

ACO #8 – Risk Standardized All Condition Readmissions

Measure Information Form (MIF)

Data Source

- Medicare Inpatient Claims
- Medicare beneficiary enrollment data

Measure Set ID

- ACO #8

Version Number and Effective Date

- Version 2.1, effective 1/1/15

CMS Approval Date

- 11/18/14

NQF ID

- #1789, adapted for quality measurement in Accountable Care Organizations

Date Endorsed

- N/A

Care Setting

- Hospital

Unit of Measurement

- Accountable Care Organization (ACO)

Measurement Duration

- Calendar Year

Measurement Period

- Calendar Year

Measure Type

- Outcome

Measure Scoring

- Risk-standardized readmission rate (RSRR)

Payer Source

- Medicare Fee-for-Service

Improvement Notation

- Lower RSRR scores are better

Measure Steward

- Centers for Medicare and Medicaid Services

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- This ACO risk standardized all condition readmission quality measure is adapted from a hospital risk standardized all condition readmission quality measure developed for CMS by Yale in 2011 and updated by Yale in 2014 (Horwitz et al., 2014).

Measure Description

- Risk-adjusted percentage of Accountable Care Organization (ACO) assigned beneficiaries who were hospitalized and readmitted to a hospital within 30 days of discharge from the index hospital admission.

Rationale

Readmission following an acute care hospitalization is a costly and often preventable event. During 2003 and 2004, almost one-fifth of Medicare beneficiaries – more than 2.3 million patients – were readmitted within 30 days of discharge (Jencks et al., 2009). A Commonwealth Fund report estimated that if national readmission rates were lowered to the levels achieved by the top performing regions, Medicare would save \$1.9 billion annually.

Hospital readmission is also disruptive to patients and caregivers, and puts patients at additional risk of hospital-acquired infections and complications (Horwitz et al., 2011). Some readmissions are unavoidable, but readmissions may also result from poor quality of care, inadequate coordination of care, or lack of effective discharge planning and transitional care.

Since studies have shown readmissions within 30 days to often be related to quality of care, coordination of care, or other factors within the control of health care providers, interventions have been able to reduce 30-day readmission rates for a variety of medical conditions. High readmission rates and institutional variation in readmission rates indicate an opportunity for improvement; it is important to consider an all-condition 30-day readmission rate as a quality measure (Horwitz et al., 2011).

Clinical Recommendation Statement

Randomized controlled trials have shown that improvement in health care can directly reduce readmission rates, including the following interventions: quality of care during the initial admission; improvement in communication with patients, caregivers and clinicians; patient education; predischARGE assessment; and coordination of care after discharge. (Naylor et al., 1994; 1999; Krumholz et al., 2002; van Walraven et al., 2002; Conley et al., 2003; Coleman et al., 2004; Phillips et al., 2004; Jovicic et al., 2006; Garasen et al., 2007; Mistiaen et al., 2007; Courtney et al., 2009; Jack et al., 2009; Koehler et al., 2009; Weiss et al., 2010; Stauffer et al., 2011; Voss et al., 2011). Successful randomized trials have reduced 30-day readmission rates by as much as 20-40% (Horwitz et al., 2011).

ACOs will have incentives under the Medicare Shared Savings Program and Pioneer Model to manage the range of medical care, coordination of care, and other factors affecting readmission rates for their assigned beneficiaries. By taking responsibility for all aspects of the medical care of their assigned beneficiaries, ACOs will be able to assess the range of possible interventions affecting readmissions and then select the interventions appropriate for each population of patients included in among their assigned beneficiaries.

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Release Notes / Summary of Changes

- Updated the measure specifications to incorporate ICD-10 diagnosis in preparation for the October 2015 ICD-10 transitions.
- An addendum to this MIF will be released in fall 2015 to reflect the ICD-10 mapping for the CMS Condition Categories (CMS-CCs) used for risk adjustment.

Technical Specifications

- Target Population
- ACO assigned or aligned Medicare beneficiaries

Denominator

- Denominator Statement

All relevant hospitalizations for ACO assigned beneficiaries aged 65 or older at non-Federal, short-stay acute-care or critical access hospitals.

