

**Supplemental Table 2***Recoding of Original ICD-10-CM Codes into Diagnostic Types (DX\_TYPE) for Pre-Exam Diagnoses*

<b>Diagnosis Code &amp; Label</b>	<b>Frequency</b>	<b>DX Label</b>	<b>DX_TYPE (code)</b>
Blank (missing)	51		
B20 Human immunodeficiency virus [HIV] disease	1		
B20 Human immunodeficiency virus [HIV] disease (acquired immune deficiency syndrome [AIDS]; AIDS-related complex [ARC]; HIV infection, symptomatic; Human immunodeficiency virus [HIV] disease complicating pregnancy, childbirth and the puerperium, if applicable (O98.7-); code(s) to identify all manifestations of HIV infection; asymptomatic human immunodeficiency virus [HIV] infection status (Z21); exposure to HIV virus (Z20.6); inconclusive serologic evidence of HIV (R75))	1		
C15.9 Malignant neoplasm of esophagus, unspecified	1	Neoplasms	1
C18.9 Malignant neoplasm of colon, unspecified (Malignant neoplasm of large intestine NOS)	1	Neoplasms	1
C34.11 Malignant neoplasm of upper lobe, right bronchus or lung	1	Neoplasms	1
C34.90 Malignant neoplasm of unspecified part of unspecified bronchus or lung (Lung cancer NOS)	2	Neoplasms	1
C41.9 Malignant neoplasm of bone and articular cartilage, unspecified	1	Neoplasms	1
C43.9 Malignant melanoma of skin, unspecified (Malignant melanoma of unspecified site of skin; Melanoma (malignant) NOS)	1	Neoplasms	1
C50.411 Malignant neoplasm of upper-outer quadrant of right female breast	1	Neoplasms	1
C50.412 Malignant neoplasm of upper-outer quadrant of left female breast	1	Neoplasms	1
C50.912 Malignant neoplasm of unspecified site of left female breast	1	Neoplasms	1
C50.919 Malignant neoplasm of unspecified site of unspecified female breast	1	Neoplasms	1
C56.9 Malignant neoplasm of unspecified ovary	1	Neoplasms	1
C71.0 Malignant neoplasm of cerebrum, except lobes and ventricles (Malignant neoplasm of supratentorial NOS)	2	Neoplasms	1
C71.1 Malignant neoplasm of frontal lobe	1	Neoplasms	1

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C71.2 Malignant neoplasm of temporal lobe	3	Neoplasms	1
C71.6 Malignant neoplasm of cerebellum	9	Neoplasms	1
C71.9 Malignant neoplasm of brain, unspecified	52	Neoplasms	1
C79.31 Secondary malignant neoplasm of brain	11	Neoplasms	1
C79.81 Secondary malignant neoplasm of breast	1	Neoplasms	1
C80.1 Malignant (primary) neoplasm, unspecified (Cancer NOS; Cancer unspecified site (primary); Carcinoma unspecified site (primary); Malignancy unspecified site (primary); secondary malignant neoplasm of unspecified site (C79.9))	4	Neoplasms	1
C81.20 Mixed cellularity Hodgkin lymphoma, unspecified site	1	Neoplasms	1
C83.00 Small cell B-cell lymphoma, unspecified site	1	Neoplasms	1
C83.30 Diffuse large B-cell lymphoma, unspecified site	1	Neoplasms	1
C83.70 Burkitt lymphoma, unspecified site	1	Neoplasms	1
C83.79 Burkitt lymphoma, extranodal and solid organ sites	1	Neoplasms	1
C85.89 Other specified types of non-Hodgkin lymphoma, extranodal and solid organ sites	2	Neoplasms	1
C85.90 Non-Hodgkin lymphoma, unspecified, unspecified site	1	Neoplasms	1
C91.00 Acute lymphoblastic leukemia not having achieved remission (Acute lymphoblastic leukemia with failed remission; Acute lymphoblastic leukemia NOS)	2	Neoplasms	1
C92.A1 Acute myeloid leukemia with multilineage dysplasia, in remission	1	Neoplasms	1
C93.11 Chronic myelomonocytic leukemia, in remission	1	Neoplasms	1
D18.00 Hemangioma unspecified site	1	Neoplasms	1
D32.0 Benign neoplasm of cerebral meninges	4	Neoplasms	1
D32.9 Benign neoplasm of meninges, unspecified	1	Neoplasms	1
D32.9 Benign neoplasm of meninges, unspecified (Meningioma NOS)	8	Neoplasms	1
D33.2 Benign neoplasm of brain, unspecified	2	Neoplasms	1

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<b>Diagnosis Code &amp; Label</b>	<b>Frequency</b>	<b>DX Label</b>	<b>DX_TYPE (code)</b>
D33.3 Benign neoplasm of cranial nerves (Benign neoplasm of olfactory bulb)	1	Neoplasms	1
D43.2 Neoplasm of uncertain behavior of brain, unspecified	1	Neoplasms	1
D44.4 Neoplasm of uncertain behavior of craniopharyngeal duct	3	Neoplasms	1
D46.9 Myelodysplastic syndrome, unspecified (Myelodysplasia NOS)	1	Neoplasms	1
D48.1 Neoplasm of uncertain behavior of connective and other soft tissue (Neoplasm of uncertain behavior of connective tissue of ear; Neoplasm of uncertain behavior of connective tissue of eyelid; Stromal tumors of uncertain behavior of digestive system; neoplasm of uncertain behavior of articular cartilage (D48.0); neoplasm of uncertain behavior of cartilage of larynx (D38.0); neoplasm of uncertain behavior of cartilage of nose (D38.5); neoplasm of uncertain behavior of connective tissue of breast (D48.6-))	2	Neoplasms	1
D49.6 Neoplasm of unspecified behavior of brain	3	Neoplasms	1
D49.6 Neoplasm of unspecified behavior of brain (neoplasm of unspecified behavior of cerebral meninges (D49.7); neoplasm of unspecified behavior of cranial nerves (D49.7))	23	Neoplasms	1
D57.1 Sickle-cell disease without crisis (Hb-SS disease without crisis; Sickle-cell anemia NOS; Sickle-cell disease NOS; Sickle-cell disorder NOS)	1		
D82.1 Di George's syndrome (Pharyngeal pouch syndrome; Thymic aplasia; Thymic aplasia or hypoplasia with immunodeficiency)	1		
D86 Sarcoidosis	1		
E03.8 Other specified hypothyroidism	1		
E03.9 Hypothyroidism, unspecified (Myxedema NOS)	1		
E06.3 Autoimmune thyroiditis (Hashimoto's thyroiditis; Hashitoxicosis (transient); Lymphadenoid goiter; Lymphocytic thyroiditis; Struma lymphomatosa)	1		
E11.9 Type 2 diabetes mellitus without complications	2		

