

Episode-of-Care for Chronic Management of CHF over 1-year Period

Measure Description

Resource use and costs associated with management of congestive heart failure (CHF) care over a one year period. Patients are identified in a management phase of CHF by including patients with CHF in the year prior to the measurement year and measure CHF-related resource use and costs during the measurement year.

Required Data Elements

Administrative claims data

Calculation

For patients meeting inclusion criteria, determine CHF-related resource use and costs over a one-year period in the measurement year. Prices from a standard price list will be applied to the CHF-related resource use to estimate the costs of the episode of care related to CHF. Resources will be defined for ten categories: 1) inpatient facility; 2) evaluation and management; 3) procedures; 4) imaging; 5) tests; 6) DME; 7) other drugs and services; 8) medications; 9) outpatient facility; and 10) other. For inpatient facility costs, the standard cost is based on a per diem cost for a DRG and will be multiplied by the length of stay for the event. Hospitalizations will be included as CHF related if and only if the primary diagnosis code for the hospitalization is CHF related. For each of the other resource use categories, standardized prices will be assigned to each type of utilization that is defined as CHF related. Episodes with \$0 costs in the measurement period will be excluded.

Episode Definition

CHF-related costs

Rationale

The Institute of Medicine and AQA have identified congestive heart failure (CHF) as one of 20 conditions that should be considered priority areas in need of quality improvement based on its relevance to a significant volume of patients, its impact on those patients, and the perception of opportunity to significantly improve the quality of related care. CHF had also been previously identified as a priority area in other national initiatives including the VA's Quality Enhancement Research Initiative, HRSA's Health Disparities Collaboratives, and the Quality Improvement Program at CMS.¹ In addition, CHF episodes tend to be relatively high-resource episodes – the direct and indirect costs of

¹ Priority Areas for National Action: Transforming Health Care Quality. Institute of Medicine. Karen Adams and Janet Corrigan Editors. March 10, 2003.

CHF for the approximately 5 million Americans living with CHF are approximately \$33 billion annually, or \$6,600 per patient.² Furthermore, costs per CHF patient can vary dramatically from one provider to the next as well as across regions, in part because of underlying patient risk factors and comorbidities (for which this measure adjusts), but also because of variations in practice patterns.

Congestive heart failure (CHF) is a chronic condition with intermittent exacerbations that may result in hospitalizations. Therefore, resource use in the care of CHF patients will be measured in two different ways. To measure variation in resource use associated with the longer-term management of chronic CHF patients, the measurement period will be as long as can be considered easily implemented, a one-year period. Measuring variation in resource use associated with CHF exacerbations and post-acute care is reserved for a separate measure. To reduce the heterogeneity of the denominator population, the inclusion criteria were designed to ensure each of the included patients has CHF and some history of related physician management prior to the measurement period.

This measure will be attributed at the individual physician level because in most cases a single physician, typically the patient's primary care doctor or designated specialist, is responsible for the patient's evaluation, management, and treatment.

Measures

- CHF-related resource use / costs
 - Inpatient Facility
 - Evaluation and Management
 - Procedures
 - Imaging
 - Tests
 - DME
 - Other drugs and services
 - Exceptions / Unclassified
 - Other
 - Pharmacy
 - Outpatient Facility

Eligible Population

Age

Age \geq 18 yrs

Enrollment Criteria

Continuous medical and pharmacy benefit enrollment for at least one year preceding the measurement year and during the measurement year, with no more than one gap in enrollment of more than 45 days during each year of continuous enrollment.

² Patient Health Status and Costs in Heart Failure: Insights From the Eplerenone Post-Acute Myocardial Infarction Heart Failure Efficacy and Survival Study (EPHESUS). *Circulation*, Jan 2009; 119: 398 - 407.

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Inclusion Criteria Patients included in the measure must have at least two ambulatory visits for CHF-related care with at least one visit > 1 month prior to the measurement year (See Table CHF-A for codes).

