalence and are clustered among a few ACOs.
  2. Beneficiaries that do not have 12 months continuous enrollment in Medicare Part A and B during the year prior to the measurement year.
     Rationale: This data is needed to attribute chronic conditions to beneficiaries.
  3. Beneficiaries that do not have 12 months continuous enrollment in Medicare Part A during the measurement year. Beneficiaries who become deceased during the measurement period are excluded if they do not have continuous enrollment in Medicare Part A until death (i.e. the 12 month requirement is relaxed for these beneficiaries). Beneficiaries with continuous enrollment until death are excluded after the time of death.
     Rationale: We exclude these patients to ensure full data availability for outcome assessment (Part A during the

measurement year). Beneficiaries with continuous enrollment who become deceased during the year are included only for the time they are alive.

- Denominator Exceptions and Exclusions Details

1. Patients with LVADs (see Table 2 for codes to identify exclusion).

   We identify patients as having an LVAD based on ICD-9-CM procedure codes in Medicare Part A inpatient/outpatient claims or Part B Carrier claims within one year prior to the measurement year. The ICD-9-CM codes are listed below (See Appendix Table 2 for ICD-10 codes):

Table 2. Denominator Exclusion Details: ICD-9-CM procedure codes to identify cohort exclusion (i.e., patients with left ventricular assist devices)

ICD-9-CM Procedure Code	Description
37.60	Implantation of heart and circulatory assist system(s)
37.62	Insertion of temporary non-implantable extracorporeal circulatory assist device
37.65	Implant of single ventricular (extracorporeal) external heart assist system
37.66	Insertion of implantable heart assist system
37.68	Insertion of percutaneous external heart assist device

2. Beneficiaries without continuous enrollment in Medicare Part A and B during the year prior to the measurement year. Lack of continuous enrollment in Medicare Part A and B is determined by patient enrollment status in a Medicare Denominator File. The enrollment indicators must be appropriately marked during the year prior to the measurement year.
3. Beneficiaries without continuous enrollment in Medicare Part A for the duration of the measurement period (or until death) are excluded. Lack of continuous enrollment in Medicare Part A is determined by patient enrollment status in a Medicare Denominator File. The enrollment indicators must be appropriately marked during the measurement year.

Numerator

- Numerator Statement

  The outcome measured for each beneficiary is the number of acute unplanned admissions per 100 person-years at risk for admission. Persons are considered at risk for admission if they are alive, enrolled in FFS Medicare, and not currently admitted.

- Numerator Details

  Outcome Definition
  The outcome for this measure is the number of acute unplanned admissions per 100 person-years at risk for admission. The outcome includes inpatient admissions to an acute care hospital for any cause during the measurement year, unless an admission is identified as "planned."

  Identification of Planned Admissions
  The measure outcome includes only unplanned admissions. Although clinical experts agree that proper care in the ambulatory setting should reduce hospital admissions, variation in planned admissions (such as for elective surgery) does not typically reflect quality differences. We based the planned admission algorithm on CMS's Planned Readmission Algorithm Version 3.0, which CMS originally created to identify planned readmissions for the hospital-wide readmission measure. In brief, the algorithm identifies a short list of always planned admissions (i.e., those where the principal discharge diagnosis is major organ transplant, obstetrical delivery, or maintenance

chemotherapy; see Appendix Table PA1 and PA2) as well as those admissions with a potentially planned procedure (e.g., total hip replacement or cholecystectomy; See Appendix Table PA3) AND a non-acute principal discharge diagnosis code (See Appendix Table PA4 for acute diagnoses). Admissions that include potentially planned procedures that might represent complications of ambulatory care, such as cardiac catheterization, are not considered planned. To adapt the algorithm for this measures, we removed from the potentially planned procedure list two procedures, cardiac catheterization and amputation, because the need for these procedures might reflect progression of clinical conditions that potentially could have been managed in the ambulatory setting to avoid admissions for these procedures.

Outcome Attribution
The outcome is attributed to the Accountable Care Organization (ACO) to which the beneficiary is assigned in the Shared Savings Program or aligned in the Pioneer ACO Model.

Stratification or Risk Adjustment

- Stratification: Not applicable. This measure is not stratified.
- Risk Adjustment:

We use a two-level hierarchical negative binomial model to estimate risk-standardized acute, unplanned admissions per 100 person-years at risk for admission. This approach accounts for the clustering of patients within ACOs and variation in sample size.

Our approach to risk adjustment is tailored to and appropriate for a publicly reported outcome measure, as articulated in the American Heart Association (AHA) Scientific Statement, "Standards for Statistical Models Used for Public Reporting of Health Outcomes" [1-2]. The risk-standardization model includes age and 22 clinical variables. We define clinical variables using condition categories (CCs), which are clinically meaningful groupings of ICD-9/ICD-10 diagnosis codes.

Model Variables

The risk-adjustment variables are:

1. Age Categorized (65-70, 70-80, 80-90, 90+)
2. Pulmonary disease (CC 110, 111, 112, 113, 117, 118)
3. Disability/frailty (21, 70, 71, 72, 103, 119, 157, 158, 159, 160, 161, 169, 189, 190)
4. Advanced cardiopulmonary failure (CC 82, 84)
5. Arrhythmia (CC 96, 97)
6. Psychiatric illness/substance abuse (CC 54, 55, 56, 57, 58, 59, 60, 61, 62, 63)
7. Kidney disease (CC 132, 135-140, 141)
8. Dialysis status (CC 134)
9. Advanced cancer (CC 8, 9, 10, 11, 13)
10. High risk cardiovascular conditions (CC 86, 87, 106, 107)
11. Low risk cardiovascular conditions (CC 88, 89, 98, 108, 109)
12. Structural heart disease (CC 91, 92, 93)
13. Dementia (CC 51, 52, 53)
14. Diabetes with complications (CC 17, 18, 19, 122, 123)
15. Gastrointestinal and genitourinary disorders (CC 31, 32, 33, 35, 36, 142, 188)
16. Hematologic diseases (CC 46, 48)
17. Infectious and immunologic disorders (CC 1,3,4,5,6, 47, 90,)
18. Liver disease (CC 27, 28, 29, 30)
19. Neurological disease (CC 50, 64, 68, 74, 75, 76, 77, 78, 79, 80, 81, 99, 100, 101, 102, 104, 105, 167)
20. Pacemaker/cardiac resynchronization therapy/implantable cardiac device (See Appendix Tables 3 and 4 for ICD-9-CM and ICD-10 diagnosis and procedure codes)

21. Iron deficiency anemia (CC 49)
22. Major organ transplant (CC 186)
23. Other organ transplant (CC 187)

Citations

1. Krumholz HM, Brindis RG, Brush JE, et al. Standards for Statistical Models Used for Public Reporting of Health Outcomes: An American Heart Association Scientific Statement From the Quality of Care and Outcomes Research Interdisciplinary Writing Group: Cosponsored by the Council on Epidemiology and Prevention and the Stroke Council Endorsed by the American College of Cardiology Foundation. Circulation. 2006; 113 (3): 456-462.
2. Normand S-LT, Shahian DM. Statistical and Clinical Aspects of Hospital Outcomes Profiling. Stat Sci. 2007; 22 (2): 206-226.

Sampling

- This is not based on a sample or survey.

Calculation Algorithm

The RSAAR for each ACO is calculated as the number of "predicted" to the number of "expected" admissions per person-year, multiplied by the national rate of admissions per 100 person-years among all ACO beneficiaries with heart failure – i.e., all eligible ACO beneficiaries with heart failure are used in the measure score calculation, and a score is generated for each ACO.

1. Two-level hierarchical statistical models, accounting for clustering of patients within ACOs and patient level characteristics, are estimated. The measure uses a negative binomial model since our outcome is a count of the number of admissions. The first level of the model adjusts for patient factors. The relationship between patient risk factors and the outcome of admission is determined based on the overall sample of patients within ACOs. The second level of the model estimates a random-intercept term that reflects the ACO's contribution to admission risk, based on its actual admission rate, the performance of other providers with similar case mix, and its sample size. The ACO-specific random intercept is used in the numerator calculation to derive an ACO-specific number of "predicted" admissions per person-year.
2. The expected number of admissions is calculated based on the ACO's case mix and national average intercept.
3. The predicted number of admissions is calculated based on the ACO's case mix and the estimated ACO-specific intercept term.
4. The measure score is the ratio of predicted admissions over the expected admissions multiplied by the crude national admission rate among all ACO patients. The predicted to expected ratio of admissions is analogous to an observed/expected ratio, but the numerator accounts for clustering and sample-size variation.
5. We multiply the ratio for each ACO by a constant, the crude national rate of acute, unplanned admissions per 100 person-years at risk for hospitalization, for ease of interpretation (RSAAR).

Appendix Tables

Table 1. Risk-Standardized Acute Admission Rates for Patients with Heart Failure: Cohort Codes

ICD-9-CM Code	ICD-9-CM Descriptor	ICD-10 Code	ICD-10 Descriptor
39891	Rheumatic heart failure (congestive)	I0981	Rheumatic heart failure
40201	Malignant hypertensive heart disease with heart failure	I110	Hypertensive heart disease with heart failure
40211	Benign hypertensive heart disease with heart failure	I110	Hypertensive heart disease with heart failure
40291	Unspecified hypertensive heart disease with heart failure	I110	Hypertensive heart disease with heart failure
40401	Hypertensive heart and chronic kidney disease, malignant, with heart failure and with chronic kidney disease stage I through stage IV, or unspecified	I130	Hypertensive heart and chronic kidney disease with heart failure and stage 1 through stage 4 chronic kidney disease, or unspecified chronic kidney disease
40403	Hypertensive heart and chronic kidney disease, malignant, with heart failure and with chronic kidney disease stage V or end stage renal disease	I132	Hypertensive heart and chronic kidney disease with heart failure and with stage 5 chronic kidney disease, or end stage renal disease
40411	Hypertensive heart and chronic kidney disease, benign, with heart failure and with chronic kidney disease stage I through stage IV, or unspecified	I130	Hypertensive heart and chronic kidney disease with heart failure and stage 1 through stage 4 chronic kidney disease, or unspecified chronic kidney disease
40413	Hypertensive heart and chronic kidney disease, benign, with heart failure and chronic kidney disease stage V or end stage renal disease	I132	Hypertensive heart and chronic kidney disease with heart failure and with stage 5 chronic kidney disease, or end stage renal disease
40491	Hypertensive heart and chronic kidney disease, unspecified, with heart failure and with chronic kidney disease stage I through stage IV, or unspecified	I130	Hypertensive heart and chronic kidney disease with heart failure and stage 1 through stage 4 chronic kidney disease, or unspecified chronic kidney disease
40493	Hypertensive heart and chronic kidney disease, unspecified, with heart failure and chronic kidney disease stage V or end stage renal disease	I132	Hypertensive heart and chronic kidney disease with heart failure and with stage 5 chronic kidney disease, or end stage renal disease
4280	Congestive heart failure	I5040	Heart failure, unspecified
4281	Left heart failure	I501	Left ventricular failure
42820	Systolic heart failure NOS	I5020	Unspecified systolic (congestive) heart failure
42821	Acute systolic heart failure	I5021	Acute systolic (congestive) heart failure
42822	Chronic systolic heart failure	I5022	Chronic systolic (congestive) heart failure
42823	Acute on chronic systolic heart failure	I5023	Acute on chronic systolic (congestive) heart failure
42830	Diastolic heart failure NOS	I5030	Unspecified diastolic (congestive) heart failure
42831	Acute diastolic heart failure	I5031	Acute diastolic (congestive) heart failure
42832	Chronic diastolic heart failure	I5032	Chronic diastolic (congestive) heart failure
42833	Acute on chronic diastolic heart failure	I5033	Acute on chronic diastolic (congestive) heart fail
42840	Systolic/diastolic heart failure NOS	I5040	Unspecified combined systolic (congestive) and diastolic(congestive) heart failure
42841	Acute combined systolic and diastolic heart failure	I5041	Acute combined systolic and diastolic heart failure
42842	Chronic combined systolic and diastolic heart failure	I5042	Chronic combined systolic (congestive) and diastol
42843	Acute on chronic combined systolic and diastolic heart failure	I5043	Acute on chronic combined systolic (congestive) and diastolic heart failure
4289	Heart failure, unspecified	I509	Heart failure, unspecified

