Supplementary Table 1. ICD9 codes used to identify underlying medical conditions

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| ICD9 Code | ICD9 condition name |
| Cardiac Disease |
| 093112.81130.3391392393-398402404410-414415416417421423424425427428429440442443444446447745746747997.1V42.1V43.3V45.0V45.81V45.82 | Cardiovascular syphilisCandidal endocarditisMyocarditis due to toxoplasmosisRheumatic fever with heart involvementRheumatic choreaChronic rheumatic heart diseaseHypertensive heart diseaseHypertensive heart and chronic kidney diseaseIschemic heart diseaseAcute pulmonary heart diseaseChronic pulmonary heart diseaseOther diseases of pulmonary circulationAcute and subacute endocarditisOther diseases of pericardiumOther diseases of endocardiumCardiomyopathyCardiac dysrhythmiasHeart FailureIll-defined descriptions and complications of heart diseaseAtherosclerosisOther aneurysmOther peripheral vascular diseaseArterial embolism and thrombosisPolyarteritis nodosa and allied conditionsOther disorders of arteries and arteriolesBulbus cordis anomalies and anomalies of cardiac septal closureOther congenital anomalies of heartOther congenital anomalies of circulatory systemCardiac complications, not elsewhere classifiedHeart replaced by transplantHeart valve replaced by transplantCardiac device in situAortocoronary bypass statusPercutaneous transluminal coronary angioplasty status |
| Asthma |
|  493 | Asthma |
| Other pulmonary disease |
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| 011012031.0135277.0273.4491492494495496500501502503504505506507.0507.1508510513514515516517518.0518.1518.2518.3518.8519.0519.9714.81748.4748.5748.6759.3769770770.2770.7V42.6 |

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| Pulmonary tuberculosisOther respiratory tuberculosisDiseases due to other mycobacteria, pulmonarySarcoidosisCystic FibrosisAlpha-1 anti-trypsin deficiencyChronic BronchitisEmphysemaBronchiectasisExtrinsic allergic alveolitisChronic airway obstruction, not elsewhere classifiedCoal workers pneumoconiosisAsbestosisPneumoconiosis due to other silica or silicatesPneumoconiosis due to other inorganic dustPneumonopathy due to inhalation of other dustPneumoconiosis, unspecifiedRespiratory conditions due to chemical fumes and vaporsPneumonitis due to inhalation of food or vomitusPneumonitis due to inhalation of oils and essencesRespiratory conditions due to other and unspecified external agentsEmpyemaAbscess of lung and mediastinumPulmonary EdemaPost inflammatory pulmonary fibrosisOther alveolar and parietoalveolar pneumonopathyLung involvement in conditions classified elsewherePulmonary Collapse Interstitial edemaCompensatory emphysemaPulmonary eosinophilaOther diseases of the lung, not elsewhere classifiedTracheostomy complications Unspecified disease of respiratory systemRheumatoid lungCongenital cystic lung Agenesis, hypoplasia, and dysplasia of lung Other congenital anomalies of lungSitus inversusRespiratory distress syndrome (in perinatal period)Other respiratory conditions of fetus and newbornInterstitial emphysema and related conditions (of fetus and newborn)Chronic respiratory disease arising in the perinatal period (of fetus and newborn)Lung Replaced by transplant |

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| **Renal Disease** |
|  285.21 403

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| 581582583585586587588.0588.1590.0593.8V451V56 |

 |  Anemia in chronic kidney disease Hypertensive renal disease

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| Nephrotic syndromeChronic glomerulonephritisNephritis and nephropathy, not specified as acute or chronicChronic kidney diseaseRenal Failure, unspecifiedRenal sclerosis, unspecifiedRenal osteodystrophyNephrogenic diabetes insipidusChronic pyelonephritisOther specified disorders of kidney and ureterRenal dialysis Encounter for dialysis and dialysis catheter care |

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| **Hemoglobinopathies** |
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| 282283284 |

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| Hereditary hemolytic anemiasAcquired hemolytic anemiasAplastic anemia |