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<b>Diagnosis Code &amp; Label</b>	<b>Frequency</b>	<b>DX Label</b>	<b>DX_TYPE (code)</b>
E28.2 Polycystic ovarian syndrome (Sclerocystic ovary syndrome; Stein-Leventhal syndrome)	1		
E34.9 Endocrine disorder, unspecified (Endocrine disturbance NOS; Hormone disturbance NOS)	2		
E51.2 Wernicke's encephalopathy	2		
E78.4 Other hyperlipidemia	1		
E78.5 Hyperlipidemia, unspecified	3		
E85.4 Organ-limited amyloidosis (Localized amyloidosis; Transthyretin-related (ATTR) familial amyloid cardiomyopathy)	1		
E89.3 Postprocedural hypopituitarism (Postirradiation hypopituitarism)	1		
F01.50 Vascular dementia without behavioral disturbance (Major neurocognitive disorder without behavioral disturbance)	20	Cerebrovascula r	2
F01.51 Vascular dementia with behavioral disturbance (Major neurocognitive disorder due to vascular disease, with behavioral disturbance; Major neurocognitive disorder with aggressive behavior; Major neurocognitive disorder with combative behavior; Major neurocognitive disorder with violent behavior; Vascular dementia with aggressive behavior; Vascular dementia with combative behavior; Vascular dementia with violent behavior; code, if applicable, to identify wandering in vascular dementia (Z91.83))	1	Cerebrovascula r	2
F02.80 Dementia in other diseases classified elsewhere without behavioral disturbance (Dementia in other diseases classified elsewhere NOS; Major neurocognitive disorder in other diseases classified elsewhere)	1		

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<b>Diagnosis Code &amp; Label</b>	<b>Frequency</b>	<b>DX Label</b>	<b>DX_TYPE (code)</b>
F02.81 Dementia in other diseases classified elsewhere with behavioral disturbance (Dementia in other diseases classified elsewhere with aggressive behavior; Dementia in other diseases classified elsewhere with combative behavior; Dementia in other diseases classified elsewhere with violent behavior; Major neurocognitive disorder in other diseases classified elsewhere with aggressive behavior; Major neurocognitive disorder in other diseases classified elsewhere with combative behavior; Major neurocognitive disorder in other diseases classified elsewhere with violent behavior; code, if applicable, to identify wandering in dementia in conditions classified elsewhere (Z91.83))	1		
F03.90 Unspecified dementia without behavioral disturbance (Dementia NOS)	27		
F03.91 Unspecified dementia with behavioral disturbance (Unspecified dementia with aggressive behavior; Unspecified dementia with combative behavior; Unspecified dementia with violent behavior; code, if applicable, to identify wandering in unspecified dementia (Z91.83))	6		
F06.8 Other specified mental disorders due to known physiological condition (Epileptic psychosis NOS; Obsessive-compulsive and related disorder due to a known physiological condition; Organic dissociative disorder; Organic emotionally labile [asthenic] disorder)	9		
F07.0 Personality change due to known physiological condition (Frontal lobe syndrome; Limbic epilepsy personality syndrome; Lobotomy syndrome; Organic personality disorder; Organic pseudopsychopathic personality; Organic pseudoretarded personality; Postleucotomy syndrome; underlying physiological condition; mild cognitive impairment (G31.84); postconcussional syndrome (F07.81); postencephalitic syndrome (F07.89); signs and symptoms involving emotional state (R45.-); specific personality disorder (F60.-))	2		

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Diagnosis Code & Label	Frequency	DX Label	DX_TYPE (code)
F07.81 Postconcussional syndrome	2	TBI	
F07.81 Postconcussional syndrome (Postcontusional syndrome (encephalopathy); Post-traumatic brain syndrome, nonpsychotic; code to identify associated post-traumatic headache, if applicable (G44.3-); current concussion (brain) (S06.0-); postencephalitic syndrome (F07.89))	39	TBI	
F09 Unspecified mental disorder due to known physiological condition (Mental disorder NOS due to known physiological condition; Organic brain syndrome NOS; Organic mental disorder NOS; Organic psychosis NOS; Symptomatic psychosis NOS; the underlying physiological condition; psychosis NOS (F29))	7		
F10.1 Alcohol abuse (alcohol dependence (F10.2-); alcohol use, unspecified (F10.9-))	1		
F10.20 Alcohol dependence, uncomplicated (Alcohol use disorder, moderate; Alcohol use disorder, severe)	1		
F10.27 Alcohol dependence with alcohol-induced persisting dementia (Alcohol use disorder, moderate, with alcohol-induced major neurocognitive disorder, nonamnestic-confabulatory type; Alcohol use disorder, severe, with alcohol-induced major neurocognitive disorder, nonamnestic-confabulatory type)	1		
F22 Delusional disorders (Delusional dysmorphophobia; Involutional paranoid state; Paranoia; Paranoia querulans; Paranoid psychosis; Paranoid state; Paraphrenia (late); Sensitiver Beziehungswahn; mood [affective] disorders with psychotic symptoms (F30.2, F31.2, F31.5, F31.64, F32.3, F33.3); paranoid schizophrenia (F20.0); paranoid personality disorder (F60.0); paranoid psychosis, psychogenic (F23); paranoid reaction (F23))	1		
F23 Brief psychotic disorder (Paranoid reaction; Psychogenic paranoid psychosis; mood [affective] disorders with psychotic symptoms (F30.2, F31.2, F31.5, F31.64, F32.3, F33.3))	1		

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Diagnosis Code & Label	Frequency	DX Label	DX_TYPE (code)
F25.9 Schizoaffective disorder, unspecified (Schizoaffective psychosis NOS)	1		
F29 Unspecified psychosis not due to a substance or known physiological condition (Psychosis NOS; Unspecified schizophrenia spectrum and other psychotic disorder; mental disorder NOS (F99); unspecified mental disorder due to known physiological condition (F09))	1		
F31 Bipolar disorder (bipolar I disorder; bipolar type I disorder; manic-depressive illness; manic-depressive psychosis; manic-depressive reaction; bipolar disorder, single manic episode (F30.-); major depressive disorder, single episode (F32.-); major depressive disorder, recurrent (F33.-); cyclothymia (F34.0))	1	Anxiety & Mood	
F31.31 Bipolar disorder, current episode depressed, mild	1	Anxiety & Mood	
F31.64 Bipolar disorder, current episode mixed, severe, with psychotic features (Bipolar disorder, current episode mixed with mood-congruent psychotic symptoms; Bipolar disorder, current episode mixed with mood-incongruent psychotic symptoms)	1	Anxiety & Mood	
F31.76 Bipolar disorder, in full remission, most recent episode depressed	1	Anxiety & Mood	
F31.81 Bipolar II disorder (Bipolar disorder, type 2)	1	Anxiety & Mood	
F31.89 Other bipolar disorder (Recurrent manic episodes NOS)	1	Anxiety & Mood	
F31.9 Bipolar disorder, unspecified (Manic depression)	2	Anxiety & Mood	
F32.4 Major depressive disorder, single episode, in partial remission	1	Anxiety & Mood	
F32.89 Other specified depressive episodes (Atypical depression; Post-schizophrenic depression; Single episode of 'masked' depression NOS)	2	Anxiety & Mood	
F32.9 Major depressive disorder, single episode, unspecified (Depression NOS; Depressive disorder NOS; Major depression NOS)	12	Anxiety & Mood	