Table 2. Risk-Standardized Acute Admission Rates for Patients with Heart Failure: Exclusion Criterion (LVAD)

ICD-9-CM Code	ICD-9-CM Descriptor	ICD-10 Code	ICD-10 Descriptor
3760	Implantation or insertion of biventricular external heart assist system	5A02216	Assistance with Cardiac Output using Other Pump, Continuous
		5A02116	Assistance with Cardiac Output using Other Pump, Intermittent
		02HA0RS	Insertion of Biventricular External Heart Assist System into Heart, Open Approach
		02HA3RS	Insertion of Biventricular External Heart Assist System into Heart, Percutaneous Approach
		02HA4RS	Insertion of Biventricular External Heart Assist System into Heart, Percutaneous Endoscopic App
3762	Insertion of temporary non-implantable extracorporeal circulatory assist device	5A02216	Assistance with Cardiac Output using Other Pump, Continuous
		5A02116	Assistance with Cardiac Output using Other Pump, Intermittent
		02HA0RZ	Insertion of External Heart Assist System into Heart, Open Approach
		02HA3RZ	Insertion of External Heart Assist System into Heart, Percutaneous Approach
		02HA4RZ	Insertion of External Heart Assist System into Heart, Percutaneous Endoscopic Approach
3765	Implant of single ventricular (extracorporeal) external heart assist system	5A02216	Assistance with Cardiac Output using Other Pump, Continuous
		5A02116	Assistance with Cardiac Output using Other Pump, Intermittent
		02HA0RZ	Insertion of External Heart Assist System into Heart, Open Approach
		02HA4RZ	Insertion of External Heart Assist System into Heart, Percutaneous Endoscopic Approach
3766	Insertion of implantable heart assist system	02HA0QZ	Insertion of Implantable Heart Assist System into Heart, Open Approach
		02HA3QZ	Insertion of Implantable Heart Assist System into Heart, Percutaneous Approach
		02HA4QZ	Insertion of Implantable Heart Assist System into Heart, Percutaneous Endoscopic Approach
3768	Insertion of percutaneous external heart assist device	5A0221D	Assistance with Cardiac Output using Impeller Pump, Continuous
		5A0211D	Assistance with Cardiac Output using Impeller Pump, Intermittent
		5A02216	Assistance with Cardiac Output using Other Pump, Continuous
		5A02216	Assistance with Cardiac Output using Other Pump, Continuous
		5A02116	Assistance with Cardiac Output using Other Pump, Intermittent
		02HA3RZ	Insertion of External Heart Assist System into Heart, Percutaneous Approach

Table 3. Risk-Standardized Acute Admission Rates for Patients with Heart Failure: Risk Adjustment Diagnosis Codes (Pacemaker/Cardiac Resynchronization Therapy/Implantable Cardiac Device)

ICD-9-CM Code	ICD-9-CM Descriptor	ICD-10 Code	ICD-10 Descriptor
V5331	Fitting and adjustment of cardiac pacemaker	Z45010	Encounter for checking and testing of cardiac pacemaker pulse generator [battery]
V5331	Fitting and adjustment of cardiac pacemaker	Z45018	Encounter for adjustment and management of other part of cardiac pacemaker
V5332	Fitting and adjustment of automatic implantable cardiac defibrillator	Z4502	Encounter for adjustment and management of automatic implantable cardiac defibrillator
V5339	Fitting and adjustment of other cardiac device	Z4509	Encounter for adjustment and management of cardiac device (Encounter for adjustment and management of other cardiac device)
V4501	Cardiac pacemaker in situ	Z950	Presence of cardiac pacemaker
V4502	Automatic implantable cardiac defibrillator in situ	Z95810	Presence of automatic (implantable) cardiac defibrillator

Table 4. Risk-Standardized Acute Admission Rates for Patients with Heart Failure: Risk Adjustment Procedure Codes (Pacemaker/Cardiac Resynchronization Therapy/Implantable Cardiac Device)

ICD-9-CM Code	ICD-9-CM Descriptor	ICD-10 Code	ICD-10 Descriptor
0050	Implantation of cardiac resynchronization pacemaker without mention of defibrillation, total system [CRT-P]	02H40JZ	Insertion of Pacemaker Lead into Coronary Vein, Open Approach
		02H43JZ	Insertion of Pacemaker Lead into Coronary Vein, Percutaneous Approach
		02H44JZ	Insertion of Pacemaker Lead into Coronary Vein, Percutaneous Endoscopic Approach
		02H60JZ	Insertion of Pacemaker Lead into Right Atrium, Open Approach
		02H63JZ	Insertion of Pacemaker Lead into Right Atrium, Percutaneous Approach
		02H64JZ	Insertion of Pacemaker Lead into Right Atrium, Percutaneous Endoscopic Approach
		02HK0JZ	Insertion of Pacemaker Lead into Right Ventricle, Open Approach
		02HK3JZ	Insertion of Pacemaker Lead into Right Ventricle, Percutaneous Approach
		02HK4JZ	Insertion of Pacemaker Lead into Right Ventricle, Percutaneous Endoscopic Approach
		02HL0JZ	Insertion of Pacemaker Lead into Left Ventricle, Open Approach
		02HL3JZ	Insertion of Pacemaker Lead into Left Ventricle, Percutaneous Approach
		02HL4JZ	Insertion of Pacemaker Lead into Left Ventricle, Percutaneous Endoscopic Approach
		0JH607Z	Insertion of Cardiac Resynchronization Pacemaker Pulse Generator into Chest Subcutaneous Tissue, Open Approach
		0JH637Z	Insertion of Cardiac Resynchronization Pacemaker Pulse Generator into Chest Subcutaneous Tissue, Percutaneous Approach
		0JH807Z	Insertion of Cardiac Resynchronization Pacemaker Pulse Generator into Abdomen Subcutaneous Tissue, Open Approach
	Implantation of cardiac resynchronization defibrillator, total system [CRT-D]	02HK0JZ	Insertion of Pacemaker Lead into Right Ventricle, Open Approach
		02HK3KZ	Insertion of Defibrillator Lead into Right Ventricle, Percutaneous Approach
		02HK4KZ	Insertion of Defibrillator Lead into Right Ventricle, Percutaneous Endoscopic Approach
		02HL0KZ	Insertion of Defibrillator Lead into Left Ventricle, Open Approach
		02HL3KZ	Insertion of Defibrillator Lead into Left Ventricle, Percutaneous Approach

(continued)

Table 4. Risk-Standardized Acute Admission Rates for Patients with Heart Failure: Risk Adjustment Procedure Codes (Pacemaker/Cardiac Resynchronization Therapy/Implantable Cardiac Device) (continued)

ICD-9-CM Code	ICD-9-CM Descriptor	ICD-10 Code	ICD-10 Descriptor
0051		02HL4KZ	Insertion of Defibrillator Lead into Left Ventricle, Percutaneous Endoscopic Approach
		0JH609Z	Insertion of Cardiac Resynchronization Defibrillator Pulse Generator into Chest Subcutaneous Tissue and Fascia, Open Approach
		0JH639Z	Insertion of Cardiac Resynchronization Defibrillator Pulse Generator into Chest Subcutaneous Tissue and Fascia, Percutaneous Approach
		0JH809Z	Insertion of Cardiac Resynchronization Defibrillator Pulse Generator into Abdomen Subcutaneous Tissue and Fascia, Open Approach
		0JH839Z	Insertion of Cardiac Resynchronization Defibrillator Pulse Generator into Abdomen Subcutaneous Tissue and Fascia, Percutaneous Approach
0052	Implantation or replacement of transvenous lead [electrode] into left ventricular coronary venous system	02H43JZ	Insertion of Pacemaker Lead into Coronary Vein, Percutaneous Approach
		02H43KZ	Insertion of Defibrillator Lead into Coronary Vein, Percutaneous Approach
		02H43KZ	Insertion of Defibrillator Lead into Coronary Vein, Percutaneous Approach
		02H43MZ	Insertion of Cardiac Lead into Coronary Vein, Percutaneous Approach
		02H43MZ	Insertion of Cardiac Lead into Coronary Vein, Percutaneous Approach
		02PA0MZ	Removal of Cardiac Lead from Heart, Open Approach
		02PA3MZ	Removal of Cardiac Lead from Heart, Percutaneous Approach
		02PA4MZ	Removal of Cardiac Lead from Heart, Percutaneous Endoscopic Approach
0053	Implantation or replacement of cardiac resynchronization pacemaker pulse generator only	0JH607Z	Insertion of Cardiac Resynchronization Pacemaker Pulse Generator into Chest Subcutaneous, Open Approach
		0JH637Z	Insertion of Cardiac Resynchronization Pacemaker Pulse Generator into Chest Subcutaneous Tissue and Fascia, Percutaneous Approach
		0JH807Z	Insertion of Cardiac Resynchronization Pacemaker Pulse Generator into Abdomen Subcutaneous Tissue, Open Approach
		0JH837Z	Insertion of Cardiac Resynchronization Pacemaker Pulse Generator into Abdomen Subcutaneous Tissue and Fascia, Percutaneous Approach
		0JPT0PZ	Removal of Cardiac Rhythm Related Device from Trunk Subcutaneous Tissue and Fascia, Open Approach
		0JPT3PZ	Removal of Cardiac Rhythm Related Device from Trunk Subcutaneous Tissue and Fascia, Percutaneous Approach
		0JH609Z	Insertion of Cardiac Resynchronization Defibrillator Pulse Generator into Chest Subcutaneous Tissue, Open Approach
0054	Implantation or replacement of cardiac resynchronization defibrillator pulse generator only [CRT-D]	0JH639Z	Insertion of Cardiac Resynchronization Defibrillator Pulse Generator into Chest Subcutaneous Tissue, Percutaneous Approach
		0JH809Z	Insertion of Cardiac Resynchronization Defibrillator Pulse Generator into Abdomen Subcutaneous, Open Approach
		0JH839Z	Insertion of Cardiac Resynchronization Defibrillator Pulse Generator into Abdomen Subcutaneous, Percutaneous Approach
		0JPT0PZ	Removal of Cardiac Rhythm Related Device from Trunk Subcutaneous Tissue and Fascia, Open Approach
		0JPT3PZ	Removal of Cardiac Rhythm Related Device from Trunk Subcutaneous Tissue and Fascia, Percutaneous Approach