Exclusion Patients with prior hospitalization for CHF are excluded if there was (See Table CHF-C for codes):
a hospitalization within 6 months prior to the measurement year with 1) a primary diagnosis of CHF or 2) a secondary diagnosis of CHF with a primary cardiopulmonary diagnosis

Persons with any of the following diagnoses in the measurement year or the year prior to measurement are excluded (see Table CHF-C for codes):
active cancer; end stage renal disease (ESRD); dialysis; organ transplant; HIV/AIDS; pregnancy; left ventricular assist device (LVAD); mechanical assist devices

Table CHF-A: Diagnostic codes for CHF-related ambulatory care to identify CHF patients

Description	ICD-9 Code
Rheumatic Heart Failure (congestive)	398.91
Malignant Hypertensive Heart Disease with CHF	402.01
Benign Hypertensive Heart Disease with CHF	402.11
Hypertensive Heart Disease with CHF	402.91
Hypertensive Heart and Renal Disease, Malignant, With CHF	404.01, 404.03, 404.11
Hypertensive Heart And Renal Disease, Benign, With CHF	404.13
Hypertensive Heart And Renal Disease, Unspecified, With CHF	404.91
Hypertensive Heart + Renal Failure, Unspecified, With CHF	404.93
Heart Failure	428.xx
Congestive Heart Failure	428.0
Left Heart Failure	428.1
Systolic Heart Failure	428.2, 428.20, 428.21, 428.22, 428.23
Diastolic Heart Failure	428.3, 428.30, 428.31, 428.32, 428.33
Combined Systolic and Diastolic Heart Failure	428.4
Combined Systolic and Diastolic Heart Failure, unspecified	428.40
Combined Systolic and Diastolic Heart Failure, acute, chronic, acute on chronic	428.41, 428.42, 428.43
Heart Failure, unspecified	428.9

These ICD-9 codes, present in a primary or secondary diagnostic field, will be used to identify CHF patients during the measurement period, regardless of corresponding CPT codes.

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Table CHF-B: Codes identify clinically relevant services during a CHF episode

Table CHF-B1: Diagnosis codes to identify CHF-related services

Description	ICD-9 Code
Rheumatic Heart Failure (congestive)	398.91
Malignant Hypertensive Heart Disease with CHF	402.01
Benign Hypertensive Heart Disease with CHF	402.11
Hypertensive Heart Disease with CHF	402.91
Hypertensive Heart and Renal Disease, Malignant, With CHF	404.01, 404.03, 404.11
Hypertensive Heart And Renal Disease, Benign, With CHF	404.13
Hypertensive Heart And Renal Disease, Unspecified, With CHF	404.91
Hypertensive Heart + Renal Disease, Unspecified, With CHF	404.93
Congestive Heart Failure	428.0
Left Heart Failure	428.1
Systolic Heart Failure	428.2, 428.20, 428.21, 428.22, 428.23
Diastolic Heart Failure	428.3, 428.30, 428.31, 428.32, 428.33
Congestive Heart Failure	428.0
Acute systolic heart failure	428.21
Acute on chronic systolic heart failure	428.23
Acute diastolic heart failure	428.31
Acute on chronic diastolic heart failure	428.33
Acute combined systolic & diastolic heart failure	428.41
Combined Systolic and Diastolic Heart Failure	428.4
Combined Systolic and Diastolic Heart Failure, unspecified	428.40
Combined Systolic and Diastolic Heart Failure, chronic	428.42
Heart Failure, unspecified	428.9
Acute lung edema	518.4

These ICD-9 codes, present in any, will be used to identify CHF-related services during the measurement period, regardless of corresponding CPT codes.