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<b>Diagnosis Code &amp; Label</b>	<b>Frequency</b>	<b>DX Label</b>	<b>DX_TYPE (code)</b>
F33 Major depressive disorder, recurrent (recurrent episodes of depressive reaction; recurrent episodes of endogenous depression; recurrent episodes of major depression; recurrent episodes of psychogenic depression; recurrent episodes of reactive depression; recurrent episodes of seasonal depressive disorder; recurrent episodes of vital depression; bipolar disorder (F31.-); manic episode (F30.-))	2	Anxiety & Mood	
F33.0 Major depressive disorder, recurrent, mild	1	Anxiety & Mood	
F33.1 Major depressive disorder, recurrent, moderate	7	Anxiety & Mood	
F33.2 Major depressive disorder, recurrent severe without psychotic features	4	Anxiety & Mood	
F33.41 Major depressive disorder, recurrent, in partial remission	2	Anxiety & Mood	
F33.42 Major depressive disorder, recurrent, in full remission	1	Anxiety & Mood	
F33.9 Major depressive disorder, recurrent, unspecified (Monopolar depression NOS)	2	Anxiety & Mood	
F34.1 Dysthymic disorder (Depressive neurosis; Depressive personality disorder; Dysthymia; Neurotic depression; Persistent anxiety depression; Persistent depressive disorder; anxiety depression (mild or not persistent) (F41.8))	3	Anxiety & Mood	
F39 Unspecified mood [affective] disorder (Affective psychosis NOS)	3	Anxiety & Mood	
F41.0 Panic disorder [episodic paroxysmal anxiety] (Panic attack; Panic state; panic disorder with agoraphobia (F40.01))	1	Anxiety & Mood	
F41.1 Generalized anxiety disorder (Anxiety neurosis; Anxiety reaction; Anxiety state; Overanxious disorder; neurasthenia (F48.8))	11	Anxiety & Mood	
F41.3 Other mixed anxiety disorders	1	Anxiety & Mood	
F41.8 Other specified anxiety disorders (Anxiety depression (mild or not persistent); Anxiety hysteria; Mixed anxiety and depressive disorder)	1	Anxiety & Mood	
F41.9 Anxiety disorder, unspecified	1	Anxiety & Mood	
F41.9 Anxiety disorder, unspecified (Anxiety NOS)	15	Anxiety & Mood	



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<b>Diagnosis Code &amp; Label</b>	<b>Frequency</b>	<b>DX Label</b>	<b>DX_TYPE (code)</b>
F42.2 Mixed obsessional thoughts and acts	2	Anxiety & Mood	
F42.9 Obsessive-compulsive disorder, unspecified	1	Anxiety & Mood	
F43.0 Acute stress reaction (Acute crisis reaction; Acute reaction to stress; Combat and operational stress reaction; Combat fatigue; Crisis state; Psychic shock)	1	Anxiety & Mood	
F43.1 Post-traumatic stress disorder (PTSD) (Traumatic neurosis)	2	Anxiety & Mood	
F43.10 Post-traumatic stress disorder, unspecified	13	Anxiety & Mood	
F43.21 Adjustment disorder with depressed mood	2	Anxiety & Mood	
F43.23 Adjustment disorder with mixed anxiety and depressed mood	2	101	
F44.4 Conversion disorder with motor symptom or deficit (Conversion disorder with abnormal movement; Conversion disorder with speech symptoms; Conversion disorder with swallowing symptoms; Conversion disorder with weakness/paralysis; Dissociative motor disorders; Psychogenic aphonia; Psychogenic dysphonia)	1		
F44.5 Conversion disorder with seizures or convulsions (Conversion disorder with attacks or seizures; Dissociative convulsions)	4		
F44.7 Conversion disorder with mixed symptom presentation	1		
F45.0 Somatization disorder (Briquet's disorder; Multiple psychosomatic disorder)	1		
F45.41 Pain disorder exclusively related to psychological factors (Somatoform pain disorder (persistent))	1		
F48.2 Pseudobulbar affect (Involuntary emotional expression disorder; underlying cause, if known, such as:; amyotrophic lateral sclerosis (G12.21); multiple sclerosis (G35); sequelae of cerebrovascular disease (I69.-); sequelae of traumatic intracranial injury (S06.-))	1		
F48.8 Other specified nonpsychotic mental disorders	2		

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F48.8 Other specified nonpsychotic mental disorders (Dhat syndrome; Neurasthenia; Occupational neurosis, including writer's cramp; Psychasthenia; Psychasthenic neurosis; Psychogenic syncope)	4		
F50.00 Anorexia nervosa, unspecified	1		
F60.3 Borderline personality disorder (Aggressive personality (disorder); Emotionally unstable personality disorder; Explosive personality (disorder); antisocial personality disorder (F60.2))	3		
F79 Unspecified intellectual disabilities (Mental deficiency NOS; Mental subnormality NOS)	1		
F80.9 Developmental disorder of speech and language, unspecified (Communication disorder NOS; Language disorder NOS)	1		
F81.0 Specific reading disorder ('Backward reading' Developmental dyslexia; Specific learning disorder, with impairment in reading; Specific reading retardation; alexia NOS (R48.0); dyslexia NOS (R48.0))	1		
F81.9 Developmental disorder of scholastic skills, unspecified (Knowledge acquisition disability NOS; Learning disability NOS; Learning disorder NOS)	8		
F84.0 Autistic disorder (Autism spectrum disorder; Infantile autism; Infantile psychosis; Kanner's syndrome; Asperger's syndrome (F84.5))	1		
F84.5 Asperger's syndrome (Asperger's disorder; Autistic psychopathy; Schizoid disorder of childhood)	2		
F84.9 Pervasive developmental disorder, unspecified (Atypical autism)	1		
F89 Unspecified disorder of psychological development (Developmental disorder NOS; Neurodevelopmental disorder NOS)	2		
F90 Attention-deficit hyperactivity disorders (attention deficit disorder with hyperactivity; attention deficit syndrome with hyperactivity; anxiety disorders (F40.-, F41.-); mood [affective] disorders (F30-F39); pervasive	3	ADHD	

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developmental disorders (F84.-); schizophrenia (F20.-)			
F90.0 Attention-deficit hyperactivity disorder, predominantly inattentive type	1	ADHD	
F90.0 Attention-deficit hyperactivity disorder, predominantly inattentive type (Attention-deficit/hyperactivity disorder, predominantly inattentive presentation)	9	ADHD	
F90.2 Attention-deficit hyperactivity disorder, combined type	1	ADHD	
F90.2 Attention-deficit hyperactivity disorder, combined type (Attention-deficit/hyperactivity disorder, combined presentation)	4	ADHD	
F90.9 Attention-deficit hyperactivity disorder, unspecified type	8	ADHD	
F90.9 Attention-deficit hyperactivity disorder, unspecified type (Attention-deficit hyperactivity disorder of childhood or adolescence NOS; Attention-deficit hyperactivity disorder NOS)	36	ADHD	
F95.1 Chronic motor or vocal tic disorder	1		
F95.2 Tourette's disorder (Combined vocal and multiple motor tic disorder [de la Tourette]; Tourette's syndrome)	3		
F98.8 Other specified behavioral and emotional disorders with onset usually occurring in childhood and adolescence (Excessive masturbation; Nail-biting; Nose-picking; Thumb-sucking)	4		
G04.81 Other encephalitis and encephalomyelitis (Noninfectious acute disseminated encephalomyelitis (noninfectious ADEM))	4		
G04.90 Encephalitis and encephalomyelitis, unspecified (Ventriculitis (cerebral) NOS)	3		
G06.0 Intracranial abscess and granuloma (Brain [any part] abscess (embolic); Cerebellar abscess (embolic); Cerebral abscess (embolic); Intracranial epidural abscess or granuloma; Intracranial extradural abscess or granuloma; Intracranial subdural abscess or granuloma;	1		