(continued)

Table 4. Risk-Standardized Acute Admission Rates for Patients with Heart Failure: Risk Adjustment Procedure Codes (Pacemaker/Cardiac Resynchronization Therapy/Implantable Cardiac Device) (continued)

ICD-9-CM Code	ICD-9-CM Descriptor	ICD-10 Code	ICD-10 Descriptor
3770	Initial insertion of lead [electrode], not otherwise specified	02H44JZ	Insertion of Pacemaker Lead into Coronary Vein, Percutaneous Endoscopic Approach
		02H44MZ	Insertion of Cardiac Lead into Coronary Vein, Percutaneous Endoscopic Approach
		02H60JZ	Insertion of Pacemaker Lead into Right Atrium, Open Approach
		02H60MZ	Insertion of Cardiac Lead into Right Atrium, Open Approach
		02H63JZ	Insertion of Pacemaker Lead into Right Atrium, Percutaneous Approach
		02H64JZ	Insertion of Pacemaker Lead into Right Atrium, Percutaneous Endoscopic Approach
		02H64MZ	Insertion of Cardiac Lead into Right Atrium, Percutaneous Endoscopic Approach
		02H70JZ	Insertion of Pacemaker Lead into Left Atrium, Open Approach
		02H70MZ	Insertion of Cardiac Lead into Left Atrium, Open Approach
		02H73JZ	Insertion of Pacemaker Lead into Left Atrium, Percutaneous Approach
		02H74JZ	Insertion of Pacemaker Lead into Left Atrium, Percutaneous Endoscopic Approach
		02H74MZ	Insertion of Cardiac Lead into Left Atrium, Percutaneous Endoscopic Approach
		02HK0JZ	Insertion of Pacemaker Lead into Right Ventricle, Open Approach
		02HK0MZ	Insertion of Cardiac Lead into Right Ventricle, Open Approach
		02HK3JZ	Insertion of Pacemaker Lead into Right Ventricle, Percutaneous Approach
		02HK4JZ	Insertion of Pacemaker Lead into Right Ventricle, Percutaneous Endoscopic Approach
		02HK4MZ	Insertion of Cardiac Lead into Right Ventricle, Percutaneous Endoscopic Approach
		02HL0JZ	Insertion of Pacemaker Lead into Left Ventricle, Open Approach
		02HL0MZ	Insertion of Cardiac Lead into Left Ventricle, Open Approach
		02HL3JZ	Insertion of Pacemaker Lead into Left Ventricle, Percutaneous Approach
		02HL4JZ	Insertion of Pacemaker Lead into Left Ventricle, Percutaneous Endoscopic Approach
		02HL4MZ	Insertion of Cardiac Lead into Left Ventricle, Percutaneous Endoscopic Approach
3771	Initial insertion of transvenous lead [electrode] into ventricle	02HK3JZ	Insertion of Pacemaker Lead into Right Ventricle, Percutaneous Approach
		02HK3MZ	Insertion of Cardiac Lead into Right Ventricle, Percutaneous Approach
		02HL3JZ	Insertion of Pacemaker Lead into Left Ventricle, Percutaneous Approach
		02HL3MZ	Insertion of Cardiac Lead into Left Ventricle, Percutaneous Approach
3772	Initial insertion of transvenous leads [electrodes] into atrium and ventricle	02H63JZ	Insertion of Pacemaker Lead into Right Atrium, Percutaneous Approach
		02H73JZ	Insertion of Pacemaker Lead into Left Atrium, Percutaneous Approach
		02HK3JZ	Insertion of Pacemaker Lead into Right Ventricle, Percutaneous Approach
		02HL3JZ	Insertion of Pacemaker Lead into Left Ventricle, Percutaneous Approach
3773	Initial insertion of transvenous lead [electrode] into atrium	02H63JZ	Insertion of Pacemaker Lead into Right Atrium, Percutaneous Approach
		02H73JZ	Insertion of Pacemaker Lead into Left Atrium, Percutaneous Approach

(continued)

Table 4. Risk-Standardized Acute Admission Rates for Patients with Heart Failure: Risk Adjustment Procedure Codes (Pacemaker/Cardiac Resynchronization Therapy/Implantable Cardiac Device) (continued)

ICD-9-CM Code	ICD-9-CM Descriptor	ICD-10 Code	ICD-10 Descriptor
3774	Insertion or replacement of epicardial lead [electrode] into epicardium	02HN0JZ	Insertion of Pacemaker Lead into Pericardium, Open Approach
		02HN0JZ	Insertion of Pacemaker Lead into Pericardium, Open Approach
		02HN0MZ	Insertion of Cardiac Lead into Pericardium, Open Approach
		02HN0MZ	Insertion of Cardiac Lead into Pericardium, Open Approach
		02HN3JZ	Insertion of Pacemaker Lead into Pericardium, Percutaneous Approach
		02HN3JZ	Insertion of Pacemaker Lead into Pericardium, Percutaneous Approach
		02HN3MZ	Insertion of Cardiac Lead into Pericardium, Percutaneous Approach
		02HN3MZ	Insertion of Cardiac Lead into Pericardium, Percutaneous Approach
		02HN4JZ	Insertion of Pacemaker Lead into Pericardium, Percutaneous Endoscopic Approach
		02HN4JZ	Insertion of Pacemaker Lead into Pericardium, Percutaneous Endoscopic Approach
		02HN4MZ	Insertion of Cardiac Lead into Pericardium, Percutaneous Endoscopic Approach
		02HN4MZ	Insertion of Cardiac Lead into Pericardium, Percutaneous Endoscopic Approach
		02PA0MZ	Removal of Cardiac Lead from Heart, Open Approach
		02PA3MZ	Removal of Cardiac Lead from Heart, Percutaneous Approach
		02PA4MZ	Removal of Cardiac Lead from Heart, Percutaneous Endoscopic Approach
		02PAXMZ	Removal of Cardiac Lead from Heart, External Approach
3775	Revision of lead [electrode]	02WA0MZ	Revision of Cardiac Lead in Heart, Open Approach
3775	Revision of lead [electrode]	02WA3MZ	Revision of Cardiac Lead in Heart, Percutaneous Approach
3775	Revision of lead [electrode]	02WA4MZ	Revision of Cardiac Lead in Heart, Percutaneous Endoscopic Approach
3776	Replacement of transvenous atrial and/or ventricular lead(s) [electrode]	02H63JZ	Insertion of Pacemaker Lead into Right Atrium, Percutaneous Approach
		02H63JZ	Insertion of Pacemaker Lead into Right Atrium, Percutaneous Approach
		02H63MZ	Insertion of Cardiac Lead into Right Atrium, Percutaneous Approach
		02H73JZ	Insertion of Pacemaker Lead into Left Atrium, Percutaneous Approach
		02H73JZ	Insertion of Pacemaker Lead into Left Atrium, Percutaneous Approach
		02H73MZ	Insertion of Cardiac Lead into Left Atrium, Percutaneous Approach
		02HK3JZ	Insertion of Pacemaker Lead into Right Ventricle, Percutaneous Approach
		02HK3JZ	Insertion of Pacemaker Lead into Right Ventricle, Percutaneous Approach
		02HK3MZ	Insertion of Cardiac Lead into Right Ventricle, Percutaneous Approach
		02HL3JZ	Insertion of Pacemaker Lead into Left Ventricle, Percutaneous Approach
		02HL3JZ	Insertion of Pacemaker Lead into Left Ventricle, Percutaneous Approach
		02HL3MZ	Insertion of Cardiac Lead into Left Ventricle, Percutaneous Approach
		02PA0MZ	Removal of Cardiac Lead from Heart, Open Approach
		02PA3MZ	Removal of Cardiac Lead from Heart, Percutaneous Approach
		02PA4MZ	Removal of Cardiac Lead from Heart, Percutaneous Endoscopic Approach
		02PAXMZ	Removal of Cardiac Lead from Heart, External Approach
3777	Removal of lead(s) [electrode] without replacement	02PA0MZ	Removal of Cardiac Lead from Heart, Open Approach
		02PA3MZ	Removal of Cardiac Lead from Heart, Percutaneous Approach
		02PA4MZ	Removal of Cardiac Lead from Heart, Percutaneous Endoscopic Approach
		02PAXMZ	Removal of Cardiac Lead from Heart, External Approach

(continued)

Table 4. Risk-Standardized Acute Admission Rates for Patients with Heart Failure: Risk Adjustment Procedure Codes (Pacemaker/Cardiac Resynchronization Therapy/Implantable Cardiac Device) (continued)

