

S1 Table. Definitions of adverse events of special interest (AESI)

AESI	ICD-9-CM diagnosis and procedure codes, and laboratory parameters
Guillain-Barré Syndrome	357.0 Acute infective polyneuritis 357.8x Other inflammatory and toxic neuropathy 357.9 Inflammatory/toxic neuropathy, unspecified
Acute disseminated encephalomyelitis (ADEM)	323.6x Postinfectious encephalitis, myelitis, and encephalomyelitis 323.8x Other causes of encephalitis, myelitis and encephalomyelitis
Sleeping disturbance or disorder	347.xx Cataplexy and narcolepsy 307.4 (Nonorganic sleep disorder, unspecified), 780.5 (unspecified sleep disturbance) [Procedure codes: 89.17 Polysomnography 89.18 Multiple sleep latency]
Acute aseptic arthritis	274.0x Gouty arthropathy 696.0 Psoriatic arthropathy 716.5x Unspecified polyarthropathy or polyarthritis 716.6x Unspecified monoarthritis 716.9x Unspecified arthropathy 712.xx Crystal arthropathies 711.5x Arthropathy associated with other viral diseases
Type 1 Diabetes	250.01 Diabetes mellitus without mention of complication, type I [juvenile type], not stated as uncontrolled 250.03 Diabetes mellitus without mention of complication, type I [juvenile type], uncontrolled 250.11 Diabetes with ketoacidosis, type I [juvenile], not stated as uncontrolled 250.13 Diabetes with ketoacidosis, type I [juvenile], uncontrolled 250.21 Diabetes with hyperosmolarity, type I [juvenile], not stated as uncontrolled 250.23 Diabetes with hyperosmolarity, type I [juvenile], uncontrolled 250.31 Diabetes with other coma, type I [juvenile], not stated as uncontrolled 250.33 Diabetes with other coma, type I [juvenile], uncontrolled 250.41 Diabetes with renal manifestations, type I [juvenile], not stated as uncontrolled 250.43 Diabetes with renal manifestations, type I [juvenile], uncontrolled 250.51 Diabetes with ophthalmic manifestations, type I [juvenile], not stated as uncontrolled 250.53 Diabetes with ophthalmic manifestations, type I [juvenile], uncontrolled 250.61 Diabetes with neurological manifestations, type I [juvenile], not stated as uncontrolled 250.63 Diabetes with neurological manifestations, type I [juvenile], uncontrolled 250.71 Diabetes with peripheral circulatory disorders, type I [juvenile], not stated as uncontrolled 250.73 Diabetes with peripheral circulatory disorders, type I [juvenile], uncontrolled 250.81 Diabetes with other specified manifestations, type I [juvenile], not stated as uncontrolled 250.83 Diabetes with other specified manifestations, type I [juvenile], uncontrolled 250.91 Diabetes with unspecified complications, type I [juvenile], not stated as uncontrolled 250.93 Diabetes with unspecified complications, type I [juvenile], uncontrolled

(Idiopathic) Thrombocytopenia	287.3x Primary thrombocytopenia 287.4x Secondary thrombocytopenia 287.5 Thrombocytopenia, unspecified 279.1x Deficiency of cell-mediated immunity 283.1x Non-autoimmune hemolytic anemias 284.1x Drug-induced bone marrow suppression 446.6 Thrombotic microangiopathy 776.1 Transient neonatal thrombocytopenia
Subacute thyroiditis	245.1 Subacute thyroiditis
Acute cardiovascular injury including:	
Microangiopathy	446.6 Thrombotic microangiopathy
Heart failure	428.x Heart failure 398.9x Other and unspecified rheumatic heart diseases 402.xx Hypertensive heart disease (with or without heart failure) 404.xx Hypertensive heart and chronic kidney disease (with or without heart failure)
Stress cardiomyopathy	429.8x Other ill-defined heart diseases
Arrhythmia	427.xx Cardiac dysrhythmias 426.7 Anomalous atrioventricular excitation 794.3x Nonspecific abnormal results of function study of cardiovascular system 785.0 Tachycardia, unspecified
Carditis	420.9 Pericarditis 422.xx Acute myocarditis 423.9 Unspecified disease of pericardium 429.0 Myocarditis, unspecified
Thromboembolism (DVT, PE, stroke, limb ischemia)	410.x Acute myocardial infarction 415.1x Pulmonary embolism and infarction 453.x Other venous embolism and thrombosis 443.x Other peripheral vascular disease 444.x Arterial embolism and thrombosis 445.x Atheroembolism 433.x Occlusion and stenosis of precerebral arteries 434.x Occlusion of cerebral arteries 435.x Transient cerebral ischemia (TIA) 436.x CVA 437.x Other and ill-defined cerebrovascular disease 451.x Phlebitis and thrombophlebitis 452.x Portal vein thrombosis 453.40 Acute venous embolism and thrombosis of unspecified deep vessels of lower extremity 453.41 Acute venous embolism and thrombosis of deep vessels of proximal lower extremity 453.42 Acute venous embolism and thrombosis of deep vessels of distal lower extremity 459.9 Unspecified circulatory system disorder 325.x Phlebitis and thrombophlebitis and intracranial venous sinuses 286.6x Defibrination syndrome