Table CHF-B2: Diagnosis codes to identify cardiopulmonary-related services

Description	ICD-9 Code
Other symptoms involving cardiovascular system	785.9
Orthostatic hypotension	458.0
Hypotension nos	458.9
Abnormal cardiovascular study nos	794.30
Non-specific abnormal electrocardiogram	794.31
Abnormal cardiovascular study nec	794.39
Painful respiration	786.52
Hemoptysis	786.3
Cough	786.2
Pulmonary congestion and hypostasis	514
Respiratory abnormality nos	786.00

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Hyperventilation	786.01
Orthopnea	786.02
Apnea	786.03
Cheyne-stokes respiration	786.04
Tachypnea	786.06
Wheezing	786.07
Respiratory abnormality nec	786.09
Other symptoms involving respiratory system and chest	786.9
Abnormal findings-lung field	793.1
Abnormal pulmonary function study	794.2
Cardiac dysrhythmias	427.xx
Paroxysmal atrial tachycardia	427.0
Paroxysmal ventricular tachycardia	427.1
Paroxysmal tachycardia nos	427.2
Atrial fibrillation & flutter	427.3
Atrial fibrillation	427.31
Atrial flutter	427.32
Ventricular flutter	427.42
Cardiac arrest	427.5
Premature beats	427.6
Premature beats nos	427.60
Atrial premature beats	427.61
Premature beats nec	427.69
Other cardiac dysrhythmias	427.8
Sinoatrial node dysfunct	427.81
Cardiac dysrhythmias nec	427.89
Cardiac dysrhythmia nos	427.9
Tachycardia nos	785.0
Palpitations	785.1
Electrolyte/fluid disorders nec	276.9
Hyperpotassemia	276.7
Hypopotassemia	276.8
Fluid overload	276.6
Abnormal blood chemistry nec	790.6
Abnormal coagulation profile	790.92
Long-term use anticoagulants	V58.61
Shortness of breath	786.05
Edema	782.3
Complicated implant cardiac defib	996.04
Pleurisy w/o effusion not tb	511.0
Pleurisy effusion nos	511.9
Bacterial pleurisy/effusion not tb	511.1
Pleural effusion nec not tb	511.8
Chronic respiratory failure	518.83
Acute and chronic respiratory failure	518.84
Respiratory failure	518.81
Other pulmonary insufficiency	518.82

These ICD-9 codes, present in any, will be used to identify CHF-related services during the measurement period, regardless of corresponding CPT codes.

Table CHF-B3: Evaluation and management codes

Description	CPT Codes
General physician office visits	99201-99205, 99211-99215
Preventive medicine/screening	99394-99397, 99401-99404, 99411, 99412, 99420, 99429, 99384-99387
Observation care	99217-99220
Emergency dept care	99281-99285
Home health	99341-99345, 99347-99350
Skilled nursing facility	99304-99310, 99315, 99316, 99318, 99324-99328, 99334-99337
Office consultation	99241-99245
Unlisted	99455, 99456

These codes will be used to help identify those services that should be categorized as “E&M” during our analyses. Such services, when present in the identification (pre-measurement) period, are used to identify patients for the measure’s denominator. When present during the measurement period, these services are counted to determine the provider or providers to whom the episode will be attributed.

Table CHF-C: Procedure and laboratory

Description	CPT	HCPCs
Cholesterol	80061, 83700, 83701, 83704, 83718, 83719, 83721	
BNP blood test	83880	
Cardiac catheterization	93539, 93540, 93555, 93556, 93501, 93503, 93510, 93511, 93514, 93524, 93526, 93527, 93528, 93529, 93539, 93540, 93555, 93556	
Chest x-ray	71010, 71015, 71020, 71021, 71022, 71023, 71030, 71034, 71035, 75756, 93542, 93543, 93545	
Coronary angiography	71275, 72191, 72198, 73225, 75635, 75898, 93508	
CT Angiography abdominal aorta	75635	
Computed tomography, heart, without contrast material, including image post processing and quantitative evaluation of coronary calcium		0144T
Computed tomography, heart, without contrast material followed by contrast material(s) and further sections, including cardiac gating and 3D image post processing; cardiac structure and morphology		0145T