ICD-9-CM Code	ICD-9-CM Descriptor	ICD-10 Code	ICD-10 Descriptor
3778	Insertion of temporary transvenous pacemaker system	5A1213Z	Performance of Cardiac Pacing, Intermittent
		5A1223Z	Performance of Cardiac Pacing, Continuous
3779	Revision or relocation of cardiac device pocket	0JWT0PZ	Revision of Cardiac Rhythm Related Device in Trunk Subcutaneous Tissue and Fascia, Open Approach
		0JWT3PZ	Revision of Cardiac Rhythm Related Device in Trunk Subcutaneous Tissue and Fascia, Percutaneous Approach
3780	Insertion of permanent pacemaker, initial or replacement, type of device not specified	0JH60PZ	Insertion of Cardiac Rhythm Related Device into Chest Subcutaneous Tissue and Fascia, Open Approach
		0JH60PZ	Insertion of Cardiac Rhythm Related Device into Chest Subcutaneous Tissue and Fascia, Open Approach
		0JH63PZ	Insertion of Cardiac Rhythm Related Device into Chest Subcutaneous Tissue and Fascia, Percutaneous Approach
		0JH80PZ	Insertion of Cardiac Rhythm Related Device into Abdomen Subcutaneous Tissue and Fascia, Open Approach
		0JH83PZ	Insertion of Cardiac Rhythm Related Device into Abdomen Subcutaneous Tissue and Fascia, Percutaneous Approach
		0JPT0PZ	Removal of Cardiac Rhythm Related Device from Trunk Subcutaneous Tissue and Fascia, Open Approach
		0JPT3PZ	Removal of Cardiac Rhythm Related Device from Trunk Subcutaneous Tissue and Fascia, Percutaneous Approach
		0JH604Z	Insertion of Pacemaker, Single Chamber into Chest Subcutaneous Tissue and Fascia, Open Approach
3781	Initial insertion of single-chamber device, not specified as rate responsive	0JH634Z	Insertion of Pacemaker, Single Chamber into Chest Subcutaneous Tissue and Fascia, Percutaneous Approach
		0JH804Z	Insertion of Pacemaker, Single Chamber into Abdomen Subcutaneous Tissue and Fascia, Open Approach
		0JH834Z	Insertion of Pacemaker, Single Chamber into Abdomen Subcutaneous Tissue and Fascia, Percutaneous Approach
3782	Initial insertion of single-chamber device, rate responsive	0JH605Z	Insertion of Pacemaker, Single Chamber Rate Responsive into Chest Subcutaneous Tissue and Fascia, Open Approach
		0JH805Z	Insertion of Pacemaker, Single Chamber Rate Responsive into Abdomen Subcutaneous Tissue, Open Approach
		0JH835Z	Insertion of Pacemaker, Single Chamber Rate Responsive into Abdomen Subcutaneous Tissue, Percutaneous Approach
3783	Initial insertion of dual-chamber device	0JH606Z	Insertion of Pacemaker, Dual Chamber into Chest Subcutaneous Tissue and Fascia, Open Approach
		0JH636Z	Insertion of Pacemaker, Dual Chamber into Chest Subcutaneous Tissue and Fascia, Percutaneous Approach
		0JH806Z	Insertion of Pacemaker, Dual Chamber into Abdomen Subcutaneous Tissue and Fascia, Open Approach
		0JH836Z	Insertion of Pacemaker, Dual Chamber into Abdomen Subcutaneous Tissue and Fascia, Percutaneous Approach

(continued)

Table 4. Risk-Standardized Acute Admission Rates for Patients with Heart Failure: Risk Adjustment Procedure Codes (Pacemaker/Cardiac Resynchronization Therapy/Implantable Cardiac Device) (continued)

ICD-9-CM Code	ICD-9-CM Descriptor	ICD-10 Code	ICD-10 Descriptor
3785	Replacement of any type pacemaker device with single-chamber device, not specified as rate responsive	0JH604Z	Insertion of Pacemaker, Single Chamber into Chest Subcutaneous Tissue and Fascia, Open Approach
		0JH634Z	Insertion of Pacemaker, Single Chamber into Chest Subcutaneous Tissue and Fascia, Percutaneous Approach
		0JH804Z	Insertion of Pacemaker, Single Chamber into Abdomen Subcutaneous Tissue and Fascia, Open Approach
		0JH834Z	Insertion of Pacemaker, Single Chamber into Abdomen Subcutaneous Tissue and Fascia, Percutaneous Approach
		0JPT0PZ	Removal of Cardiac Rhythm Related Device from Trunk Subcutaneous Tissue and Fascia, Open Approach
		0JPT3PZ	Removal of Cardiac Rhythm Related Device from Trunk Subcutaneous Tissue and Fascia, Percutaneous Approach
3786	Replacement of any type of pacemaker device with single- chamber device, rate responsive	0JH605Z	Insertion of Pacemaker, Single Chamber Rate Responsive into Chest Subcutaneous Tissue and Fascia, Open Approach
		0JH635Z	Insertion of Pacemaker, Single Chamber Rate Responsive into Chest Subcutaneous Tissue and Fascia, Percutaneous Approach
		0JH805Z	Insertion of Pacemaker, Single Chamber Rate Responsive into Abdomen Subcutaneous Tissue and Fascia, Open Approach
		0JH835Z	Insertion of Pacemaker, Single Chamber Rate Responsive into Abdomen Subcutaneous Tissue and Fascia, Percutaneous Approach
		0JPT0PZ	Removal of Cardiac Rhythm Related Device from Trunk Subcutaneous Tissue and Fascia, Open Approach
		0JPT3PZ	Removal of Cardiac Rhythm Related Device from Trunk Subcutaneous Tissue and Fascia, Percutaneous Approach
3787	Replacement of any type pacemaker device with dual-chamber device	0JH606Z	Insertion of Pacemaker, Dual Chamber into Chest Subcutaneous Tissue and Fascia, Open Approach
		0JH636Z	Insertion of Pacemaker, Dual Chamber into Chest Subcutaneous Tissue and Fascia, Percutaneous Approach
		0JH806Z	Insertion of Pacemaker, Dual Chamber into Abdomen Subcutaneous Tissue and Fascia, Open Approach
		0JH836Z	Insertion of Pacemaker, Dual Chamber into Abdomen Subcutaneous Tissue and Fascia, Percutaneous Approach
		0JPT0PZ	Removal of Cardiac Rhythm Related Device from Trunk Subcutaneous Tissue and Fascia, Open Approach
		0JPT3PZ	Removal of Cardiac Rhythm Related Device from Trunk Subcutaneous Tissue and Fascia, Percutaneous Approach
3789	Revision or removal of pacemaker device	0JPT0PZ	Removal of Cardiac Rhythm Related Device from Trunk Subcutaneous Tissue and Fascia, Open Approach
		0JPT3PZ	Removal of Cardiac Rhythm Related Device from Trunk Subcutaneous Tissue and Fascia, Percutaneous Approach
		0JWT0PZ	Revision of Cardiac Rhythm Related Device in Trunk Subcutaneous Tissue and Fascia, Open Approach
		0JWT3PZ	Revision of Cardiac Rhythm Related Device in Trunk Subcutaneous Tissue and Fascia, Percutaneous Approach

(continued)

Table 4. Risk-Standardized Acute Admission Rates for Patients with Heart Failure: Risk Adjustment Procedure Codes (Pacemaker/Cardiac Resynchronization Therapy/Implantable Cardiac Device) (continued)

ICD-9-CM Code	ICD-9-CM Descriptor	ICD-10 Code	ICD-10 Descriptor
3794	Implantation or replacement of automatic cardioverter/defibrillator, total system [AICD]	02H60KZ	Insertion of Defibrillator Lead into Right Atrium, Open Approach
		02H63KZ	Insertion of Defibrillator Lead into Right Atrium, Percutaneous Approach
		02H64KZ	Insertion of Defibrillator Lead into Right Atrium, Percutaneous Endoscopic Approach
		02H70KZ	Insertion of Defibrillator Lead into Left Atrium, Open Approach
		02H73KZ	Insertion of Defibrillator Lead into Left Atrium, Percutaneous Approach
		02H74KZ	Insertion of Defibrillator Lead into Left Atrium, Percutaneous Endoscopic Approach
		02HK0KZ	Insertion of Defibrillator Lead into Right Ventricle, Open Approach
		02HK3KZ	Insertion of Defibrillator Lead into Right Ventricle, Percutaneous Approach
		02HK4KZ	Insertion of Defibrillator Lead into Right Ventricle, Percutaneous Endoscopic Approach
		02HL0KZ	Insertion of Defibrillator Lead into Left Ventricle, Open Approach
		02HL3KZ	Insertion of Defibrillator Lead into Left Ventricle, Percutaneous Approach
		02HL4KZ	Insertion of Defibrillator Lead into Left Ventricle, Percutaneous Endoscopic Approach
		02PA0MZ	Removal of Cardiac Lead from Heart, Open Approach
		02PA3MZ	Removal of Cardiac Lead from Heart, Percutaneous Approach
		02PA4MZ	Removal of Cardiac Lead from Heart, Percutaneous Endoscopic Approach
		02PAXMZ	Removal of Cardiac Lead from Heart, External Approach
		0JH608Z	Insertion of Defibrillator Generator into Chest Subcutaneous Tissue and Fascia, Open Approach
		0JH608Z	Insertion of Defibrillator Generator into Chest Subcutaneous Tissue and Fascia, Open Approach
		0JH638Z	Insertion of Defibrillator Generator into Chest Subcutaneous Tissue and Fascia, Percutaneous Approach
		0JH808Z	Insertion of Defibrillator Generator into Abdomen Subcutaneous Tissue and Fascia, Open Approach
		0JH838Z	Insertion of Defibrillator Generator into Abdomen Subcutaneous Tissue and Fascia, Percutaneous Approach
		0JPT0PZ	Removal of Cardiac Rhythm Related Device from Trunk Subcutaneous Tissue and Fascia, Open Approach
		0JPT3PZ	Removal of Cardiac Rhythm Related Device from Trunk Subcutaneous Tissue and Fascia, Percutaneous Approach
3795	Implantation of automatic cardioverter/defibrillator lead(s) only	02H63KZ	Insertion of Defibrillator Lead into Right Atrium, Percutaneous Approach
		02H73KZ	Insertion of Defibrillator Lead into Left Atrium, Percutaneous Approach
		02HK3KZ	Insertion of Defibrillator Lead into Right Ventricle, Percutaneous Approach
		02HL3KZ	Insertion of Defibrillator Lead into Left Ventricle, Percutaneous Approach
		02HN0KZ	Insertion of Defibrillator Lead into Pericardium, Open Approach
		02HN4KZ	Insertion of Defibrillator Lead into Pericardium, Percutaneous Endoscopic Approach

(continued)

Table 4. Risk-Standardized Acute Admission Rates for Patients with Heart Failure: Risk Adjustment Procedure Codes (Pacemaker/Cardiac Resynchronization Therapy/Implantable Cardiac Device) (continued)