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Otogenic abscess (embolic); tuberculous intracranial abscess and granuloma (A17.81))			
G10 Huntington's disease (Huntington's chorea; Huntington's dementia; dementia in other diseases classified elsewhere without behavioral disturbance (F02.80))	6	Movement Disorders	
G11.3 Cerebellar ataxia with defective DNA repair (Ataxia telangiectasia [Louis-Bar]; Cockayne's syndrome (Q87.19); other disorders of purine and pyrimidine metabolism (E79.-); xeroderma pigmentosum (Q82.1))	1	Movement Disorders	
G11.4 Hereditary spastic paraplegia	1	Movement Disorders	
G11.9 Hereditary ataxia, unspecified (Hereditary cerebellar ataxia NOS; Hereditary cerebellar degeneration; Hereditary cerebellar disease; Hereditary cerebellar syndrome)	1	Movement Disorders	
G12.21 Amyotrophic lateral sclerosis	2	Movement Disorders	
G20 Parkinson's disease	5	Movement Disorders	
G20 Parkinson's disease (Hemiparkinsonism; Idiopathic Parkinsonism or Parkinson's disease; Paralysis agitans; Parkinsonism or Parkinson's disease NOS; Primary Parkinsonism or Parkinson's disease; dementia with Parkinsonism (G31.83))	513	Movement Disorders	
G21.4 Vascular parkinsonism	1	Movement Disorders	
G24 Dystonia (dyskinesia; athetoid cerebral palsy (G80.3))	1	Movement Disorders	
G24.2 Idiopathic nonfamilial dystonia	2	Movement Disorders	
G24.3 Spasmodic torticollis (congenital torticollis (Q68.0); hysterical torticollis (F44.4); ocular torticollis (R29.891); psychogenic torticollis (F45.8); torticollis NOS (M43.6); traumatic recurrent torticollis (S13.4))	11	Movement Disorders	
G24.4 Idiopathic orofacial dystonia (Orofacial dyskinesia; drug induced orofacial dyskinesia (G24.01))	3	Movement Disorders	
G24.5 Blepharospasm (drug induced blepharospasm (G24.01))	1	Movement Disorders	

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G24.8 Other dystonia (Acquired torsion dystonia NOS)	1	Movement Disorders	
G24.9 Dystonia, unspecified (Dyskinesia NOS)	10	Movement Disorders	
G25.0 Essential tremor	2	Movement Disorders	
G25.0 Essential tremor (Familial tremor; tremor NOS (R25.1))	112	Movement Disorders	
G25.2 Other specified forms of tremor (Intention tremor)	4	Movement Disorders	
G25.5 Other chorea (Chorea NOS; chorea NOS with heart involvement (I02.0); Huntington's chorea (G10); rheumatic chorea (I02.-); Sydenham's chorea (I02.-))	1	Movement Disorders	
G25.69 Other tics of organic origin (habit spasm (F95.9); tic NOS (F95.9); Tourette's syndrome (F95.2))	1	Movement Disorders	
G25.9 Extrapyrarnidal and movement disorder, unspecified	1	Movement Disorders	
G30.0 Alzheimer's disease with early onset	6		
G30.1 Alzheimer's disease with late onset	5		
G30.8 Other Alzheimer's disease	1		
G30.9 Alzheimer's disease, unspecified	7		
G31.0 Frontotemporal dementia	1		
G31.01 Pick's disease (Primary progressive aphasia; Progressive isolated aphasia)	3		
G31.09 Other frontotemporal dementia (Frontal dementia)	2		
G31.83 Dementia with Lewy bodies (Dementia with Parkinsonism; Lewy body dementia; Lewy body disease)	9		
G31.84 Mild cognitive impairment, so stated	3	MCI	
G31.84 Mild cognitive impairment, so stated (Mild neurocognitive disorder; age related cognitive decline (R41.81); altered mental status (R41.82); cerebral degeneration (G31.9); change in mental status (R41.82); cognitive deficits following (sequelae of) cerebral hemorrhage or infarction (I69.01-, I69.11-, I69.21-, I69.31-, I69.81-, I69.91-); cognitive impairment due to intracranial or head injury (S06.-); dementia (F01.-, F02.-, F03); mild memory disturbance (F06.8); neurologic	148	MCI	

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neglect syndrome (R41.4); personality change, nonpsychotic (F68.8)			
G31.85 Corticobasal degeneration	1		
G31.9 Degenerative disease of nervous system, unspecified	3		
G35 Multiple sclerosis (Disseminated multiple sclerosis; Generalized multiple sclerosis; Multiple sclerosis NOS; Multiple sclerosis of brain stem; Multiple sclerosis of cord)	57		
G37.8 Other specified demyelinating diseases of central nervous system	1		
G37.9 Demyelinating disease of central nervous system, unspecified	1		
G40.009 Localization-related (focal) (partial) idiopathic epilepsy and epileptic syndromes with seizures of localized onset, not intractable, without status epilepticus (Localization-related (focal) (partial) idiopathic epilepsy and epileptic syndromes with seizures of localized onset NOS)	5	Seizure Disorders	
G40.011 Localization-related (focal) (partial) idiopathic epilepsy and epileptic syndromes with seizures of localized onset, intractable, with status epilepticus	6	Seizure Disorders	
G40.019 Localization-related (focal) (partial) idiopathic epilepsy and epileptic syndromes with seizures of localized onset, intractable, without status epilepticus	32	Seizure Disorders	
G40.109 Localization-related (focal) (partial) symptomatic epilepsy and epileptic syndromes with simple partial seizures, not intractable, without status epilepticus	2	Seizure Disorders	
G40.109 Localization-related (focal) (partial) symptomatic epilepsy and epileptic syndromes with simple partial seizures, not intractable, without status epilepticus (Localization-related (focal) (partial) symptomatic epilepsy and	31	Seizure Disorders	

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epileptic syndromes with simple partial seizures NOS)			
G40.111 Localization-related (focal) (partial) symptomatic epilepsy and epileptic syndromes with simple partial seizures, intractable, with status epilepticus	1	Seizure Disorders	
G40.119 Localization-related (focal) (partial) symptomatic epilepsy and epileptic syndromes with simple partial seizures, intractable, without status epilepticus	25	Seizure Disorders	
G40.201 Localization-related (focal) (partial) symptomatic epilepsy and epileptic syndromes with complex partial seizures, not intractable, with status epilepticus	1	Seizure Disorders	
G40.209 Localization-related (focal) (partial) symptomatic epilepsy and epileptic syndromes with complex partial seizures, not intractable, without status epilepticus (Localization-related (focal) (partial) symptomatic epilepsy and epileptic syndromes with complex partial seizures NOS)	33	Seizure Disorders	
G40.21 Localization-related (focal) (partial) symptomatic epilepsy and epileptic syndromes with complex partial seizures, intractable	1	Seizure Disorders	
G40.211 Localization-related (focal) (partial) symptomatic epilepsy and epileptic syndromes with complex partial seizures, intractable, with status epilepticus	4	Seizure Disorders	
G40.219 Localization-related (focal) (partial) symptomatic epilepsy and epileptic syndromes with complex partial seizures, intractable, without status epilepticus	119	Seizure Disorders	
G40.309 Generalized idiopathic epilepsy and epileptic syndromes, not intractable, without status epilepticus (Generalized idiopathic epilepsy and epileptic syndromes NOS)	4	Seizure Disorders	
G40.311 Generalized idiopathic epilepsy and epileptic syndromes, intractable, with status epilepticus	1	Seizure Disorders	