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Computed tomographic angiography of coronary arteries (including native and anomalous coronary arteries, coronary bypass grafts), without quantitative evaluation of coronary calcium		0146T
Computed tomographic angiography of coronary arteries (including native and anomalous coronary arteries, coronary bypass grafts), with quantitative evaluation of coronary calcium		0147T
Cardiac structure and morphology and computed tomographic angiography of coronary arteries (including native and anomalous coronary arteries, coronary bypass grafts), without quantitative evaluation of coronary calcium		0148T
Cardiac structure and morphology and computed tomographic angiography of coronary arteries (including native and anomalous coronary arteries, coronary bypass grafts), with quantitative evaluation of coronary calcium		0149T
Cardiac structure and morphology in congenital heart disease		0150T
CT Angio without contrast material followed by contrast material		0151T
Cardiac MRI for morphology w/o contrast (gated heart)	75552	
Cardiac MRI morphology w/ contrast	75553	
Cardiac MRI COMPLETE w/ or w/o morphology	75554	
Cardiac MRI limited	75555	
Cardiac MRI for velocity flow mapping	75556	
Cardiac mri for morph	75557	
Cardiac mri flow/velocity	75558	
Cardiac mri w/stress img	75559	
Cardiac mri flow/vel/stress	75560	
Cardiac mri for morph w/dye	75561	
Card mri flow/vel w/dye	75562	
Card mri w/stress img & dye	75563	
Ht mri w/flo/vel/strs & dye	75564	
MRI Spectroscopy	76390	
Echocardiogram		A9900
Transthoracic Echocardiology; Follow-up or Limited Study	93304	
Tte w/doppler, complete	93306	
Echocardiography, Transthoracic, Real-Time w/Image Documentation w/or w/o M-mode recording; complete	93307	
Echocardiography, Transthoracic, Real-Time w/Image Documentation w/or w/o M-mode recording; Follow-up or Limited Study	93308	
Echocardiography, Transesophageal, Real-Time with Image Documentation (2D) w/&w/o M-mode recording; including probe placement, image acquisition, interpretation and report	93312	
Echocardiography, Transesophageal, Real-Time with Image Documentation (2D) w/&w/o M-mode recording; including probe placement only	93313	
Image Acquisition, Interpretation and report only	93314	
Echocardiography, transesophageal for monitoring purposes, including probe placement, real time 2-dimensional image	93318	

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acquisition and interpretation leading to continuous assessment of cardiac pumping function and to therapeutic measures on an immediate time bases		
Doppler Echocardiography, pulsed waved &/or continuous wave with spectral display; complete	93320	
Doppler Echocardiography, pulsed waved &/or continuous wave with spectral display; Follow-up or Limited Study	93321	
Doppler Echocardiography color flow velocity mapping	93325	
Echocardiography, thransthoracic, real-time w/image documentation during rest & cardiovascular stress test using treadmill, bicycle or pharmacologically induced stress, w/interpretation & report.	93350	
Stress tte complete	93351	
Admin ecg contrast agent	93352	
Electrocardiogram (ECG or EKG)	93000, 93005, 93010, 93012, 93014, 93040, 93041, 93042, 93224, 93225, 93226, 93227, 93230, 93231, 93232, 93236, 93237, 93268, 93270, 93272, 93278	
Exercise stress test (cardiac stress test)	93015, 93016, 93017, 93018,	
Holter monitor	93233, 93234, 93235	
Radiopharmaceutical diagnostic imaging agent, technetium Tc 99m tetrofosmin, per unit dose		A9502
Thallium (supply of radiopharmaceutical diagnostic imaging agent, thalious chloride TL-201, per millicurie)		A9505
Non-imaging heart function	78414	
Cardiac shunt imaging	78428	
Thallium scan rest only	78460	
Myocardial perf stress or rest multiple study	78461	
Myocardial perfusion imaging; tomographic (SPECT), single study at rest or stress (exercise and/or pharmacologic) with or without quantification	78464	
Myocardial perfusion imaging; tomographic (SPECT), multiple studies, at rest and/or stress (exercise and/or pharmacologic) and redistribution and/or rest injection, with or without quantification	78465	
Myocardial infarction scan	78466	
Heart infarct image EF	78468	
Gated heart, resting	78472	
Cardiac blood pool muga scan	78473	
Myocardial wall motion study	78478	
Myocardial ejection fraction	78480	
Heart first pass single	78481	
Cardiac blood pool imaging-multiple	78483	
Cardiac blood pool imaging, spect	78494	
Cardiac Blood Pool Imaging - Single study @ rest (Use with 78472)	78496	
Unlisted cardiovascular nuclear exam	78499	
Heart infarct image 3-D	78469	