ICD-9-CM Code	ICD-9-CM Descriptor	ICD-10 Code	ICD-10 Descriptor
3796	Implantation of automatic cardioverter/defibrillator pulse generator only Implantation of automatic	0JH608Z	Insertion of Defibrillator Generator into Chest Subcutaneous Tissue and Fascia, Open Approach
		0JH638Z	Insertion of Defibrillator Generator into Chest Subcutaneous Tissue and Fascia, Percutaneous Approach
		0JH808Z	Insertion of Defibrillator Generator into Abdomen Subcutaneous Tissue and Fascia, Open Approach
		0JH838Z	Insertion of Defibrillator Generator into Abdomen Subcutaneous Tissue and Fascia, Percutaneous Approach
3797	Replacement of automatic cardioverter/defibrillator lead(s) only	02H40KZ	Insertion of Defibrillator Lead into Coronary Vein, Open Approach
		02H44KZ	Insertion of Defibrillator Lead into Coronary Vein, Percutaneous Endoscopic Approach
		02H60KZ	Insertion of Defibrillator Lead into Right Atrium, Open Approach
		02H63KZ	Insertion of Defibrillator Lead into Right Atrium, Percutaneous Approach
		02H64KZ	Insertion of Defibrillator Lead into Right Atrium, Percutaneous Endoscopic Approach
		02H70KZ	Insertion of Defibrillator Lead into Left Atrium, Open Approach
		02H73KZ	Insertion of Defibrillator Lead into Left Atrium, Percutaneous Approach
		02H74KZ	Insertion of Defibrillator Lead into Left Atrium, Percutaneous Endoscopic Approach
		02HK0KZ	Insertion of Defibrillator Lead into Right Ventricle, Open Approach
		02HK3KZ	Insertion of Defibrillator Lead into Right Ventricle, Percutaneous Approach
		02HK4KZ	Insertion of Defibrillator Lead into Right Ventricle, Percutaneous Endoscopic Approach
		02HL0KZ	Insertion of Defibrillator Lead into Left Ventricle, Open Approach
		02HL3KZ	Insertion of Defibrillator Lead into Left Ventricle, Percutaneous Approach
		02HL4KZ	Insertion of Defibrillator Lead into Left Ventricle, Percutaneous Endoscopic Approach
		02HN0KZ	Insertion of Defibrillator Lead into Pericardium, Open Approach
		02HN3KZ	Insertion of Defibrillator Lead into Pericardium, Percutaneous Approach
		02PA3MZ	Removal of Cardiac Lead from Heart, Percutaneous Approach
		02PA4MZ	Removal of Cardiac Lead from Heart, Percutaneous Endoscopic Approach
		02PAXMZ	Removal of Cardiac Lead from Heart, External Approach
3798	Replacement of automatic cardioverter/defibrillator pulse generator only	0JH608Z	Insertion of Defibrillator Generator into Chest Subcutaneous Tissue and Fascia, Open Approach
		0JH638Z	Insertion of Defibrillator Generator into Chest Subcutaneous Tissue and Fascia, Percutaneous Approach
		0JH808Z	Insertion of Defibrillator Generator into Abdomen Subcutaneous Tissue and Fascia, Open Approach
		0JH838Z	Insertion of Defibrillator Generator into Abdomen Subcutaneous Tissue and Fascia, Percutaneous Approach
		0JPT0PZ	Removal of Cardiac Rhythm Related Device from Trunk Subcutaneous Tissue and Fascia, Open Approach
		0JPT3PZ	Removal of Cardiac Rhythm Related Device from Trunk Subcutaneous Tissue and Fascia, Percutaneous Approach

(continued)

Table 4. Risk-Standardized Acute Admission Rates for Patients with Heart Failure: Risk Adjustment Procedure Codes (Pacemaker/Cardiac Resynchronization Therapy/Implantable Cardiac Device) (continued)

ICD-9-CM Code	ICD-9-CM Descriptor	ICD-10 Code	ICD-10 Descriptor
3799	Other operations on heart and pericardium	02QA0ZZ	Repair Heart, Open Approach
		02QA3ZZ	Repair Heart, Percutaneous Approach
		02QA4ZZ	Repair Heart, Percutaneous Endoscopic Approach
		0JPT0PZ	Removal of Cardiac Rhythm Related Device from Trunk Subcutaneous Tissue and Fascia, Open Approach
		0JPT3PZ	Removal of Cardiac Rhythm Related Device from Trunk Subcutaneous Tissue and Fascia, Percutaneous Approach
		0JWT0PZ	Revision of Cardiac Rhythm Related Device in Trunk Subcutaneous Tissue and Fascia, Open Approach
		0JWT3PZ	Revision of Cardiac Rhythm Related Device in Trunk Subcutaneous Tissue and Fascia, Percutaneous Approach

Table PA1. Final Crosswalk for the Procedure Categories That Are Always Planned in the Planned Admission Algorithm Version 3.0 – MCC Population

Procedure CCS (ICD-9)	Description	Procedure CCS (ICD-10)	Description
64	Bone marrow transplant	64	Bone marrow transplant
105	Kidney transplant	105	Kidney transplant
176	Other organ transplantation	176	Other organ transplantation (other than bone marrow corneal or kidney)

Table PA2. Final Crosswalk for the Diagnosis Categories That Are Always Planned in the Planned Admission Algorithm Version 3.0 – MCC Population

Diagnosis CCS (ICD-9)	Description	Diagnosis CCS (ICD-10)	Description
45	Maintenance Chemotherapy	45	Maintenance Chemotherapy
254	Rehabilitation	254	Rehabilitation

Table PA3: Final Crosswalk for the Potentially Planned Procedure Categories

The ICD-9-CM specification of the planned admission algorithm version 3.0 – MCC Population includes procedure CCS 169 (Debridement of wound; infection or burn). The ICD-10 version no longer includes procedure CCS 169. The codes in that category were moved to the following procedure CCS categories: CCS 170 (Excision of skin), CCS 174 (Other non-OR therapeutic procedures on skin and breast), CCS 175 (Other OR therapeutic procedures on skin and breast), and CCS 231 (Other therapeutic procedures).

Procedure CCS 170 is in version 3.0 – MCC Population of the algorithm; however, upon reviewing the codes in that category, it appears that they are for skin excision procedures that would not require an inpatient hospitalization. While these would not show up as admissions in the measure, we have removed procedure CCS 170 in the ICD-10 version of the algorithm to improve the face validity of the algorithm.

We reviewed the codes in the ICD-10 version of procedure CCS 174, CCS 175, and CCS 231 and determined that it would be appropriate to add CCS 175 to the ICD-10 version of the planned admission algorithm. However, we did not feel that procedure CCS 174 or CCS 231 were appropriate additions to the planned admission algorithm because they contained too many minor procedures that do not require admission to the hospital. The few major surgical procedures in both categories rarely occur in isolation so we felt that it is likely that planned admissions that include those procedures would already be captured by accompanying procedures in other CCS categories in the planned admission algorithm. The one exception is gender reconstruction surgery, which we may consider in future iterations of the planned admission algorithm if we determine that there are enough admissions in the Medicare population to split these codes out from procedure CCS 231.

Table PA3. Final Crosswalk for the Potentially Planned Procedure Categories

ICD-9-CM Procedure CCS	Description	ICD-10 Procedure CCS	Description
3	Laminectomy; excision intervertebral disc	3	Excision, destruction or resection of intervertebral disc
5	Insertion of catheter or spinal stimulator and injection into spinal	5	Insertion of catheter or spinal stimulator and injection into spinal
9	Other OR therapeutic nervous system procedures	9	Other OR therapeutic nervous system procedures
10	Thyroidectomy; partial or complete	10	Thyroidectomy; partial or complete
12	Other therapeutic endocrine procedures	12	Therapeutic endocrine procedures
33	Other OR therapeutic procedures on nose; mouth and pharynx	33	Other OR therapeutic procedures of mouth and throat
36	Lobectomy or pneumonectomy	36	Lobectomy or pneumonectomy
38	Other diagnostic procedures on lung and bronchus	38	Other diagnostic procedures on lung and bronchus
40	Other diagnostic procedures of respiratory tract and mediastinum	40	Other diagnostic procedures of respiratory tract and mediastinum
43	Heart valve procedures	43	Heart valve procedures
44	Coronary artery bypass graft (CABG)	44	Coronary artery bypass graft (CABG)
45	Percutaneous transluminal coronary angioplasty (PTCA)	45	Percutaneous transluminal coronary angioplasty (PTCA) with or without stent
47	Diagnostic cardiac catheterization; coronary arteriography	47	Diagnostic cardiac catheterization; coronary arteriography
48	Insertion; revision; replacement; removal of cardiac pacemaker or cardioverter/defibrillator	48	Insertion; revision; replacement; removal of cardiac pacemaker or cardioverter/defibrillator
49	Other OR heart procedures	49	Other OR heart procedures
51	Endarterectomy; vessel of head and neck	51	Endarterectomy; vessel of head and neck
52	Aortic resection; replacement or anastomosis	52	Aortic resection; replacement or anastomosis
53	Varicose vein stripping; lower limb	53	Varicose vein stripping; lower limb
55	Peripheral vascular bypass	55	Peripheral vascular bypass
56	Other vascular bypass and shunt; not heart	56	Other vascular bypass and shunt; not heart
59	Other OR procedures on vessels of head and neck	59	Other OR procedures on vessels of head and neck
62	Other diagnostic cardiovascular procedures	62	Other diagnostic cardiovascular procedures
66	Procedures on spleen	66	Procedures on spleen
67	Other therapeutic procedures; hemic and lymphatic system	67	Other therapeutic procedures; hemic and lymphatic system
74	Gastrectomy; partial and total	74	Gastrectomy; partial and total

ICD-9-CM Procedure CCS	Description	ICD-10 Procedure CCS	Description
78	Colorectal resection	78	Colorectal resection
79	Local excision of large intestine lesion (not endoscopic)	79	Excision of large intestine lesion (not endoscopic)
84	Cholecystectomy and common duct exploration	84	Cholecystectomy and common duct exploration
85	Inguinal and femoral hernia repair	85	Inguinal and femoral hernia repair
86	Other hernia repair	86	Other hernia repair
99	Other OR gastrointestinal therapeutic procedures	99	Other OR gastrointestinal therapeutic procedures
104	Nephrectomy; partial or complete	104	Nephrectomy; partial or complete
106	Genitourinary incontinence procedures	106	Genitourinary incontinence procedures
107	Extracorporeal lithotripsy; urinary	107	Extracorporeal lithotripsy; urinary
109	Procedures on the urethra	109	Procedures on the urethra
112	Other OR therapeutic procedures of urinary tract	112	Other OR therapeutic procedures of urinary tract
113	Transurethral resection of prostate (TURP)	113	Transurethral resection of prostate (TURP)
114	Open prostatectomy	114	Open prostatectomy
119	Oophorectomy; unilateral and bilateral	119	Oophorectomy; unilateral and bilateral
120	Other operations on ovary	120	Other operations on ovary
124	Hysterectomy; abdominal and vaginal	124	Hysterectomy; abdominal and vaginal
129	Repair of cystocele and rectocele; obliteration of vaginal vault	129	Repair of cystocele and rectocele; obliteration of vaginal vault
132	Other OR therapeutic procedures; female organs	132	Other OR therapeutic procedures; female organs
142	Partial excision bone	142	Partial excision bone
152	Arthroplasty knee	152	Arthroplasty knee
153	Hip replacement; total and partial	153	Hip replacement; total and partial
154	Arthroplasty other than hip or knee	154	Arthroplasty other than hip or knee
157	Amputation of lower extremity	157	Amputation of lower extremity
158	Spinal fusion	158	Spinal fusion
159	Other diagnostic procedures on musculoskeletal system	159	Other diagnostic procedures on musculoskeletal system
166	Lumpectomy; quadrantectomy of breast	166	Lumpectomy; quadrantectomy of breast
167	Mastectomy	167	Mastectomy
169	Debridement of wound; infection or burn	—	Codes were split among proc CCS 170, 174, 175, and 231; Proc CCS 170 is already in the algorithm but should be removed due to the new codes; Proc CCS 175 has been added in the ICD-10 version; Proc CCS 174 and 231 were not deemed appropriate for this algorithm
170	Excision of skin lesion	—	Excision of skin - This Proc CCS should be removed in the ICD-10 version of the algorithm
172	Skin graft	172	Skin graft
—	—	175	Other OR therapeutic procedures on skin subcutaneous tissue fascia and breast