- Denominator Details

The ICD-9 or ICD-10 diagnosis and procedure codes of the index admission are aggregated into clinically coherent groups of conditions/procedures (condition categories or procedure categories) by using the Agency for Healthcare Research and Quality (AHRQ) Clinical Classifications System (CCS). Each admission is assigned to one of five mutually exclusive specialty cohorts: medicine, surgery/gynecology, cardiorespiratory, cardiovascular, and neurology. The cohorts reflect how care for patients is organized within hospitals. To assign admissions to cohorts, admissions are first screened for the presence of an eligible surgical procedure category. Admissions with an eligible surgical procedure category are assigned to the surgical cohort, regardless of the diagnosis code of the admission. All remaining admissions are assigned to cohorts based on the discharge condition category of the principal diagnosis.

Rationale: Conditions typically cared for by the same team of clinicians are expected to experience similar added (or reduced) levels of readmission risk. The surgery/gynecology cohort includes admissions likely cared for by surgical or gynecological teams. These admissions are identified using AHRQ procedure categories. The cardiorespiratory cohort includes several condition categories with very high readmission rates such as pneumonia, chronic obstructive pulmonary disease, and heart failure. These admissions are combined into a single cohort because they are often clinically indistinguishable and patients are often simultaneously treated for several of these diagnoses. The cardiovascular cohort includes condition categories such as acute myocardial infarction that in large hospitals might be cared for by a separate cardiac or cardiovascular team. The neurology cohort includes neurologic condition categories such as stroke that in large hospitals might be cared for by a separate neurology team. The medicine cohort includes all non-surgical patients who were not assigned to any of the other cohorts. For further details, and list of CCS' by category see Horwitz et al. (2014).

In order to define the eligible admissions, the ICD-9 or ICD-10 codes of the index admission are first aggregated into clinically coherent conditions by using the Agency for Healthcare Research and Quality's Clinical Classifications

Software (CCS). There are a total of 285 mutually exclusive AHRQ condition categories, most of which are single, homogenous diseases such as pneumonia or acute myocardial infarction. Some are aggregates of conditions, such as “other bacterial infections.” Mental health and substance abuse categories are included. In addition, AHRQ provides 231 mutually exclusive procedure categories to group procedures a patient might have had during hospitalization.

Admissions are eligible for inclusion in the measure if:

1. Patient is enrolled in Medicare FFS
Rationale: Claims data are consistently available only for Medicare FFS beneficiaries
2. Patient is aged 65 years or older
Rationale: Medicare patients younger than 65 usually qualify for the program due to severe disability. They are not included in the measure because Medicare patients younger than 65 are considered to be too clinically distinct from Medicare patients 65 and over.
3. Patient was discharged from a non-federal acute care hospital
Rationale: Data from federal hospitals were not available during the development of this measure.
4. Patient did not die in the hospital
Rationale: Only patients who are discharged alive are eligible for readmission.
5. Patient is not transferred to another acute care facility upon discharge.
Rationale: Readmission is attributed to the hospital that discharged the patient to the non-acute care setting. Transferred patients are still included in the measure cohort (denominator), but the initial admitting hospital is not accountable for the outcome.
6. Patient is enrolled in Part A for the 12 months prior to and including the date of the index admission
Rationale: The 12-month prior enrollment ensures a full year of administrative data for risk adjustment.

Note that a readmission within 30 days will also be eligible as an index admission, if they meet all other eligibility criteria. This allows the measure to capture repeated readmissions for the same patient, whether at the same hospital or another.

Note: The measures consider multiple contiguous hospitalizations as a single acute episode of care. Admissions to a hospital within one day of discharge from another hospital are considered transfers, whether or not the first institution indicates intent to transfer the patient in the discharge disposition code. Readmissions for transferred patients are attributed to the hospital that ultimately discharges the patient to a non-acute care setting.

If a patient is readmitted to the same hospital on the same day of discharge for the same diagnosis as the index admission, the measure considers the patient to have had one single continuous admission. However, a diagnosis of the readmission that differs from the index admission is considered a readmission.

- Denominator Exclusions

Excluded from the measure are all admissions for which full data are not available or for which 30-day readmission by itself cannot reasonably be considered a signal of quality of care.

Exclusions:

1. Admissions for patients without 30 days of post-discharge data
Rationale: This is necessary in order to identify the outcome (readmission) in the dataset.
2. Admissions for patients lacking a complete enrollment history for the 12 months prior to admission
Rationale: This is necessary to capture historical data for risk adjustment.
3. Admissions for patients discharged against medical advice (AMA)
Rationale: Hospital had limited opportunity to implement high quality care.