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Myocardial imaging, positron emission tomography (pet) metabolic eval.	78459	
Myocardial imaging, positron emission tomography (PET), perfusion; single study at rest or stress	78491	
Myocardial imaging, positron emission tomography (PET), perfusion; multiple studies at rest or stress	78492	
Pharmacologic Stress Test	93024	
Cardiac output measurement	93561, 93562,	
Heart flow reserve measure	93571, 93572	
Echocardiography, transthoracic	93303, 93304, 93307, 93308	
Echocardiography, transesophageal	93312-93315, 93317, 93318	
Doppler echocardiography, pulsed wave and/or continuous wave with spectral display	93320, 93321	
Doppler echocardiography color flow velocity mapping	93325	
Initial set-up and programming by a physician of wearable cardioverter-defibrillator	93745	
Electronic analysis of pacing cardioverter-defibrillator (single chamber or wearable cardioverter-defibrillator system), without reprogramming	93741	
Single chamber or wearable cardioverter-defibrillator system, with reprogramming	93742	
Electronic analysis of pacing cardioverter defibrillator; without reprogramming	93743	
Electronic analysis of pacing cardioverter defibrillator; with reprogramming	93744	
Initial set-up and programming by a physician of wearable	93745	
Programming device evaluation; single lead ICD	93282	
Programming device evaluation; dual lead ICD	93283	
Programming device evaluation; multiple lead ICD	93284	
Peri-procedural device evaluation and programming; single, dual or multiple lead ICD	93287	
ICD – Interrogation in person – Single/dual/multi	93289	
ICD - Interrogation (remote), up to 90 days – Single/dual/multi	93295	
PM or ICD – Interrogation (remote), up to 90 days – single/dual/multi – technical	93296	
Insertion of a transvenous electrode; single chamber (1 electrode) permanent pacemaker or single chamber pacing cardioverter-defibrillator	33216	
dual chamber (2 electrodes) permanent pacemaker or dual chamber pacing cardioverter-defibrillator	33217	
Insertion of pacing electrode, cardiac venous system, for left ventricular pacing, with attachment to previously placed pacemaker or pacing cardioverter-defibrillator pulse generator	33224	
Insertion of pacing electrode, cardiac venous system, for left ventricular pacing, at time of insertion of pacing	33225	

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cardioverter-defibrillator or pacemaker pulse generator		
Repositioning of previously implanted transvenous pacemaker or pacing cardioverter-defibrillator (right atrial or right ventricular) electrode	33215	
Repair of single transvenous electrode for a single chamber, permanent pacemaker or single chamber pacing cardioverter-defibrillator	33218	
Repair of two transvenous electrodes for a dual chamber permanent pacemaker or dual chamber pacing cardioverter-defibrillator	33220	
Automatic external defibrillator, with integrated electrocardiogram analysis, garment type		K0606
Replacement battery for automated external defibrillator, each		K0607
Replacement garment for use with automated external defibrillator, each		K0608
Replacement electrodes for use with automated external defibrillator, each		K0609
Insertion of single or dual chamber pacing cardioverter-defibrillator pulse generator	33240	
Insertion of epicardial single or dual chamber pacing cardioverter-defibrillator electrodes by thoracotomy	33245	
Insertion or repositioning of electrode lead(s) for single or dual chamber pacing cardioverter-defibrillator and insertion of pulse generator	33249	
Insertion of single chamber pacing cardioverter defibrillator pulse generator		G0297
Insertion of dual chamber pacing cardioverter defibrillator pulse generator		G0298
Insertion or repositioning of electrode lead for single chamber pacing cardioverter defibrillator and insertion of pulse generator		G0299
Insertion or repositioning of electrode lead(s) for dual chamber pacing cardioverter defibrillator and insertion of pulse generator		G0300
Injections		
Tirofiban hcl, 6.25 mg		C9109
Injection, argatroban		C9121
Abciximab injection		J0130
Injection anistreplase 30 u		J0350
Bivalirudin		J0583
Digoxin injection		J1160
Digoxin immune fab (ovine)		J1162
Dipyridamole injection		J1245
Inj dobutamine HCL/250 mg		J1250
Eptifibatide injection		J1327
Inj heparin sodium per 10 u		J1642