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<b>Diagnosis Code &amp; Label</b>	<b>Frequency</b>	<b>DX Label</b>	<b>DX_TYPE (code)</b>
G40.319 Generalized idiopathic epilepsy and epileptic syndromes, intractable, without status epilepticus	6	Seizure Disorders	
G40.409 Other generalized epilepsy and epileptic syndromes, not intractable, without status epilepticus	3	Seizure Disorders	
G40.8 Other epilepsy and recurrent seizures (Epilepsies and epileptic syndromes undetermined as to whether they are focal or generalized; Landau-Kleffner syndrome)	1	Seizure Disorders	
G40.801 Other epilepsy, not intractable, with status epilepticus	1	Seizure Disorders	
G40.802 Other epilepsy, not intractable, without status epilepticus (Other epilepsy NOS; Other epilepsy without intractability without status epilepticus)	1	Seizure Disorders	
G40.804 Other epilepsy, intractable, without status epilepticus	11	Seizure Disorders	
G40.812 Lennox-Gastaut syndrome, not intractable, without status epilepticus	1	Seizure Disorders	
G40.814 Lennox-Gastaut syndrome, intractable, without status epilepticus	3	Seizure Disorders	
G40.89 Other seizures	2	Seizure Disorders	
G40.89 Other seizures (post traumatic seizures (R56.1); recurrent seizures NOS (G40.909); seizure NOS (R56.9))	3	Seizure Disorders	
G40.901 Epilepsy, unspecified, not intractable, with status epilepticus	1	Seizure Disorders	
G40.909 Epilepsy, unspecified, not intractable, without status epilepticus	2	Seizure Disorders	
G40.909 Epilepsy, unspecified, not intractable, without status epilepticus (Epilepsy NOS; Epileptic convulsions NOS; Epileptic fits NOS; Epileptic seizures NOS; Recurrent seizures NOS; Seizure disorder NOS)	66	Seizure Disorders	
G40.919 Epilepsy, unspecified, intractable, without status epilepticus	9	Seizure Disorders	
G40.A01 Absence epileptic syndrome, not intractable, with status epilepticus	1	Seizure Disorders	
G40.B09 Juvenile myoclonic epilepsy, not intractable, without status epilepticus	2	Seizure Disorders	
		Disorders	378



## Supplemental Table 2

Recoding of Original ICD-10-CM Codes into Diagnostic Types (DX\_TYPE) for Pre-Exam Diagnoses

Diagnosis Code & Label	Frequency	DX Label	DX_TYPE (code)
G43 Migraine (the following terms are to be considered equivalent to intractable: pharmacoresistant (pharmacologically resistant), treatment resistant, refractory (medically) and poorly controlled; code for adverse effect, if applicable, to identify drug (T36-T50 with fifth or sixth character 5); headache NOS (R51); lower half migraine (G44.00); headache syndromes (G44.-))	1		
G43.009 Migraine without aura, not intractable, without status migrainosus (Migraine without aura NOS)	1		
G43.70 Chronic migraine without aura, not intractable (Chronic migraine without aura, without refractory migraine)	1		
G43.709 Chronic migraine without aura, not intractable, without status migrainosus (Chronic migraine without aura NOS)	1		
G43.909 Migraine, unspecified, not intractable, without status migrainosus (Migraine NOS)	2		
G44.329 Chronic post-traumatic headache, not intractable (Chronic post-traumatic headache NOS)	2		
G45.4 Transient global amnesia (amnesia NOS (R41.3))	3		
G45.9 Transient cerebral ischemic attack, unspecified (Spasm of cerebral artery; TIA; Transient cerebral ischemia NOS)	8		
G46.2 Posterior cerebral artery syndrome	1		Cerebrovascular
G47.00 Insomnia, unspecified (Insomnia NOS)	1		Cerebrovascular
G47.33 Obstructive sleep apnea (adult) (pediatric) (Obstructive sleep apnea hypopnea; obstructive sleep apnea of newborn (P28.3))	2		
G50.0 Trigeminal neuralgia (Syndrome of paroxysmal facial pain; Tic douloureux)	1		
G56.0 Carpal tunnel syndrome	1		
G56.40 Causalgia of unspecified upper limb	1		
G62.0 Drug-induced polyneuropathy (code for adverse effect, if applicable, to identify drug (T36-T50 with fifth or sixth character 5))	1		
G62.9 Polyneuropathy, unspecified (Neuropathy NOS)	1		

## Supplemental Table 2

Recoding of Original ICD-10-CM Codes into Diagnostic Types (DX\_TYPE) for Pre-Exam Diagnoses

Diagnosis Code & Label	Frequency	DX Label	DX_TYPE (code)
G71.11 Myotonic muscular dystrophy (Dystrophia myotonica [Steinert]; Myotonia atrophica; Myotonic dystrophy; Proximal myotonic myopathy (PROMM); Steinert disease)	1		
G80.8 Other cerebral palsy (Mixed cerebral palsy syndromes)	1		
G80.9 Cerebral palsy, unspecified (Cerebral palsy NOS)	1		
G81.94 Hemiplegia, unspecified affecting left nondominant side	1		
G82.50 Quadriplegia, unspecified	1		
G83.9 Paralytic syndrome, unspecified	1		
G89.2 Chronic pain, not elsewhere classified (causalgia, lower limb (G57.7-); causalgia, upper limb (G56.4-); central pain syndrome (G89.0); chronic pain syndrome (G89.4); complex regional pain syndrome II, lower limb (G57.7-); complex regional pain syndrome II, upper limb (G56.4-); neoplasm related chronic pain (G89.3); reflex sympathetic dystrophy (G90.5-))	2		
G89.29 Other chronic pain	1		
G90.1 Familial dysautonomia [Riley-Day]	1		
G91.2 (Idiopathic) normal pressure hydrocephalus (Normal pressure hydrocephalus NOS)	4		
G91.9 Hydrocephalus, unspecified	6		
G92 Toxic encephalopathy (Toxic encephalitis; Toxic metabolic encephalopathy; , if applicable, drug induced (T36-T50); (T51-T65) to identify toxic agent)	1		
G93.0 Cerebral cysts (Arachnoid cyst; Porencephalic cyst, acquired; acquired periventricular cysts of newborn (P91.1); congenital cerebral cysts (Q04.6))	5		
G93.1 Anoxic brain damage, not elsewhere classified (cerebral anoxia due to anesthesia during labor and delivery (O74.3); cerebral anoxia due to anesthesia during the puerperium (O89.2); neonatal anoxia (P84))	2		
G93.2 Benign intracranial hypertension (hypertensive encephalopathy (I67.4))	1		