4. Admissions for patients to a PPS-exempt cancer hospital
Rationale: These hospitals care for a unique population of patients that is challenging to compare to other hospitals.
5. Admissions for patients with medical treatment of cancer
Rationale: These admissions have a very different mortality and readmission profile than the rest of the Medicare population, and outcomes for these admissions do not correlate well with outcomes for other admissions. (Patients with cancer who are admitted for other diagnoses or for surgical treatment of their cancer remain in the measure).
6. Admissions for primary psychiatric disease
Rationale: Patients admitted for psychiatric treatment are typically cared for in separate psychiatric or rehabilitation centers which are not comparable to acute care hospitals.
7. Admissions for rehabilitation care
Rationale: These admissions are not for acute care or to acute care hospitals.

- Denominator Exceptions and Exclusions Details

Denominator exclusions are identified based on variables contained in the Integrated Data Repository (IDR). For Medicare FFS patients:

1. Lack of enrollment in Medicare FFS for 30 days post-discharge is identified by patient enrollment status in Part A FFS claims using CMS' IDR; the enrollment indicators must be appropriately marked for the month(s) which falls within 30 days of hospital discharge date.
2. Lack of continuous enrollment in Medicare FFS for 12 months prior to index hospital stay is determined by patient enrollment status in Part A FFS using CMS' IDR; the enrollment indicators must be appropriately marked for each of the 12 months prior to the index hospital stay
3. Discharges AMA are identified using the discharge disposition indicator within the IDR.
4. PPS-exempt cancer hospitals are identified by their Medicare provider ID.
5. Table 1 indicates all cancer discharge condition categories excluded from the measure.
6. Table 2 indicates all psychiatric discharge condition categories excluded from the measure.
7. Admissions for rehabilitation care are identified by principal diagnosis codes (ICD-9 codes) included in CCS 254

In addition, in-hospital deaths are identified using the discharge disposition vital status indicator in the IDR and transfers to other acute care facilities are identified in the claims when a patient is discharged from an acute care hospital and admitted to another acute care hospital on the same day or next day.

Table 1: Cancer discharge condition categories excluded from the measure (Medicare FFS data)

ICD-9 AHRQ Diagnosis CCS	Description	ICD-10 AHRQ Diagnosis CCS	Description
11	Cancer of head and neck	11	Cancer of head and neck
12	Cancer of esophagus	12	Cancer of esophagus
13	Cancer of stomach	13	Cancer of stomach
14	Cancer of colon	14	Cancer of colon
15	Cancer of rectum and anus	15	Cancer of rectum and anus
16	Cancer of liver and intrahepatic bile duct	16	Cancer of liver and intrahepatic bile duct
17	Cancer of pancreas	17	Cancer of pancreas
18	Cancer of other GI organs; peritoneum	18	Cancer of other GI organs; peritoneum
19	Cancer of bronchus; lung	19	Cancer of bronchus; lung
20	Cancer; other respiratory and intrathoracic	20	Cancer; other respiratory and intrathoracic
21	Cancer of bone and connective tissue	21	Cancer of bone and connective tissue
22	Melanomas of skin	22	Melanomas of skin
23	Other non-epithelial cancer of skin	23	Other non-epithelial cancer of skin
24	Cancer of breast	24	Cancer of breast
25	Cancer of uterus	25	Cancer of uterus
26	Cancer of cervix	26	Cancer of cervix
27	Cancer of ovary	27	Cancer of ovary
28	Cancer of other female genital organs	28	Cancer of other female genital organs
29	Cancer of prostate	29	Cancer of prostate
30	Cancer of testis	30	Cancer of testis
31	Cancer of other male genital organs	31	Cancer of other male genital organs
32	Cancer of bladder	32	Cancer of bladder
33	Cancer of kidney and renal pelvis	33	Cancer of kidney and renal pelvis
34	Cancer of other urinary organs	34	Cancer of other urinary organs
35	Cancer of brain and nervous system	35	Cancer of brain and nervous system
36	Cancer of thyroid	36	Cancer of thyroid
37	Hodgkin's disease	37	Hodgkin's disease
38	Non-Hodgkin's lymphoma	38	Non-Hodgkin's lymphoma
39	Leukemias	39	Leukemias
40	Multiple myeloma	40	Multiple myeloma
41	Cancer; other and unspecified primary	41	Cancer; other and unspecified primary
42	Secondary malignancies	42	Secondary malignancies
43	Malignant neoplasm without specification of site	43	Malignant neoplasm without specification of site
44	Neoplasms of unspecified nature or uncertain behavior	44	Neoplasms of unspecified nature or uncertain behavior
45	Maintenance chemotherapy; radiotherapy	45	Maintenance chemotherapy; radiotherapy