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Inj heparin sodium per 1000u	J1644
Dalteparin sodium	J1645
Inj enoxaparin sodium	J1650
Fondaparinux sodium	J1652
Tinzaparin sodium injection	J1655
Inj milrinone lactate / 5 MG	J2260
Nesiritide	J2324
Nesiritide injection	J2325
Tirofiban hydrochloride	J3245
Tirofiban HCl	J3246
Injection torsemide 10 mg/ml	J3265

These procedure codes will be used to identify CHF-related services during the measurement period, regardless of corresponding ICD-9 codes.

Table CHF-D: Prescription medications related to CAD episode (all during the measurement period)

Description	Medication				
Angiotensin converting enzyme (ACE) inhibitors	benazepril captopril	enalapril fosinopril	lisinopril moexipril	perindopril quinapril	ramipril trandolapril
Angiotensin II inhibitors	candesartan eprosartan	irbesartan losartan	olmesartan telmisartan	valsartan	
Diuretics					
Vasodilators					
Digoxin					
Beta Blockers	metoprolol		carvedilol	bisoprolol	
Anticoagulants	warfarin		heparin		
Statins					
Calcium Channel Blockers					
Inotropes	Dobutamine		milrinone		
Anti-platelets					
CoQ10					
Atrocore					
Cardiac Drugs, NEC					

Table CHF-E: Codes for durable medical equipment

Description	HCPCS
Oxygen therapy rx	4030F
C-PAP	E0601, E0601, A7034, A7032, A7030, A7031, A7044, A7046, A7037, A7038, A7039, A7035, A7033, A7036, E0561, E0562, E0470, KO532

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These DME codes will be used to identify CHF-related services during the measurement period, regardless of corresponding ICD-9 codes.

Table CHF-F: Codes to identify exclusions

Table CHF-F1: Diagnosis codes to identify inpatient CHF-related care
(see Table CHF-B1 for CHF-related diagnostic codes)

These ICD-9 codes, if present in the primary diagnostic field within 6 month period prior to the measurement year or as a secondary diagnosis with primary cardiopulmonary-related diagnosis, will be used to identify patients to be excluded from the denominator.

Table CHF-F2: Diagnosis codes to identify inpatient cardiopulmonary-related care
(see Table CHF-B2 for cardiopulmonary-related diagnostic codes)

The following codes will be used to identify exclusions during the identification period or the measurement period.

Table CHF-F3: Codes to identify active cancer treatment

Description	ICD-9-CM Diagnosis
Cancer	140-208, 230-239

WITH

Description	CPT	ICD-9-CM Procedure	UB Revenue
Treatment	38230, 38240-38242, 77261-77799, 79000-79999, 96400-96549	41.0, 41.91, 92.2	028x, 033x, 0342, 0344, 0973