(continued)

ICD-9-CM Codes	Description	ICD-10 Codes	Description
30.1	Hemilaryngectomy	0CBS0ZZ	Excision of Larynx, Open Approach
		0CBS3ZZ	Excision of Larynx, Percutaneous Approach
		0CBS4ZZ	Excision of Larynx, Percutaneous Endoscopic Approach
		0CBS7ZZ	Excision of Larynx, Via Natural or Artificial Opening
		0CBS8ZZ	Excision of Larynx, Via Natural or Artificial Opening Endoscopic
30.29	Other partial laryngectomy	0CBS0ZZ	Excision of Larynx, Open Approach
		0CBS3ZZ	Excision of Larynx, Percutaneous Approach
		0CBS4ZZ	Excision of Larynx, Percutaneous Endoscopic Approach
		0CBS7ZZ	Excision of Larynx, Via Natural or Artificial Opening
		0CBS8ZZ	Excision of Larynx, Via Natural or Artificial Opening Endoscopic
30.3	Complete laryngectomy	0B110F4	Bypass Trachea to Cutaneous with Tracheostomy Device, Open Approach
		0B110Z4	Bypass Trachea to Cutaneous, Open Approach
		0B113F4	Bypass Trachea to Cutaneous with Tracheostomy Device, Percutaneous Approach
		0B113Z4	Bypass Trachea to Cutaneous, Percutaneous Approach
		0B114F4	Bypass Trachea to Cutaneous with Tracheostomy Device, Percutaneous Endoscopic Approach
		0B114Z4	Bypass Trachea to Cutaneous, Percutaneous Endoscopic Approach
		0CTS0ZZ	Resection of Larynx, Open Approach
		0CTS4ZZ	Resection of Larynx, Percutaneous Endoscopic Approach
		0CTS7ZZ	Resection of Larynx, Via Natural or Artificial Opening
		0CTS8ZZ	Resection of Larynx, Via Natural or Artificial Opening Endoscopic
30.4	Radical laryngectomy	0B110F4	Bypass Trachea to Cutaneous with Tracheostomy Device, Open Approach
		0B110Z4	Bypass Trachea to Cutaneous, Open Approach
		0B113F4	Bypass Trachea to Cutaneous with Tracheostomy Device, Percutaneous Approach
		0B113Z4	Bypass Trachea to Cutaneous, Percutaneous Approach
		0B114F4	Bypass Trachea to Cutaneous with Tracheostomy Device, Percutaneous Endoscopic Approach
		0B114Z4	Bypass Trachea to Cutaneous, Percutaneous Endoscopic Approach
		0CTS0ZZ	Resection of Larynx, Open Approach
		0CTS4ZZ	Resection of Larynx, Percutaneous Endoscopic Approach
		0CTS7ZZ	Resection of Larynx, Via Natural or Artificial Opening
		0CTS8ZZ	Resection of Larynx, Via Natural or Artificial Opening Endoscopic
		0GTG0ZZ	Resection of Left Thyroid Gland Lobe, Open Approach
		0GTG4ZZ	Resection of Left Thyroid Gland Lobe, Percutaneous Endoscopic Approach
		0GTH0ZZ	Resection of Right Thyroid Gland Lobe, Open Approach
		0GTH4ZZ	Resection of Right Thyroid Gland Lobe, Percutaneous Endoscopic Approach
		0GTK0ZZ	Resection of Thyroid Gland, Open Approach
		0GTK4ZZ	Resection of Thyroid Gland, Percutaneous Endoscopic Approach
		0WB60ZZ	Excision of Neck, Open Approach
		0WB63ZZ	Excision of Neck, Percutaneous Approach
		0WB64ZZ	Excision of Neck, Percutaneous Endoscopic Approach
		0WB6XZZ	Excision of Neck, External Approach

(continued)

ICD-9-CM Codes	Description	ICD-10 Codes	Description
31.74	Revision of tracheostomy	0BW10FZ	Revision of Tracheostomy Device in Trachea, Open Approach
		0BW13FZ	Revision of Tracheostomy Device in Trachea, Percutaneous Approach
		0BW14FZ	Revision of Tracheostomy Device in Trachea, Percutaneous Endoscopic Approach
		0WB6XZ2	Excision of Neck, Stoma, External Approach
		0WQ6XZ2	Repair Neck, Stoma, External Approach
34.6	Scarification of pleura	0B5N0ZZ	Destruction of Right Pleura, Open Approach
		0B5N3ZZ	Destruction of Right Pleura, Percutaneous Approach
		0B5N4ZZ	Destruction of Right Pleura, Percutaneous Endoscopic Approach
		0B5P0ZZ	Destruction of Left Pleura, Open Approach
		0B5P3ZZ	Destruction of Left Pleura, Percutaneous Approach
		0B5P4ZZ	Destruction of Left Pleura, Percutaneous Endoscopic Approach
38.18	Endarterectomy, lower limb arteries	04CK0ZZ	Extirpation of Matter from Right Femoral Artery, Open Approach
		04CK3ZZ	Extirpation of Matter from Right Femoral Artery, Percutaneous Approach
		04CK4ZZ	Extirpation of Matter from Right Femoral Artery, Percutaneous Endoscopic Approach
		04CL0ZZ	Extirpation of Matter from Left Femoral Artery, Open Approach
		04CL3ZZ	Extirpation of Matter from Left Femoral Artery, Percutaneous Approach
		04CL4ZZ	Extirpation of Matter from Left Femoral Artery, Percutaneous Endoscopic Approach
		04CM0ZZ	Extirpation of Matter from Right Popliteal Artery, Open Approach
		04CM3ZZ	Extirpation of Matter from Right Popliteal Artery, Percutaneous Approach
		04CM4ZZ	Extirpation of Matter from Right Popliteal Artery, Percutaneous Endoscopic Approach
		04CN0ZZ	Extirpation of Matter from Left Popliteal Artery, Open Approach
		04CN3ZZ	Extirpation of Matter from Left Popliteal Artery, Percutaneous Approach
		04CN4ZZ	Extirpation of Matter from Left Popliteal Artery, Percutaneous Endoscopic Approach
		04CP0ZZ	Extirpation of Matter from Right Anterior Tibial Artery, Open Approach
		04CP3ZZ	Extirpation of Matter from Right Anterior Tibial Artery, Percutaneous Approach
		04CP4ZZ	Extirpation of Matter from Right Anterior Tibial Artery, Percutaneous Endoscopic Approach
		04CQ0ZZ	Extirpation of Matter from Left Anterior Tibial Artery, Open Approach
		04CQ3ZZ	Extirpation of Matter from Left Anterior Tibial Artery, Percutaneous Approach
		04CQ4ZZ	Extirpation of Matter from Left Anterior Tibial Artery, Percutaneous Endoscopic Approach
		04CR0ZZ	Extirpation of Matter from Right Posterior Tibial Artery, Open Approach
		04CR3ZZ	Extirpation of Matter from Right Posterior Tibial Artery, Percutaneous Approach
		04CR4ZZ	Extirpation of Matter from Right Posterior Tibial Artery, Percutaneous Endoscopic Approach
		04CS0ZZ	Extirpation of Matter from Left Posterior Tibial Artery, Open Approach

(continued)

ICD-9-CM Codes	Description	ICD-10 Codes	Description
38.18	Endarterectomy, lower limb arteries (continued)	04CS3ZZ	Extirpation of Matter from Left Posterior Tibial Artery, Percutaneous Approach
		04CS4ZZ	Extirpation of Matter from Left Posterior Tibial Artery, Percutaneous Endoscopic Approach
		04CT0ZZ	Extirpation of Matter from Right Peroneal Artery, Open Approach
		04CT3ZZ	Extirpation of Matter from Right Peroneal Artery, Percutaneous Approach
		04CT4ZZ	Extirpation of Matter from Right Peroneal Artery, Percutaneous Endoscopic Approach
		04CU0ZZ	Extirpation of Matter from Left Peroneal Artery, Open Approach
		04CU3ZZ	Extirpation of Matter from Left Peroneal Artery, Percutaneous Approach
		04CU4ZZ	Extirpation of Matter from Left Peroneal Artery, Percutaneous Endoscopic Approach
		04CV0ZZ	Extirpation of Matter from Right Foot Artery, Open Approach
		04CV3ZZ	Extirpation of Matter from Right Foot Artery, Percutaneous Approach
		04CV4ZZ	Extirpation of Matter from Right Foot Artery, Percutaneous Endoscopic Approach
		04CW0ZZ	Extirpation of Matter from Left Foot Artery, Open Approach
		04CW3ZZ	Extirpation of Matter from Left Foot Artery, Percutaneous Approach
		04CW4ZZ	Extirpation of Matter from Left Foot Artery, Percutaneous Endoscopic Approach
		04CY0ZZ	Extirpation of Matter from Lower Artery, Open Approach
		04CY3ZZ	Extirpation of Matter from Lower Artery, Percutaneous Approach
		04CY4ZZ	Extirpation of Matter from Lower Artery, Percutaneous Endoscopic Approach
55.03	Percutaneous nephrostomy without fragmentation	0T9030Z	Drainage of Right Kidney with Drainage Device, Percutaneous Approach
		0T9040Z	Drainage of Right Kidney with Drainage Device, Percutaneous Endoscopic Approach
		0T9130Z	Drainage of Left Kidney with Drainage Device, Percutaneous Approach
		0T9140Z	Drainage of Left Kidney with Drainage Device, Percutaneous Endoscopic Approach
		0TC03ZZ	Extirpation of Matter from Right Kidney, Percutaneous Approach
		0TC04ZZ	Extirpation of Matter from Right Kidney, Percutaneous Endoscopic Approach
		0TC13ZZ	Extirpation of Matter from Left Kidney, Percutaneous Approach
		0TC14ZZ	Extirpation of Matter from Left Kidney, Percutaneous Endoscopic Approach
		0TC33ZZ	Extirpation of Matter from R Kidney Pelvis, Perc Approach
		0TC34ZZ	Extirpate of Matter from R Kidney Pelvis, Perc Endo Approach
		0TC43ZZ	Extirpation of Matter from Left Kidney Pelvis, Perc Approach
		0TC44ZZ	Extirpate of Matter from L Kidney Pelvis, Perc Endo Approach
55.04	Percutaneous nephrostomy with fragmentation	0TF33ZZ	Fragmentation in Right Kidney Pelvis, Percutaneous Approach
		0TF34ZZ	Fragmentation in Right Kidney Pelvis, Percutaneous Endoscopic Approach
		0TF43ZZ	Fragmentation in Left Kidney Pelvis, Percutaneous Approach
		0TF44ZZ	Fragmentation in Left Kidney Pelvis, Percutaneous Endoscopic Approach

(continued)

ICD-9-CM Codes	Description	ICD-10 Codes	Description
94.26	Subconvulsive electroshock therapy	GZB4ZZZ	Other Electroconvulsive Therapy
94.27	Other electroshock therapy	GZB0ZZZ	Electroconvulsive Therapy, Unilateral-Single Seizure
		GZB1ZZZ	Electroconvulsive Therapy, Unilateral-Multiple Seizure
		GZB2ZZZ	Electroconvulsive Therapy, Bilateral-Single Seizure
		GZB3ZZZ	Electroconvulsive Therapy, Bilateral-Multiple Seizure
		GZB4ZZZ	Other Electroconvulsive Therapy

Table PA4: Final Crosswalk for the Acute Diagnosis Categories.