Cerebrovascular



**Supplemental Table 2***Recoding of Original ICD-10-CM Codes into Diagnostic Types (DX\_TYPE) for Pre-Exam Diagnoses*

<b>Diagnosis Code &amp; Label</b>	<b>Frequency</b>	<b>DX Label</b>	<b>DX_TYPE (code)</b>
overload unrelated to congestive heart failure (E87.70))			
I60.2 Nontraumatic subarachnoid hemorrhage from anterior communicating artery	3	Cerebrovascular	
I60.7 Nontraumatic subarachnoid hemorrhage from unspecified intracranial artery (Ruptured (congenital) berry aneurysm; Ruptured (congenital) cerebral aneurysm; Subarachnoid hemorrhage (nontraumatic) from cerebral artery NOS; Subarachnoid hemorrhage (nontraumatic) from communicating artery NOS; berry aneurysm, nonruptured (I67.1))	1	Cerebrovascular	
I60.8 Other nontraumatic subarachnoid hemorrhage (Meningeal hemorrhage; Rupture of cerebral arteriovenous malformation)	1	Cerebrovascular	
I60.9 Nontraumatic subarachnoid hemorrhage, unspecified	15	Cerebrovascular	
I61 Nontraumatic intracerebral hemorrhage (sequelae of intracerebral hemorrhage (I69.1-))	1	Cerebrovascular	
I61.0 Nontraumatic intracerebral hemorrhage in hemisphere, subcortical (Deep intracerebral hemorrhage (nontraumatic))	1	Cerebrovascular	
I61.8 Other nontraumatic intracerebral hemorrhage	1	Cerebrovascular	
I61.9 Nontraumatic intracerebral hemorrhage, unspecified	7	Cerebrovascular	
I62 Other and unspecified nontraumatic intracranial hemorrhage (sequelae of intracranial hemorrhage (I69.2))	1	Cerebrovascular	
I62.00 Nontraumatic subdural hemorrhage, unspecified	2	Cerebrovascular	
I62.9 Nontraumatic intracranial hemorrhage, unspecified	1	Cerebrovascular	
I63 Cerebral infarction (occlusion and stenosis of cerebral and precerebral arteries, resulting in cerebral infarction; code, if applicable, to identify status post administration of tPA (rtPA) in a different facility within the last 24 hours prior to admission to current facility (Z92.82); code, if known, to indicate National Institutes of Health Stroke Scale (NIHSS) score (R29.7-); sequelae of cerebral infarction (I69.3-))	1	Cerebrovascular	

**Supplemental Table 2***Recoding of Original ICD-10-CM Codes into Diagnostic Types (DX\_TYPE) for Pre-Exam Diagnoses*

<b>Diagnosis Code &amp; Label</b>	<b>Frequency</b>	<b>DX Label</b>	<b>DX_TYPE (code)</b>
I63.311 Cerebral infarction due to thrombosis of right middle cerebral artery	1	Cerebrovascular	
I63.511 Cerebral infarction due to unspecified occlusion or stenosis of right middle cerebral artery	1	Cerebrovascular	
I63.512 Cerebral infarction due to unspecified occlusion or stenosis of left middle cerebral artery	4	Cerebrovascular	
I63.531 Cerebral infarction due to unspecified occlusion or stenosis of right posterior cerebral artery	1	Cerebrovascular	
I63.532 Cerebral infarction due to unspecified occlusion or stenosis of left posterior cerebral artery	1	Cerebrovascular	
I63.6 Cerebral infarction due to cerebral venous thrombosis, nonpyogenic	1	Cerebrovascular	
I63.81 Other cerebral infarction due to occlusion or stenosis of small artery (Lacunar infarction)	2	Cerebrovascular	
I63.9 Cerebral infarction, unspecified	1	Cerebrovascular	
I63.9 Cerebral infarction, unspecified (Stroke NOS; transient cerebral ischemic attacks and related syndromes (G45.-))	41	Cerebrovascular	
I67.2 Cerebral atherosclerosis (Atheroma of cerebral and precerebral arteries)	2	Cerebrovascular	
I67.4 Hypertensive encephalopathy (insufficiency, NOS, of precerebral arteries (G45.2))	1	Cerebrovascular	
I67.5 Moyamoya disease	11	Cerebrovascular	
I67.850 Cerebral autosomal dominant arteriopathy with subcortical infarcts and leukoencephalopathy (CADASIL; any associated diagnoses, such as:; epilepsy (G40.-); stroke (I63.-); vascular dementia (F01.-))	1	Cerebrovascular	
I67.9 Cerebrovascular disease, unspecified	4	Cerebrovascular	
I68.0 Cerebral amyloid angiopathy (underlying amyloidosis (E85.-))	1	Cerebrovascular	
I69.120 Aphasia following nontraumatic intracerebral hemorrhage	1	Cerebrovascular	
I69.3 Sequelae of cerebral infarction (Sequelae of stroke NOS)	3	Cerebrovascular	

## Supplemental Table 2

Recoding of Original ICD-10-CM Codes into Diagnostic Types (DX\_TYPE) for Pre-Exam Diagnoses

Diagnosis Code & Label	Frequency	DX Label	DX_TYPE (code)
I69.30 Unspecified sequelae of cerebral infarction	34	Cerebrovascular	
I69.31 Cognitive deficits following cerebral infarction	1	Cerebrovascular	
I69.311 Memory deficit following cerebral infarction	1	Cerebrovascular	
I69.319 Unspecified symptoms and signs involving cognitive functions following cerebral infarction	2	Cerebrovascular	
I69.320 Aphasia following cerebral infarction	1	Cerebrovascular	
I69.322 Dysarthria following cerebral infarction (transient ischemic attack (TIA) (G45.9))	1	Cerebrovascular	
I69.80 Unspecified sequelae of other cerebrovascular disease	1	Cerebrovascular	
I69.9 Sequelae of unspecified cerebrovascular diseases (sequelae of stroke (I69.3); sequelae of traumatic intracranial injury (S06.-))	1	Cerebrovascular	
I69.919 Unspecified symptoms and signs involving cognitive functions following unspecified cerebrovascular disease	1	Cerebrovascular	
I69.959 Hemiplegia and hemiparesis following unspecified cerebrovascular disease affecting unspecified side	1	Cerebrovascular	
I72.9 Aneurysm of unspecified site	1	Cerebrovascular	
I73.9 Peripheral vascular disease, unspecified (Intermittent claudication; Peripheral angiopathy NOS; Spasm of artery; atherosclerosis of the extremities (I70.2--I70.7-))	1	Cerebrovascular	
I77.0 Arteriovenous fistula, acquired (Aneurysmal varix; Arteriovenous aneurysm, acquired; arteriovenous aneurysm NOS (Q27.3-); presence of arteriovenous shunt (fistula) for dialysis (Z99.2); traumatic - see injury of blood vessel by body region; cerebral (I67.1); coronary (I25.4))	1	Cerebrovascular	181
I82.0 Budd-Chiari syndrome (Hepatic vein thrombosis)	1		
I88.1 Chronic lymphadenitis, except mesenteric (Adenitis; Lymphadenitis)	1		

## Supplemental Table 2

Recoding of Original ICD-10-CM Codes into Diagnostic Types (DX\_TYPE) for Pre-Exam Diagnoses