Table CHF-F4: Codes to identify ESRD

Description	CPT	HCPCS	ICD-9-CM Diagnosis	ICD-9-CM Procedure	UB Revenue	UB Type of Bill	POS
ESRD (including renal dialysis)	36145, 36800-36821, 36831-36833, 90919-90921, 90923-90925, 90935, 90937, 90939, 90940, 90945, 90947, 90989, 90993, 90997, 90999, 99512	G0257, G0311-G0319, G0321-G0323, G0325-G0327, G0392, G0393, S9339	585.5, 585.6, V42.0, V45.1, V56	38.95, 39.27, 39.42, 39.43, 39.53, 39.93, 39.94, 39.95, 54.98	080x, 082x-085x, 088x	72x	65

Table CHF-F5: Codes to identify organ transplant

Description	CPT	HCPSCS	ICD-9-CM Procedure	UB Revenue
Organ transplant	32850-32856, 33930-33945, 44132-44137, 44715-44721, 47133-47147, 48160, 48550-48556, 50300-50380	S2152, S2053-S2055, S2060, S2061, S2065	33.5, 33.6, 37.5, 41.94, 46.97, 50.5, 52.8, 55.6	0362, 0367, 0810-0813, 0819

Table CHF-F6: Codes to identify HIV

Description	ICD-9-CM Diagnosis
HIV	042

Table CAD-F7: Codes to identify pregnancy

Description	CPT	ICD-9-CM Diagnosis
Normal Pregnancy		V22.x
Treat ectopic pregnancy	59120, 59121, 59130, 59135, 59136, 59140, 59150, 59151	
D & c after delivery	59160	
Insertion of cervical dilator	59200	
Episiotomy or vaginal repair	59300	
Revision of cervix	59320, 59325	
Repair of uterus	59350	
Obstetrical care	59400, 59409, 59410	
Antepartum manipulation	59412	
Deliver placenta	59414	
Antepartum care only	59425, 59426	
Care after delivery	59510, 59514, 59515, 59525	
Vbac delivery	59610, 59612, 59614	
Attempted vbac delivery	59618, 59620, 59622	
Treatment of miscarriage	59812, 59820, 59821	
Treat uterus infection	59830	
Abortion	59840, 59841, 59850, 59851, 59852, 59855, 59856, 59857, 59866	
Remove cerclage suture	59871	
Fetal invas px w/us	59897	
Laparo proc, ob care/deliver	59898	
Maternity care procedure	59899	
Ob us < 14 wks	76801, 76802	
Ob us >= 14 wks	76805, 76810	
Ob us	76811, 76812, 76813, 76814, 76815, 76816,	
Transvaginal us	76817	

Fetal biophys profile	76818, 76819	
Umbilical artery echo	76820	
Middle cerebral artery echo	76821	
Echo exam of fetal heart	76825	
Anesth	01958, 01960, 01961	
Complications of pregnancy, childbirth, and the puerperium		630-676

Table CAD-F8: Codes for mechanical assist devices

Description	CPT	HCPCS	ICD-9-CM Procedure
Left Ventricular Assist Device (LVAD)	0048T, 0049T, 33975, 33976, 33977, 33978, 33979, 33980	Q0491, Q0492, Q0493, Q0494, Q0495, Q0496, Q0497, Q0498, Q0499, Q0500, Q0501, Q0502, Q0503, Q0504, Q0505	37.66
Intra-aortic Balloon Pump (IABP)	33970, 33971, 33973, 33974		

Risk Adjustment Method

Comorbid conditions identified as HCCs in 12 months preceding event date using inpatient and outpatient ICD-9 codes.

Episode Severity / Disease Staging

None

Outlier Methodology

All individuals are included in the analysis with costs winsorized at the 2nd and 98th percentile.

Level of Measurement/Analysis

Measurement will take place at the level of the individual physician. All E&M codes for CHF-related care on separate dates during the measurement year will be identified (for acute care, count only one claim per event). Then if < 30% of visits are to the same provider, there will be no attribution; if $\geq 30\%$ to $\leq 70\%$ of visits are to the same provider, there will be attribution to multiple providers; and if > 70% of visits are to the same provider, there will be attribution to a single provider.

Note: Portions of these measure specifications are based on existing HEDIS and Prometheus measure specifications.

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