The ICD-9-CM specification of the planned admission algorithm version 3.0 – MCC Population considers diagnosis CCS 100 (Acute myocardial infarction) with the exception of ICD-9-CM codes 410.x2, which are for episodes of care subsequent to an acute myocardial infarction. However, ICD-10 no longer includes the concept of subsequent encounters in diagnosis CCS 100. Therefore, the ICD-10 version includes all codes in diagnosis CCS 100.

Table PA4. Final Crosswalk for the Acute Diagnosis Categories

ICD-9-CM Diagnosis CCS	Description	ICD-10 Diagnosis CCS	Description
1	Tuberculosis	1	Tuberculosis
2	Septicemia (except in labor)	2	Septicemia (except in labor)
3	Bacterial infection; unspecified site	3	Bacterial infection; unspecified site
4	Mycoses	4	Mycoses
5	HIV infection	5	HIV infection
7	Viral infection	7	Viral infection
8	Other infections; including parasitic	8	Other infections; including parasitic
9	Sexually transmitted infections (not HIV or hepatitis)	9	Sexually transmitted infections (not HIV or hepatitis)
54	Gout and other crystal arthropathies	54	Gout and other crystal arthropathies
55	Fluid and electrolyte disorders	55	Fluid and electrolyte disorders
60	Acute posthemorrhagic anemia	60	Acute posthemorrhagic anemia
61	Sickle cell anemia	61	Sickle cell anemia
63	Diseases of white blood cells	63	Diseases of white blood cells
76	Meningitis (except that caused by tuberculosis or sexually transmitted disease)	76	Meningitis (except that caused by tuberculosis or sexually transmitted disease)
77	Encephalitis (except that caused by tuberculosis or sexually transmitted disease)	77	Encephalitis (except that caused by tuberculosis or sexually transmitted disease)
78	Other CNS infection and poliomyelitis	78	Other CNS infection and poliomyelitis
82	Paralysis	82	Paralysis
83	Epilepsy; convulsions	83	Epilepsy; convulsions
84	Headache; including migraine	84	Headache; including migraine
85	Coma; stupor; and brain damage	85	Coma; stupor; and brain damage
87	Retinal detachments; defects; vascular occlusion; and retinopathy	87	Retinal detachments; defects; vascular occlusion; and retinopathy
89	Blindness and vision defects	89	Blindness and vision defects

ICD-9-CM Diagnosis CCS	Description	ICD-10 Diagnosis CCS	Description
90	Inflammation; infection of eye (except that caused by tuberculosis or sexually transmitted disease)	90	Inflammation; infection of eye (except that caused by tuberculosis or sexually transmitted disease)
91	Other eye disorders	91	Other eye disorders
92	Otitis media and related conditions	92	Otitis media and related conditions
93	Conditions associated with dizziness or vertigo	93	Conditions associated with dizziness or vertigo
99	Hypertension with complications and secondary hypertension	99	Hypertension with complications and secondary hypertension
100	Acute myocardial infarction (with the exception of ICD-9 codes 410.x2)	100	Acute myocardial infarction
102	Nonspecific chest pain	102	Nonspecific chest pain
104	Other and ill-defined heart disease	104	Other and ill-defined heart disease
107	Cardiac arrest and ventricular fibrillation	107	Cardiac arrest and ventricular fibrillation
109	Acute cerebrovascular disease	109	Acute cerebrovascular disease
112	Transient cerebral ischemia	112	Transient cerebral ischemia
116	Aortic and peripheral arterial embolism or thrombosis	116	Aortic and peripheral arterial embolism or thrombosis
118	Phlebitis; thrombophlebitis/thromboembolism	118	Phlebitis; thrombophlebitis and thromboembolism
120	Hemorrhoids	120	Hemorrhoids
122	Pneumonia (except that caused by TB or sexually transmitted disease)	122	Pneumonia (except that caused by TB or sexually transmitted disease)
123	Influenza	123	Influenza
124	Acute and chronic tonsillitis	124	Acute and chronic tonsillitis
125	Acute bronchitis	125	Acute bronchitis
126	Other upper respiratory infections	126	Other upper respiratory infections
127	Chronic obstructive pulmonary disease and bronchiectasis	127	Chronic obstructive pulmonary disease and bronchiectasis
128	Asthma	128	Asthma
129	Aspiration pneumonitis; food/vomitus	129	Aspiration pneumonitis; food/vomitus
130	Pleurisy; pneumothorax; pulmonary collapse	130	Pleurisy; pneumothorax; pulmonary collapse
131	Respiratory failure; insufficiency; arrest (adult)	131	Respiratory failure; insufficiency; arrest (adult)
135	Intestinal infection	135	Intestinal infection
137	Diseases of mouth; excluding dental	137	Diseases of mouth; excluding dental
139	Gastroduodenal ulcer (except hemorrhage)	139	Gastroduodenal ulcer (except hemorrhage)
140	Gastritis and duodenitis	140	Gastritis and duodenitis
142	Appendicitis and other appendiceal conditions	142	Appendicitis and other appendiceal conditions
145	Intestinal obstruction without hernia	145	Intestinal obstruction without hernia
146	Diverticulosis and diverticulitis	146	Diverticulosis and diverticulitis
148	Peritonitis and intestinal abscess	148	Peritonitis and intestinal abscess
153	Gastrointestinal hemorrhage	153	Gastrointestinal hemorrhage
154	Noninfectious gastroenteritis	154	Noninfectious gastroenteritis
157	Acute and unspecified renal failure	157	Acute and unspecified renal failure
159	Urinary tract infections	159	Urinary tract infections
165	Inflammatory conditions of male genital organs	165	Inflammatory conditions of male genital organs
168	Inflammatory diseases of female pelvic organs	168	Inflammatory diseases of female pelvic organs
172	Ovarian cyst	172	Ovarian cyst

ICD-9-CM Diagnosis CCS	Description	ICD-10 Diagnosis CCS	Description
197	Skin and subcutaneous tissue infections	197	Skin and subcutaneous tissue infections
198	Other inflammatory condition of skin	198	Other inflammatory condition of skin
225	Joint disorders and dislocations; trauma-related	225	Joint disorders and dislocations; trauma-related
226	Fracture of neck of femur (hip)	226	Fracture of neck of femur (hip)
227	Spinal cord injury	227	Spinal cord injury
228	Skull and face fractures	228	Skull and face fractures
229	Fracture of upper limb	229	Fracture of upper limb
230	Fracture of lower limb	230	Fracture of lower limb
232	Sprains and strains	232	Sprains and strains
233	Intracranial injury	233	Intracranial injury
234	Crushing injury or internal injury	234	Crushing injury or internal injury
235	Open wounds of head; neck; and trunk	235	Open wounds of head; neck; and trunk
237	Complication of device; implant or graft	237	Complication of device; implant or graft
238	Complications of surgical procedures or medical care	238	Complications of surgical procedures or medical care
239	Superficial injury; contusion	239	Superficial injury; contusion
240	Burns	240	Burns
241	Poisoning by psychotropic agents	241	Poisoning by psychotropic agents
242	Poisoning by other medications and drugs	242	Poisoning by other medications and drugs
243	Poisoning by nonmedicinal substances	243	Poisoning by nonmedicinal substances
244	Other injuries and conditions due to external causes	244	Other injuries and conditions due to external causes
245	Syncope	245	Syncope
246	Fever of unknown origin	246	Fever of unknown origin
247	Lymphadenitis	247	Lymphadenitis
249	Shock	249	Shock
250	Nausea and vomiting	250	Nausea and vomiting
251	Abdominal pain	251	Abdominal pain
252	Malaise and fatigue	252	Malaise and fatigue
253	Allergic reactions	253	Allergic reactions
259	Residual codes; unclassified	259	Residual codes; unclassified
650	Adjustment disorders	650	Adjustment disorders
651	Anxiety disorders	651	Anxiety disorders
652	Attention-deficit, conduct, and disruptive behavior disorders	652	Attention-deficit
653	Delirium, dementia, and amnestic and other cognitive disorders	653	Delirium
656	Impulse control disorders, NEC	656	Impulse control disorders
658	Personality disorders	658	Personality disorders
660	Alcohol-related disorders	660	Alcohol-related disorders
661	Substance-related disorders	661	Substance-related disorders
662	Suicide and intentional self-inflicted injury	662	Suicide and intentional self-inflicted injury
663	Screening and history of mental health and substance abuse codes	663	Screening and history of mental health and substance abuse codes
670	Miscellaneous disorders	670	Miscellaneous disorders