Table 2: Psychiatric discharge condition categories excluded from the measure (Medicare FFS data)

ICD-9 AHRQ Diagnosis CCS	Description	ICD-10 AHRQ Diagnosis CCS	Description
650	Adjustment disorders	650	Adjustment disorders
651	Anxiety disorders	651	Anxiety disorders
652	Attention-deficit, conduct, and disruptive behavior disorders	652	Attention deficit
654	Developmental disorders	654	Developmental disorders
655	Disorders usually diagnosed in infancy, childhood, or adolescence	655	Disorders usually diagnosed in infancy
656	Impulse control disorders, NEC	656	Impulse control disorders
657	Mood disorders	657	Mood disorders
658	Personality disorders	658	Personality disorders
659	Schizophrenia and other psychotic disorders	659	Schizophrenia and other psychotic disorders
662	Suicide and intentional self-inflicted injury	662	Suicide and intentional self-inflicted injury
670	Miscellaneous disorders	670	Miscellaneous disorders

Numerator

- Numerator Statement

Risk-adjusted unplanned readmissions at a non-Federal, short-stay, acute-care or critical access hospital, within 30 days of discharge from the index admission included in the denominator.

- Numerator Details

The outcome for this measure is unplanned all-cause readmission within 30 days of discharge date of an eligible index admission. Because planned readmissions are not a signal of quality of care, the measure does not count planned readmissions in the outcome. The measure uses an algorithm to identify “planned readmissions” in claims data that will not count as readmissions in the measure. The algorithm is based on three main principles:

1. A few specific, limited types of care are always considered planned (transplant surgery, maintenance chemotherapy/radiotherapy/ immunotherapy, rehabilitation);
2. Otherwise, a planned readmission is defined as a non-acute readmission for a scheduled procedure; and
3. Admissions for acute illness or for complications of care are never planned.

The algorithm which was originally developed in 2011, and later updated in 2013, to identify planned readmissions uses a flowchart and four tables of specific procedure categories and discharge diagnosis categories to classify readmissions as planned. Readmissions are considered planned if any of the following occurs during the readmission

1. A procedure is performed that is in one of the procedure categories that are always planned regardless of diagnosis (table 3);
2. The principal diagnosis is in one of the diagnosis categories that are always planned (table 4); or
3. A procedure is performed that is in one of the potentially planned procedure categories (or partial categories) (Appendix A) and the principal diagnosis is not in the list of acute discharge diagnoses (Appendix B).

Table 3: Procedure Categories that Are Always Considered Planned

ICD-9 AHRQ Diagnosis CCS	Description	ICD-10 AHRQ Diagnosis CCS	Description
64	Bone marrow transplant	64	Bone marrow transplant
105	Kidney transplant	105	Kidney transplant
134	Cesarean section	134	Cesarean section
135	Forceps; vacuum; and breech delivery	135	Forceps; vacuum; and breech delivery
176	Other organ transplantation	176	Other organ transplantation (other than bone marrow corneal or kidney)

Table 4: Diagnosis Categories that Are Always Considered Planned

ICD-9 AHRQ Diagnosis CCS	Description	ICD-10 AHRQ Diagnosis CCS	Description
45	Maintenance chemotherapy	45	Maintenance chemotherapy
194	Forceps delivery	194	Forceps delivery
196	Normal pregnancy and/or delivery	196	Normal pregnancy and/or delivery
254	Rehabilitation	254	Rehabilitation

Stratification or Risk Adjustment

This measure uses risk adjustment and is not stratified.

For risk adjustment, hierarchical logistic regression models are used to model the log-odds of readmission within 30 days of discharge, as a function of patient-level demographic and clinical characteristics and a random ACO-level intercept. This model specification accounts for within-ACO correlation of the observed outcomes and models the assumption that underlying differences in quality among the ACOs being evaluated lead to systematic differences in outcomes. In brief, the approach simultaneously models two levels (patient and ACO) to account for the variance in patient outcomes within and between ACOs. At the patient level, each model adjusts the log-odds of readmission within 30-days of discharge for age and selected clinical covariates, identified ICD-9 or ICD-10 codes, grouped into CMS Condition Categories (CMS-CC). The second level models the ACO-specific intercepts as following a normal distribution. The ACO intercept represents the underlying ACO specific risk of readmission, after accounting for patient risk.