Diagnosis Code & Label	Frequency	DX Label	DX_TYPE (code)
K74.69 Other cirrhosis of liver (Cryptogenic cirrhosis (of liver); Macronodular cirrhosis (of liver); Micronodular cirrhosis (of liver); Mixed type cirrhosis (of liver); Portal cirrhosis (of liver); Postnecrotic cirrhosis (of liver))	1		
M34.83 Systemic sclerosis with polyneuropathy	1		
M54.12 Radiculopathy, cervical region	1		
M54.16 Radiculopathy, lumbar region	1		
M79.10 Myalgia, unspecified site	1		
M79.7 Fibromyalgia (Fibromyositis; Fibrositis; Myofibrositis)	3		
M96.1 Postlaminectomy syndrome, not elsewhere classified	2		
N18.3 Chronic kidney disease, stage 3 (moderate)	1		
N18.5 Chronic kidney disease, stage 5 (chronic kidney disease, stage 5 requiring chronic dialysis (N18.6))	4		
N18.6 End stage renal disease (Chronic kidney disease requiring chronic dialysis; code to identify dialysis status (Z99.2))	8		
P10.2 Intraventricular hemorrhage due to birth injury	1		
P91.0 Neonatal cerebral ischemia	1		
P91.61 Mild hypoxic ischemic encephalopathy [HIE]	1		
Q04.6 Congenital cerebral cysts (Porencephaly; Schizencephaly; acquired porencephalic cyst (G93.0))	1		
Q27.30 Arteriovenous malformation, site unspecified	2	Cerebrovascular	
Q28.2 Arteriovenous malformation of cerebral vessels (Arteriovenous malformation of brain NOS; Congenital arteriovenous cerebral aneurysm (nonruptured))	2	Cerebrovascular	
Q28.3 Other malformations of cerebral vessels (Congenital cerebral aneurysm (nonruptured); Congenital malformation of cerebral vessels NOS; Developmental venous anomaly)	2	Cerebrovascular	
Q79.60 Ehlers-Danlos syndrome, unspecified	1		
Q85.01 Neurofibromatosis, type 1 (Von Recklinghausen disease)	1		

## Supplemental Table 2

Recoding of Original ICD-10-CM Codes into Diagnostic Types (DX\_TYPE) for Pre-Exam Diagnoses

Diagnosis Code & Label	Frequency	DX Label	DX_TYPE (code)
Q85.1 Tuberous sclerosis (Bourneville's disease; Epiloia)	2		
Q85.8 Other phakomatoses, not elsewhere classified (Peutz-Jeghers Syndrome; Sturge-Weber(-Dimitri) syndrome; von Hippel-Lindau syndrome; Meckel-Gruber syndrome (Q61.9))	1		
Q87.11 Prader-Willi syndrome	1		
Q90.9 Down syndrome, unspecified (Trisomy 21 NOS)	1		
R00.0 Tachycardia, unspecified (Rapid heart beat; Sinoauricular tachycardia NOS; Sinus [sinusal] tachycardia NOS; neonatal tachycardia (P29.11); paroxysmal tachycardia (I47.-))	2		
R20.0 Anesthesia of skin	1		
R25.1 Tremor, unspecified (chorea NOS (G25.5); essential tremor (G25.0); hysterical tremor (F44.4); intention tremor (G25.2))	15	Movement Disorders	
R25.2 Cramp and spasm (carpopedal spasm (R29.0); charley-horse (M62.831); infantile spasms (G40.4-); muscle spasm of back (M62.830); muscle spasm of calf (M62.831))	1		
R25.9 Unspecified abnormal involuntary movements	3	Movement Disorders	
R26.81 Unsteadiness on feet	2		
R26.89 Other abnormalities of gait and mobility	2		
R26.9 Unspecified abnormalities of gait and mobility	4		
R27.0 Ataxia, unspecified (ataxia following cerebrovascular disease (I69. with final characters -93))	2		
R29.6 Repeated falls (Falling; Tendency to fall; at risk for falling (Z91.81); history of falling (Z91.81))	1		
R40.4 Transient alteration of awareness	1		
R41.0 Disorientation, unspecified (Confusion NOS; Delirium NOS)	5		
R41.3 Other amnesia	36	Other amnesia	
R41.3 Other amnesia (Amnesia NOS; Memory loss NOS; amnesic disorder due to known physiologic condition (F04); amnesic syndrome due to psychoactive substance use (F10-F19	831		Other amnesia



## Supplemental Table 2

Recoding of Original ICD-10-CM Codes into Diagnostic Types (DX\_TYPE) for Pre-Exam Diagnoses

Diagnosis Code & Label	Frequency	DX Label	DX_TYPE (code)
with 5th character .6); mild memory disturbance due to known physiological condition (F06.8); transient global amnesia (G45.4))			
R41.4 Neurologic neglect syndrome (Asomatognosia; Hemi-akinesia; Hemi-inattention; Hemispatial neglect; Left-sided neglect; Sensory neglect; Visuospatial neglect; visuospatial deficit (R41.842))	1		
R41.8 Other symptoms and signs involving cognitive functions and awareness	665		
R41.81 Age-related cognitive decline (Senility NOS)	2		
R41.82 Altered mental status, unspecified (Change in mental status NOS; altered level of consciousness (R40.-); altered mental status due to known condition - code to condition; delirium NOS (R41.0))	2		
R41.83 Borderline intellectual functioning (IQ level 71 to 84; intellectual disabilities (F70-F79))	1		
R41.84 Other specified cognitive deficit (cognitive deficits as sequelae of cerebrovascular disease (I69.01-, I69.11-, I69.21-, I69.31-, I69.81-, I69.91-))	1		Cerebrovascular
R41.840 Attention and concentration deficit	1		
R41.840 Attention and concentration deficit (attention-deficit hyperactivity disorders (F90.-))	41		ADHD
R41.844 Frontal lobe and executive function deficit	2		
R41.89 Other symptoms and signs involving cognitive functions and awareness	11		
R41.89 Other symptoms and signs involving cognitive functions and awareness (Anosognosia)	630		
R41.9 Unspecified symptoms and signs involving cognitive functions and awareness	3		
R41.9 Unspecified symptoms and signs involving cognitive functions and awareness (Unspecified neurocognitive disorder)	87		

**Supplemental Table 2***Recoding of Original ICD-10-CM Codes into Diagnostic Types (DX\_TYPE) for Pre-Exam Diagnoses*

<b>Diagnosis Code &amp; Label</b>	<b>Frequency</b>	<b>DX Label</b>	<b>DX_TYPE (code)</b>
R42 Dizziness and giddiness (Light-headedness; Vertigo NOS; vertiginous syndromes (H81.-); vertigo from infrasound (T75.23))	6		
R44.1 Visual hallucinations	1		
R47.01 Aphasia (aphasia following cerebrovascular disease (I69. with final characters -20); progressive isolated aphasia (G31.01))	4		
R47.89 Other speech disturbances	6		
R47.9 Unspecified speech disturbances	3		
R48.0 Dyslexia and alexia	1		
R48.2 Apraxia (apraxia following cerebrovascular disease (I69. with final characters -90))	1		
R48.8 Other symbolic dysfunctions (Acalculia; Agraphia)	1		
R49.0 Dysphonia (Hoarseness)	1		
R51 Headache (Facial pain NOS; atypical face pain (G50.1); migraine and other headache syndromes (G43-G44); trigeminal neuralgia (G50.0))	3		
R52 Pain, unspecified (Acute pain NOS; Generalized pain NOS; Pain NOS; acute and chronic pain, not elsewhere classified (G89.-); localized pain, unspecified type - code to pain by site, such as:; abdomen pain (R10.-); back pain (M54.9); breast pain (N64.4); chest pain (R07.1-R07.9); ear pain (H92.0-); eye pain (H57.1); headache (R51); joint pain (M25.5-); limb pain (M79.6-); lumbar region pain (M54.5); pelvic and perineal pain (R10.2); shoulder pain (M25.51-); spine pain (M54.-); throat pain (R07.0); tongue pain (K14.6); tooth pain (K08.8); renal colic (N23); pain disorders exclusively related to psychological factors (F45.41))	1		
R53.83 Other fatigue (Fatigue NOS; Lack of energy; Lethargy; Tiredness; exhaustion and fatigue due to depressive episode (F32.-))	1		