ICD-9-CM Codes	Description	ICD-10 Codes	Description
Acute ICD-9 Codes Within Dx CCS 97: Peri-; Endo-; and Myocarditis; Cardiomyopathy		**Acute ICD-10 Codes Within Dx CCS 97: Peri-; Endo-; and Myocarditis; Cardiomyopathy**	
03282	Diphtheritic myocarditis	A3681	Diphtheritic cardiomyopathy
03640	Meningococcal carditis nos	A3950	Meningococcal carditis, unspecified
03641	Meningococcal pericarditis	A3953	Meningococcal pericarditis
03642	Meningococcal endocarditis	A3951	Meningococcal endocarditis
03643	Meningococcal myocarditis	A3952	Meningococcal myocarditis
07420	Coxsackie carditis nos	B3320	Viral carditis, unspecified
07421	Coxsackie pericarditis	B3323	Viral pericarditis
07422	Coxsackie endocarditis	B3321	Viral endocarditis
07423	Coxsackie myocarditis	B3322	Viral myocarditis
11281	Candidal endocarditis	B376	Candidal endocarditis
11503	Histoplasma capsulatum pericarditis	B394	Histoplasmosis capsulati, unspecified
		I32	Pericarditis in diseases classified elsewhere
11504	Histoplasma capsulatum endocarditis	B394	Histoplasmosis capsulati, unspecified
		I39	Endocarditis and heart valve disorders in diseases classified elsewhere
11513	Histoplasma duboisii pericarditis	B395	Histoplasmosis duboisii
		I32	Pericarditis in diseases classified elsewhere
11514	Histoplasma duboisii endocarditis	B395	Histoplasmosis duboisii
		I39	Endocarditis and heart valve disorders in diseases classified elsewhere
11593	Histoplasmosis pericarditis	B399	Histoplasmosis, unspecified
		I32	Pericarditis in diseases classified elsewhere
11594	Histoplasmosis endocarditis	I39	Endocarditis and heart valve disorders in diseases classified elsewhere
		B399	Histoplasmosis, unspecified
1303	Toxoplasma myocarditis	B5881	Toxoplasma myocarditis
3910	Acute rheumatic pericarditis	I010	Acute rheumatic pericarditis
3911	Acute rheumatic endocarditis	I011	Acute rheumatic endocarditis
3912	Acute rheumatic myocarditis	I012	Acute rheumatic myocarditis
3918	Acute rheumatic heart disease nec	I018	Other acute rheumatic heart disease
3919	Acute rheumatic heart disease nos	I019	Acute rheumatic heart disease, unspecified
3920	Rheumatic chorea w heart involvement	I020	Rheumatic chorea with heart involvement
3980	Rheumatic myocarditis	I090	Rheumatic myocarditis
39890	Rheumatic heart disease nos	I099	Rheumatic heart disease, unspecified
39899	Rheumatic heart disease nec	I0989	Other specified rheumatic heart diseases
4200	Acute pericarditis in other disease	I32	Pericarditis in diseases classified elsewhere
		M3212	Pericarditis in systemic lupus erythematosus
42090	Acute pericarditis nos	I301	Infective pericarditis
		I309	Acute pericarditis, unspecified
42091	Acute idiopath pericarditis	I300	Acute nonspecific idiopathic pericarditis
42099	Acute pericarditis nec	I308	Other forms of acute pericarditis
		I309	Acute pericarditis, unspecified
4210	Acute/subacute bacterial endocarditis	I330	Acute and subacute infective endocarditis

ICD-9-CM Codes	Description	ICD-10 Codes	Description
4211	Acute endocarditis in other diseases	I39	Endocarditis and heart valve disorders in diseases classified elsewhere
4219	Acute/subacute endocarditis nos	I339	Acute and subacute endocarditis, unspecified
4220	Acute myocarditis in other diseases	I41	Myocarditis in diseases classified elsewhere
42290	Acute myocarditis nos	I409	Acute myocarditis, unspecified
42291	Idiopathic myocarditis	I400	Infective myocarditis
		I401	Isolated myocarditis
42292	Septic myocarditis	I400	Infective myocarditis
42293	Toxic myocarditis	I408	Other acute myocarditis
42299	Acute myocarditis nec	I408	Other acute myocarditis
4230	Hemopericardium	I312	Hemopericardium, not elsewhere classified
4231	Adhesive pericarditis	I310	Chronic adhesive pericarditis
4232	Constrictive pericarditis	I311	Chronic constrictive pericarditis
4233	Cardiac tamponade	I314	Cardiac tamponade
4290	Myocarditis nos	I514	Myocarditis, unspecified
Acute ICD-9 Codes Within Dx CCS 105: Conduction Disorders		**Acute ICD-10 Codes Within Dx CCS 105: Conduction Disorders**	
4260	Atrioventricular	I442	Atrioventricular block, complete
42610	Atrioventricular block nos	I4430	Unspecified atrioventricular block
42611	Atrioventricular block-1st degree	I440	Atrioventricular block, first degree
42612	Atrioventricular block-mobitz ii	I441	Atrioventricular block, second degree
42613	Atrioventricular block-2nd degree nec	I441	Atrioventricular block, second degree
4262	Left bundle branch hemiblock	I4469	Other fascicular block
		I444	Left anterior fascicular block
		I445	Left posterior fascicular block
		I4460	Unspecified fascicular block
4263	Left bundle branch block nec	I447	Left bundle-branch block, unspecified
4264	Right bundle branch block	I450	Right fascicular block
		I4510	Unspecified right bundle-branch block
		I4519	Other right bundle-branch block
42650	Bundle branch block nos	I4430	Unspecified atrioventricular block
		I4439	Other atrioventricular block
		I454	Nonspecific intraventricular block
42651	Right bundle branch block/left posterior fascicular block	I452	Bifascicular block
42652	Right bundle branch block/left ant fascicular block	I452	Bifascicular block
42653	Bilateral bundle branch block nec	I452	Bifascicular block
42654	Trifascicular block	I453	Trifascicular block
4266	Other heart block	I455	Other specified heart block
4267	Anomalous atrioventricular excitation	I456	Pre-excitation syndrome
42681	Lown-ganong-levine syndrome	I456	Pre-excitation syndrome
42682	Long qt syndrome	I4581	Long QT syndrome
4269	Conduction disorder nos	I459	Conduction disorder, unspecified
Acute ICD-9 Codes Within Dx CCS 106: Dysrhythmia		**Acute ICD-10 Codes Within Dx CCS 106: Dysrhythmia**	
4272	Paroxysmal tachycardia nos	I479	Paroxysmal tachycardia, unspecified

ICD-9-CM Diagnosis CCS	Description	ICD-10 Diagnosis CCS	Description
7850	Tachycardia nos	R000	Tachycardia, unspecified
42789	Cardiac dysrhythmias nec	I498	Other specified cardiac arrhythmias
		R001	Bradycardia, unspecified
4279	Cardiac dysrhythmia nos	I499	Cardiac arrhythmia, unspecified
42769	Premature beats nec	I493	Ventricular premature depolarization
		I4949	Other premature depolarization
Acute ICD-9-CM Codes Within Dx CCS 108: Congestive Heart Failure; Nonhypertensive		**Acute ICD-10 Codes Within Dx CCS 108: Congestive Heart Failure; Nonhypertensive**	
39891	Rheumatic heart failure	I0981	Rheumatic heart failure
4280	Congestive heart failure	I509	Heart failure, unspecified
		I5022	Chronic systolic (congestive) heart failure
		I5032	Chronic diastolic (congestive) heart failure
		I5042	Chronic combined systolic/diastolic hrt failure
4281	Left heart failure	I501	Left ventricular failure
42820	Unspecified systolic heart failure	I5020	Unspecified systolic (congestive) heart failure
42821	Acute systolic heart failure	I5021	Acute systolic (congestive) heart failure
42823	Acute on chronic systolic heart failure	I5023	Acute on chronic systolic (congestive) heart failure
42830	Unspecified diastolic heart failure	I5030	Unspecified diastolic (congestive) heart failure
42831	Acute diastolic heart failure	I5031	Acute diastolic (congestive) heart failure
42833	Acute on chronic diastolic heart failure	I5033	Acute on chronic diastolic (congestive) heart failure
42840	Unspec combined syst & dias heart failure	I5040	Unsp combined systolic and diastolic (congestive) hrt fail
42841	Acute combined systolic & diastolic heart failure	I5041	Acute combined systolic (congestive) and diastolic (congestive) heart failure
42843	Acute on chronic combined systolic & diastolic heart failure	I5043	Acute on chronic combined systolic (congestive) and diastolic (congestive) heart failure
4289	Heart failure nos	I509	Heart failure, unspecified
Acute ICD-9-CM Codes Within Dx CCS 149: Biliary Tract Disease		**Acute ICD-10 Codes Within Dx CCS 149: Biliary Tract Disease**	
57400	Calculus of gallbladder with acute cholecystitis without mention of obstruction	K8000	Calculus of gallbladder w acute cholecyst w/o obstruction
		K8012	Calculus of GB w acute and chronic cholecyst w/o obstruction
57401	Calculus of gallbladder with acute cholecystitis with obstruction	K8001	Calculus of gallbladder w acute cholecystitis w obstruction
		K8013	Calculus of GB w acute and chronic cholecyst w obstruction

ICD-9-CM Codes	Description	ICD-10 Codes	Description
57430	Calculus of bile duct with acute cholecystitis without mention of obstruction	K8042	Calculus of bile duct w acute cholecystitis w/o obstruction
		K8046	Calculus of bile duct w acute and chronic cholecyst w/o obst

ICD-9-CM Codes	Description	ICD-10 Codes	Description
57431	Calculus of bile duct with acute cholecystitis with obstruction	K8043	Calculus of bile duct w acute cholecystitis with obstruction
		K8047	Calculus of bile duct w acute and chronic cholecyst w obst
57460	Calculus of gallbladder and bile duct with acute cholecystitis w/o obstruction	K8062	Calculus of GB and bile duct w acute cholecyst w/o obst
57461	Calculus of gallbladder and bile duct with acute cholecystitis with obstruction	K8063	Calculus of GB and bile duct w acute cholecyst w obstruction
57480	Calculus of gallbladder and bile duct with acute and chronic cholecystitis without mention of obstruction	K8066	Calculus of GB and bile duct w ac and chr cholecyst w/o obst
57481	Calculus of gallbladder and bile duct with acute and chronic cholecystitis with obstruction	K8067	Calculus of GB and bile duct w ac and chr cholecyst w obst
5750	Acute cholecystitis	K810	Acute cholecystitis
57512	Acute and chronic cholecystitis	K812	Acute cholecystitis with chronic cholecystitis
5761	Cholangitis	K8030	Calculus of bile duct w cholangitis, unsp, w/o obstruction
		K8031	Calculus of bile duct w cholangitis, unsp, with obstruction
		K8032	Calculus of bile duct with acute cholangitis w/o obstruction
		K8033	Calculus of bile duct w acute cholangitis with obstruction
		K8034	Calculus of bile duct w chronic cholangitis w/o obstruction
		K8035	Calculus of bile duct w chronic cholangitis with obstruction
		K8036	Calculus of bile duct w acute and chr cholangitis w/o obst
		K8037	Calculus of bile duct w acute and chronic cholangitis w obst
		K830	Cholangitis
Acute ICD-9-CM Codes Within Dx CCS 152: Pancreatic Disorders		**Acute ICD-10 Codes Within Dx CCS 152: Pancreatic Disorders**	
5770	Acute Pancreatitis	K859	Acute pancreatitis, unspecified
		B252	Cytomegaloviral pancreatitis
		K850	Idiopathic acute pancreatitis
		K851	Biliary acute pancreatitis
		K852	Alcohol induced acute pancreatitis
		K853	Drug induced acute pancreatitis
		K858	Other acute pancreatitis