A fixed, common set of variables is used in all of the models for simplicity and ease of data collection and analysis. However, a hierarchical logistic regression model is estimated for each specialty cohort separately, and the coefficients associated with each variable may vary across specialty cohorts. To group ICD-9 or ICD-10 codes into comorbid risk variables, CMS Condition Category (CMS-CCs) groups are used.

This ACO-wide readmission quality measure was adapted from the hospital-wide readmission quality measure in two ways. First, the unit of analysis was changed from the hospital to the ACO. This was possible because both the hospital-wide readmission measure and the ACO-wide readmission measures assess readmission performance for a population that has patients clustered together (either in hospitals or in ACOs). The goal is to isolate the effects of beneficiary characteristics on the probability that a patient will be readmitted from the effects of being in a specific hospital or ACO. In addition, planned readmissions can be excluded for the ACO-wide readmission quality measure in the same way that they are excluded for the CMS hospital-wide readmission measure.

***Risk Variables Common to All HWR Specialty Cohorts**

CMS-CCs // Description

n/a // Mean age, years

CMS-CC 7 // Metastatic cancer/acute leukemia

CMS-CC 8, 9 // Severe Cancer

CMS-CC 10-12 // Other cancers

CMS-CC 44 // Severe hematological disorders

CMS-CC 46 // Coagulation defects and other specified hematological disorders

CMS-CC 47 // Iron deficiency or other unspecified anemias and blood disease

CMS-CC 25, 26 // End-stage liver disease

CMS-CC 32 // Pancreatic disease

CMS-CC 130 // Dialysis status

CMS-CC 131 // Acute renal failure

CMS-CC 128, 174 // Transplants

CMS-CC 1, 3-5 // Severe Infection

CMS-CC 6, 111-113 // Other infectious diseases and pneumonias

CMS-CC 2 // Septicemia/Shock

CMS-CC 80 // CHF

CMS-CC 81-84, 89, 98, 99, 103-106 // Coronary atherosclerosis or angina, cerebrovascular disease

CMS-CC 92, 93 // Specified arrhythmias

CMS-CC 79 // Cardio-respiratory failure or cardio-respiratory shock

CMS-CC 108 // COPD

CMS-CC 109 // Fibrosis of lung or other chronic lung disorders

CMS-CC 21 // Protein-calorie malnutrition

CMS-CC 22, 23 // Disorders of fluid, electrolyte, acid-base

CMS-CC 38 // Rheumatoid arthritis and inflammatory connective tissue disease

CMS-CC 15-20, 119, 120 // Diabetes mellitus

CMS-CC 148, 149 // Decubitus ulcer or chronic skin ulcer

CMS-CC 67-69, 100-102, 177, 178 // Hemiplegia, paraplegia, paralysis, functional disability

CMS-CC 74 // Seizure disorders and convulsions

CMS-CC 77 // Respirator dependence/tracheostomy status

CMS-CC 51, 52 // Drug and Alcohol disorders

CMS-CC 54-56, 58, 60 // Psychiatric comorbidity

CMS-CC 158 // Hip fracture/dislocation

*The CMS-CC codes list above are based on ICD-9 diagnosis codes. The ICD-10 diagnosis codes for the CMS-CCs will be posted in an addendum to this measure information form in fall 2015.

For further details see Horwitz et al., 2014.

Sampling

- N/A

Calculation Algorithm

1. Models for each specialty cohort are specified and estimated, using a separate hierarchical logistic regression model for that cohort. Each model is then used to calculate a standardized risk ratio (SRR) for each ACO which contributes index admissions to that model. These SRRs, weighted by volume, are then pooled for each ACO to create a composite ACO-wide SRR.
2. For each specialty cohort within an ACO, the numerator of the SRR ("predicted") is the number of readmissions for patients within the specialty cohort within 30 days predicted on the basis of the ACO's performance with its

observed case mix, and the denominator (“expected”) is the number of readmissions expected for patients within the specialty cohort on the basis of the overall performance with that ACO’s case mix. This approach is analogous to a ratio of “observed” to “expected” used in other types of statistical analyses. It conceptually allows for a comparison of a particular ACO’s performance given its case-mix to an average ACO’s performance with the same case-mix. Thus, an SRR less than 1 indicates lower-than-expected readmission or better quality and an SRR greater than 1 indicates higher-than-expected readmission or worse quality.

