Hierarchical Condition Categories (HCCs) were originally developed in 2000 as a risk adjustment model that would enable Medicare to forecast costs for Medicare Advantage members for the coming year and provide a capitated payment to health plans (not providers) for its members each year.

HCCs are now also used to risk-adjust quality and cost measures for the CMS pay-for-performance programs, which have been developed as an incentive to improve healthcare quality and lower costs. Although hospitals and providers continue to bill and be paid using the same fee-for-service model currently in place (inpatient DRG, CPT code, etc.), fee-for-service payments are adjusted to reward outcomes believed to indicate higher quality care and penalize outcomes thought to indicate lower quality of care. Hospitals and physicians who fail to capture relevant HCCs in their patient documentation may find themselves receiving lower reimbursements.

For example, a hospital's total Medicare DRG operating payments will be reduced by up to 3% if the hospital does not meet expected performance for readmission rates as part of the Readmissions Reduction Program.

Risk adjustment payment methodologies. There are a number of risk adjustment payment methodologies that have been developed since the HCC models, for example, CDPS (Chronic Illness and Disability Payment System) primarily used for Medicaid managed care plans, but the two primary methodologies are the CMS-HCCs and HHS-HCCs. Managed Medicare (Part C) health plans have been paid by CMS based on the CMS-HCC risk adjustment payment formula since 2004. Managed commercial health plans, as part of the Affordable Care Act, have been paid based on HHS-HCCs since 2014.

Like the inpatient DRGs, the HCC system places patients into different categories based on ICD-10 diagnosis codes. HCC categories are designed to group patients that are clinically similar and follow similar cost patterns to predict future healthcare costs.

DEFINITION

Myocardial injury. The newly-published Fourth Universal Definition of MI (2018) introduced the term "myocardial injury" defined as an elevated troponin value above the 99th percentile upper reference limit (URL). Injury is considered "acute" when there is a rise and/or fall of the values.

Causes of "myocardial injury" may be ischemic (myocardial infarction) or non-ischemic (not myocardial infarction). Ischemic causes include coronary artery disease (CAD), supply-demand mismatch, post-procedural infarction. Non-ischemic causes include heart failure, myocarditis, cardiomyopathy, catheter ablation, defibrillation, cardiac contusion, and systemic causes such as sepsis, CVA/hemorrhage, pulmonary embolism or hypertension, chemotherapy, and infiltrative diseases (e.g., amyloidosis, sarcoidosis).

Myocardial infarction (MI) is defined as "acute myocardial injury" (elevated troponin) with clinical evidence of "myocardial ischemia."

The diagnosis of myocardial ischemia involves application of the physician's clinical judgment to the patient's clinical circumstances (see Diagnostic Criteria below).

Types of MI

- Type 1: Coronary artery disease with plaque rupture and coronary thrombosis (STEMI and NSTEMI)
- Type 2: Imbalance between oxygen supply and myocardial demand without thrombosis
- Type 3: Myocardial infarction resulting in death when biomarker values are unavailable
- Type 4a: Myocardial infarction related to percutaneous coronary intervention (PCI)
- Type 4b: Myocardial infarction related to stent thrombosis
- Type 4c: Myocardial infarction due to restenosis ≥50% after an initially successful PCI
- Type 5: Myocardial infarction related to CABG

DEFINITION

Sepsis: Life-threatening organ dysfunction caused by a dysregulated host response to infection (confirmed or suspected).

Septic shock: Persisting hypotension requiring vasopressors to maintain MAP (mean arterial pressure) > 65 mmHg **and** having a serum lactate level > 2 mmol/L despite adequate volume resuscitation.

Sepsis-3 applies only to adults.

DIAGNOSTIC CRITERIA

Organ dysfunction is determined by a 2 point change from baseline of the Sequential (Sepsis-related) Organ Failure Assessment (SOFA) score using six defined organ systems:

Respiratory	PaO2/FIO2
Coagulation	Platelet count
Hepatic	Bilirubin (total)
Cardiovascular	MAP or use of vasopressor
CNS	GCS
Renal	Creatinine or urine output

SOFA grades organ dysfunction on a scale of 0 to 4 depending on severity (0 = no dysfunction). The baseline SOFA score for any organ system is assumed to be 0 if a patient has no known preexisting dysfunction.Vasopressors include dopamine (DPA), dobutamine, epinephrine, or norepinephrine. See the ***SOFA Score table*** that follows.

Quick SOFA (qSOFA). Sepsis-3 includes a bedside prompt, qSOFA, to identify patients with suspected infection who are at greater risk for poor outcomes outside the intensive care unit (ICU). It is NOT a diagnostic test for sepsis, and if positive, the full SOFA score should be obtained.

It is defined as the presence of two or more of three clinical criteria: (1) altered mentation, (2) respiratory rate ≥ 22, and (3) systolic blood pressure ≤ 100 mm Hg.

Comorbid Conditions
MCC in **Bold**
CC non-bold
Non-MCC/CC in italics (HCC and/or SOI only)

ICD-10 Codes listed do not include all codes available for the diagnosis, only the least specific code to meet the MCC/CC status.

HCC CMS-HCC #. See CMS-HCC List that follows for HCC description and weight.

SOI Default SOI subclass for APR-DRGs.

Comorbid Conditions	ICD-10	HCC	SOI
Abdominal aortic aneurysm (AAA)	I714	108	-
Acute coronary insufficiency	I248	87	2
Acute coronary thrombosis/embolism (not resulting in MI)	I240	87	2
Acute coronary syndrome (ACS)	I249	87	2
Acute kidney injury (AKI)	N179	135	4
Acute tubular necrosis (ATN)	N170	135	4
Adult respiratory distress syndrome (ARDS)	J80	84	2
Alcohol dependence	F1020	55	-
Alcohol dependence, in remission	F1021	55	-
Alcohol use with alcohol-use disorder	F1099	55	2
Alcoholic liver disease	K709	28	-
Amputation status, lower limb: toes, foot, ankle, below or above knee	Z89411-Z89619	189	-
Anemia, acute blood loss (ABLA)	D62	-	2
Aneurysm	I729	108	-
Angina	I209	88	-
Angina, unstable	I200	87	2
Aortic aneurysm	I719	108	-
Aortic atherosclerosis	I700	108	-
Aplastic anemia	D619	46	4
Artificial opening status	Z939	188	-
Atelectasis	J9811	-	-
Atrial fibrillation	I4891	96	2
Atrial fibrillation, persistent	I481	96	2
Atrial flutter	I4892	96	2