	<p>557.0 Acute vascular insufficiency of intestine  557.9 Unspecified vascular insufficiency of intestine  [Procedure codes:  36.0x Removal Of Coronary Artery Obstruction And Insertion Of Stent(s)  36.1x Bypass Anastomosis For Heart Revascularization  36.2x heart revascularization by arterial implant  36.3x other heart revascularization]</p>
Coronary artery disease	<p>410.x-414.x Ischemic Heart Disease  V45.81 Presence of aortocoronary bypass graft  [Procedure codes:  36.0x Removal Of Coronary Artery Obstruction And Insertion Of Stent(s)  36.1x Bypass Anastomosis For Heart Revascularization  36.2x heart revascularization by arterial implant  36.3x other heart revascularization]</p>
Myocardial Infarction	<p>410.x-414.x Ischemic Heart Disease  V45.81 Presence of aortocoronary bypass graft  [Procedure codes:  36.0x Removal Of Coronary Artery Obstruction And Insertion Of Stent(s)  36.1x Bypass Anastomosis For Heart Revascularization  36.2x heart revascularization by arterial implant  36.3x other heart revascularization]</p>
Venous thromboembolism	<p>415.1x Pulmonary embolism and infarction  453.xx Other venous embolism and thrombosis</p>
Arterial thromboembolism	<p>433.xx Occlusion and stenosis of precerebral arteries  434.xx Occlusion of cerebral arteries  435.x Transient cerebral ischemia  436 Acute but ill-defined cerebrovascular disease  437.0 Cerebral atherosclerosis  437.1 Other generalized ischemic cerebrovascular disease  437.6 Nonpyogenic thrombosis of intracranial venous sinus  437.7 Transient global amnesia  437.8 Other ill-defined cerebrovascular disease  437.9 Unspecified cerebrovascular disease</p>
Hemorrhagic disease	<p>286.5x Hemorrhagic disorder due to intrinsic circulating anticoagulants  286.7 Acquired coagulation factor deficiency  287.xx Purpura and other hemorrhagic conditions  430.x Subarachnoid hemorrhage  431.x Intracerebral hemorrhage  432.x Nontraumatic extradural hemorrhage  [Procedure codes:  99.06 Transfusion of coagulation factors]</p>

Single Organ Cutaneous Vasculitis	709.1 Vascular disorders of skin 446.2x Hypersensitivity angiitis 287.0 Allergic purpura
Acute liver injury	570.x Liver acute (subacute) 573.3 (Hepatitis, toxic)
Acute kidney injury	584.x Acute kidney failure 586.xx Renal failure unspecified [Lab parameters: $\geq 1.5$ -fold increase in serum creatinine within 7 days or $\geq 26.5$ $\mu\text{mol/L}$ absolute increase in serum creatinine within 2 days]
Acute pancreatitis	577.0 Acute pancreatitis
Generalized convulsion	345.xx Epilepsy and recurrent seizures 780.3x Convulsions 779.0 Convulsions in newborn 333.2 Myoclonus 649.4 Epilepsy complicating pregnancy, childbirth, or the puerperium
Meningoencephalitis	322.9x Meningitis, unspecified 323.0x Encephalitis, myelitis and encephalomyelitis in viral diseases classified elsewhere 323.4x Other encephalitis, myelitis and encephalomyelitis due to infections classified elsewhere 323.5x Encephalitis, myelitis and encephalomyelitis following immunization procedures 323.6x Postinfectious encephalitis, myelitis, and encephalomyelitis 323.8x Other causes of encephalitis, myelitis and encephalomyelitis 323.9x Unspecified causes of encephalitis, myelitis, and encephalomyelitis 323.7 Toxic encephalitis 330.8 Acute necrotizing hemorrhagic encephalopathy 377.7 Disorders of visual cortex 046.3 Telencephalic leukoencephalopathy 049.8 Rio Bravo Fever 036.1 Bacterial encephalitis 056.0 Rubella with neurological complications 136.2 Specific infections by free-living amebae 130.xx Toxoplasmosis 054.3 Herpetic meningoencephalitis 049.0 Lymphocytic choriomeningitis 094.1 General paresis 072.2 Mumps encephalitis 013.0 Meningoencephalitis (infectious origin) 062.4 Murray valley encephalitis 049.9 Viral encephalitis 045.0 Polio encephalitis 062.xx Mosquito-borne viral encephalitis

Transverse myelitis	323.0x Encephalitis, myelitis, and encephalomyelitis in viral diseases classified elsewhere 323.4x Other encephalitis, myelitis, and encephalomyelitis due to infection classified elsewhere 323.5x Encephalitis, myelitis, and encephalomyelitis following immunization procedures 323.6x Postinfectious encephalitis, myelitis, and encephalomyelitis 323.8x Other causes of encephalitis, myelitis, and encephalomyelitis 341.2x Acute (transverse) myelitis
Bell's palsy	351.0 Bell's palsy 351.8 (other facial nerve disorders) 351.9 (facial nerve disorder, unspecified)
Acute respiratory distress syndrome	518.8x Other pulmonary insufficiency, not elsewhere classified 518.5x Pulmonary insufficiency following trauma and surgery [Procedure codes: 96.7x Continuous mechanical ventilation]
Erythema multiforme	695.1x Erythema multiforme
Chilblain – like lesions	991.5 Chilblains
Anosmia, ageusia	781.1 Disturbances of sensation of smell and taste
Anaphylaxis	995.0 Anaphylactic reaction, unspecified 995.1 Angioneurotic edema 995.3 Allergy, unspecified, not elsewhere classified 995.4 Shock due to anesthesia, not elsewhere classified 999.4x Anaphylactic reaction to serum 708.9 Urticaria 519.1 Other diseases of trachea and bronchus not elsewhere classified 786.1 Stridor 458.9 Hypotension
Multisystem inflammatory syndrome in children	446.1 Mucocutaneous lymph node syndrome (Kawasaki disease)
Sudden death	798.x Sudden death cause unknown 799 Other ill- defined and unknown causes of morbidity and mortality
Rhabdomyolysis	728.8 Other disorders of muscle ligament and fascia 791.3 Myoglobinuria

Abbreviations: AESI=adverse event of special interest; ICD-9-CM=International Classification of Diseases, Ninth Revision, Clinical Modification