3. These SRRs are then pooled for each ACO to create a composite ACO-wide SRR. This pooled SRR is the geometric mean of the specialty cohort SRRs, weighted by the number of admissions in the specialty cohort, and the pooled SRR is then multiplied by the overall crude readmission rate to produce the risk standardized readmission rate (RSRR) for reporting.

For further details see Horwitz et al., 2014.

Appendix A: Procedure Categories That Are Potentially Planned

ICD-9 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
78	Colorectal resection	78	Colorectal resection
79	Local excision of large intestine lesion (not endoscopic)	79	Excision of large intestine lesion (not endoscopic)

(continued)

ICD-9 Procedure CCS	Description	ICD-10 Procedure CCS	Description
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

ICD-9 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 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 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
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
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

Appendix B: Acute Diagnosis Categories

ICD-9 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
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

(continued)

ICD-9 Diagnosis CCS	Description	ICD-10 Diagnosis CCS	Description
116	Aortic and peripheral arterial embolism or thrombosis	116	Aortic and peripheral arterial embolism or thrombosis
118	Phlebitis; thrombophlebitis and 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
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

(continued)

ICD-9 Diagnosis CCS	Description	ICD-10 Diagnosis CCS	Description
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 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	
3282	Diphtheritic myocarditis	A3681	Diphtheritic cardiomyopathy
3640	Meningococcal carditis nos	A3950	Meningococcal carditis, unspecified
3641	Meningococcal pericarditis	A3953	Meningococcal pericarditis
3642	Meningococcal endocarditis	A3951	Meningococcal endocarditis
3643	Meningococcal myocarditis	A3952	Meningococcal myocarditis
7420	Coxsackie carditis nos	B3320	Viral carditis, unspecified
7421	Coxsackie pericarditis	B3323	Viral pericarditis
7422	Coxsackie endocarditis	B3321	Viral endocarditis
7423	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
42090	Acute pericarditis nos	I309	Acute pericarditis, unspecified
42091	Acute idiopath pericarditis	I300	Acute nonspecific idiopathic pericarditis
42099	Acute pericarditis nec	I308	Other forms of acute pericarditis
4210	Acute/subacute bacterial endocarditis	I330	Acute and subacute infective endocarditis
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

(continued)

ICD-9 codes	Description	ICD-10 codes	Description
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	—	—
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	—	—
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	I4510	Unspecified 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	—	—
42653	Bilateral bundle branch block nec	—	—
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	—	—
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
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	I4949	Other premature depolarization

(continued)

ICD-9 codes	Description	ICD-10 codes	Description
Acute ICD-9 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
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 codes within Dx CCS 149: Biliary tract disease		Acute ICD-10 codes within Dx CCS 149: Biliary tract disease	
5740	Calculus of gallbladder with acute cholecystitis	—	—
57400	Calculus of gallbladder with acute cholecystitis without mention of obstruction	K8000	Calculus of gallbladder w acute cholecyst w/o obstruction
57401	Calculus of gallbladder with acute cholecystitis with obstruction	K8001	Calculus of gallbladder w acute cholecystitis w obstruction
5743	Calculus of bile duct with acute cholecystitis	—	—
57430	Calculus of bile duct with acute cholecystitis without mention of obstruction	K8042	Calculus of bile duct w acute cholecystitis w/o obstruction
57431	Calculus of bile duct with acute cholecystitis with obstruction	K8043	Calculus of bile duct w acute cholecystitis with obstruction
5746	Calculus of gallbladder and bile duct with acute cholecystitis	—	—
57460	Calculus of gallbladder and bile duct with acute cholecystitis without mention of 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

(continued)

ICD-9 codes	Description	ICD-10 codes	Description
5748	Calculus of gallbladder and bile duct with acute and chronic cholecystitis	—	—
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	K830	Cholangitis
Acute ICD-9 codes within Dx CCS 152: Pancreatic disorders		Acute ICD-10 codes within Dx CCS 152: Pancreatic disorders	
5770	Acute Pancreatitis	K859	Acute pancreatitis, unspecified