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| **HIV/AIDS** |
| 042043044V08 |  Human immunodeficiency disease Human immunodeficiency disease Human immunodeficiency disease Asymptomatic human immunodeficiency virus infection status |
| **Immunosuppression** |
| 136.3279280.0288.1288.2289.4289.5289.89

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| 555556710.0710.2710.4714963.1996.8V42.0V42.1V42.2V42.4V42.6V42.7V42.8V42.9 |
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 |  Pneumocystosis

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| Disorders involving immune mechanismAgranulocytosisFunctional disorders of polymorphonuclear neutrophilsGenetic anomalies of leukocytesHypersplenismOther diseases of spleenOther specified disorders of blood and blood-forming organsRegional enteritisUlcerative colitisSystemic lupus erythematosusSicca syndromePolymyositisRheumatoid arthritis and other inflammatory polyarthropathiesAntineoplastic and immunosuppressive drugsComplications of transplanted organKidney transplantV42.1 Heart transplantHeart valve transplantBone transplantLung transplantLiver transplantOther organ transplantUnspecified organ or tissue transplant |

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| **Malignancy** |
| 140-208235-238960.7V58.0V58.1 | NeoplasmsNeoplasms of uncertain behaviorAntineoplastic antibioticsEncounter for radiotherapyEncounter for chemotherapy and immunotherapy for neoplastic conditions |
| **Diabetes** |
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| 250251648.0357.2362.0362.11366.41 |

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| Diabetes MellitusOther disorders of pancreatic internal secretionDiabetes mellitus-current condition classified elsewherePolyneuropathy in diabetesDiabetic retinopathy Diabetic retinopathy Diabetic cataract |

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| **Other metabolic disorders** |
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| 255270271272277 |

 | Disorder of adrenal glandsDisorders of amino acid transport and metabolismDisorders of carbohydrate transport and metabolismDisorders of lipoid metabolismOther and unspecified disorders of metabolism |
| **Obesity** |
| 278 | Obesity |
| **Liver Disease** |
| 571572.1-527.8 | Chronic liver disease and cirrhosisSequelae of chronic liver disease |
| **Neurologic and neuromuscular Disorders** |
| 290294.1315317-319330.0, 333.4-333.9331333334335340341343344.0345348356358359.1359.2438741742756.4780.3783.42 | DementiasDementia in conditions classified elsewhereSpecific delays in developmentMental retardationExtrapyramidal disease and abnormal movement disordersCerebral degenerations usually manifest in childhoodOther cerebral degenerationsSpinocerebellar diseaseAnterior horn cell diseaseMultiple sclerosisOther demyelinating diseasesInfantile cerebral palsyQuadriplegia and quadriparesisEpilepsy and recurrent seizuresOther conditions of the brainHereditary and idiopathic peripheral neuropathyMyasthenia gravisHereditary progressive muscular dystrophyMyotonic disordersDementia and strokeSpina bifidaOther congenital anomalies of the nervous systemChondrodystrophyConvulsionsDelayed milestones |
| **Cerebrovascular disease** |
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| 430431432433434435436437438 |

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| Subarachnoid hemorrhageIntracerebral hemorrhageOther/unspecified intracranial hemorrhageOcclusion and stenosis of precerebral arteriesOcclusion of cerebral arteriesTransient cerebral ischemiaAcute, but ill-defined cerebrovascular diseaseOther and ill-defined cerebrovascular diseaseLate effects of cerebrovascular disease |

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| **Pregnancy complications** |
| 640-648767768771.0 | Complications related to pregnancyBirth traumaIntrauterine hypoxia and birth asphyxiaInfections specific to the perinatal period |
| **Prematurity** |
| 644765 776.6362.20-362.27 | Early or threatened laborDisorders relating to short gestation and low birth weight (except 765.29)Anemia of prematurityRetinopathy of prematurity |
| **Other congenital disorders** |
| 758759 | Chromosomal abnormalitiesOther and unspecified congenital anomalies |