Cerebrovascular

## Supplemental Table 2

Recoding of Original ICD-10-CM Codes into Diagnostic Types (DX\_TYPE) for Pre-Exam Diagnoses

Diagnosis Code & Label	Frequency	DX Label	DX_TYPE (code)
R55 Syncope and collapse (Blackout; Fainting; Vasovagal attack; cardiogenic shock (R57.0); carotid sinus syncope (G90.01); heat syncope (T67.1); neurocirculatory asthenia (F45.8); neurogenic orthostatic hypotension (G90.3); orthostatic hypotension (I95.1); postprocedural shock (T81.1-); psychogenic syncope (F48.8); shock NOS (R57.9); shock complicating or following abortion or ectopic or molar pregnancy (O00-O07, O08.3); shock complicating or following labor and delivery (O75.1); Stokes-Adams attack (I45.9); unconsciousness NOS (R40.2-))	1		
R56.1 Post traumatic seizures (post traumatic epilepsy (G40.-))	1	Seizure Disorders	
R56.9 Unspecified convulsions	1	Seizure Disorders	
R56.9 Unspecified convulsions (Convulsion disorder; Fit NOS; Recurrent convulsions; Seizure(s) (convulsive) NOS)	60		Seizure Disorders
R62.5 Other and unspecified lack of expected normal physiological development in childhood (HIV disease resulting in failure to thrive (B20); physical retardation due to malnutrition (E45))	1		
R68.89 Other general symptoms and signs	3		
R69 Illness, unspecified (Unknown and unspecified cases of morbidity)	2		
R76.8 Other specified abnormal immunological findings in serum (Raised level of immunoglobulins NOS)	1		
R90.82 White matter disease, unspecified	3		
R90.89 Other abnormal findings on diagnostic imaging of central nervous system	1		
R90.89 Other abnormal findings on diagnostic imaging of central nervous system (Other cerebrovascular abnormality found on diagnostic imaging of central nervous system)	2		
S02.92S Unspecified fracture of facial bones, sequela	1		
S06.0 Concussion (Commotio cerebri; concussion with other intracranial injuries classified in subcategories S06.1- to S06.6- , S06.81- and S06.82- code to specified intracranial injury)	1		
		TBI/CHI	

**Supplemental Table 2***Recoding of Original ICD-10-CM Codes into Diagnostic Types (DX\_TYPE) for Pre-Exam Diagnoses*

<b>Diagnosis Code &amp; Label</b>	<b>Frequency</b>	<b>DX Label</b>	<b>DX_TYPE (code)</b>
S06.0X Concussion	7	TBI/CHI	
S06.0X0A Concussion without loss of consciousness, initial encounter	10	TBI/CHI	
S06.0X0D Concussion without loss of consciousness, subsequent encounter	5	TBI/CHI	
S06.0X0S Concussion without loss of consciousness, sequela	3	TBI/CHI	
S06.0X1A Concussion with loss of consciousness of 30 minutes or less, initial encounter	3	TBI/CHI	
S06.0X1S Concussion with loss of consciousness of 30 minutes or less, sequela	4	TBI/CHI	
S06.0X9A Concussion with loss of consciousness of unspecified duration, initial encounter (Concussion NOS)	14	TBI/CHI	
S06.0X9S Concussion with loss of consciousness of unspecified duration, sequela (Concussion NOS)	3	TBI/CHI	
S06.2 Diffuse traumatic brain injury (Diffuse axonal brain injury; traumatic diffuse cerebral edema (S06.1X-))	1	TBI/CHI	
S06.2X3S Diffuse traumatic brain injury with loss of consciousness of 1 hour to 5 hours 59 minutes, sequela	1	TBI/CHI	
S06.2X5S Diffuse traumatic brain injury with loss of consciousness greater than 24 hours with return to pre-existing conscious levels, sequela	1	TBI/CHI	
S06.2X9A Diffuse traumatic brain injury with loss of consciousness of unspecified duration, initial encounter (Diffuse traumatic brain injury NOS)	1	TBI/CHI	
S06.2X9S Diffuse traumatic brain injury with loss of consciousness of unspecified duration, sequela (Diffuse traumatic brain injury NOS)	3	TBI/CHI	
S06.302S Unspecified focal traumatic brain injury with loss of consciousness of 31 minutes to 59 minutes, sequela	2	TBI/CHI	
S06.309A Unspecified focal traumatic brain injury with loss of consciousness of unspecified duration, initial encounter (Unspecified focal traumatic brain injury NOS)	2	TBI/CHI	

**Supplemental Table 2***Recoding of Original ICD-10-CM Codes into Diagnostic Types (DX\_TYPE) for Pre-Exam Diagnoses*

<b>Diagnosis Code &amp; Label</b>	<b>Frequency</b>	<b>DX Label</b>	<b>DX_TYPE (code)</b>
S06.309D Unspecified focal traumatic brain injury with loss of consciousness of unspecified duration, subsequent encounter (Unspecified focal traumatic brain injury NOS)	1	TBI/CHI	
S06.369A Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness of unspecified duration, initial encounter (Traumatic hemorrhage of cerebrum NOS)	1	TBI/CHI	
S06.4X1D Epidural hemorrhage with loss of consciousness of 30 minutes or less, subsequent encounter	1	TBI/CHI	
S06.4X9A Epidural hemorrhage with loss of consciousness of unspecified duration, initial encounter (Epidural hemorrhage NOS)	1	TBI/CHI	
S06.5X9A Traumatic subdural hemorrhage with loss of consciousness of unspecified duration, initial encounter (Traumatic subdural hemorrhage NOS)	29	TBI/CHI	
S06.6X0A Traumatic subarachnoid hemorrhage without loss of consciousness, initial encounter	1	TBI/CHI	
S06.6X9A Traumatic subarachnoid hemorrhage with loss of consciousness of unspecified duration, initial encounter (Traumatic subarachnoid hemorrhage NOS)	2	TBI/CHI	
S06.899S Other specified intracranial injury with loss of consciousness of unspecified duration, sequela	1	TBI/CHI	
S06.9 Unspecified intracranial injury (Brain injury NOS; Head injury NOS with loss of consciousness; Traumatic brain injury NOS; conditions classifiable to S06.0- to S06.8-code to specified intracranial injury; head injury NOS (S09.90))	4	TBI/CHI	
S06.9X Unspecified intracranial injury	1		
S06.9X0A Unspecified intracranial injury without loss of consciousness, initial encounter	2	TBI/CHI	
S06.9X0D Unspecified intracranial injury without loss of consciousness, subsequent encounter	13	TBI/CHI	
S06.9X0S Unspecified intracranial injury without loss of consciousness, sequela	6	TBI/CHI	

**Supplemental Table 2***Recoding of Original ICD-10-CM Codes into Diagnostic Types (DX\_TYPE) for Pre-Exam Diagnoses*

<b>Diagnosis Code &amp; Label</b>	<b>Frequency</b>	<b>DX Label</b>	<b>DX_TYPE (code)</b>
S06.9X1A Unspecified intracranial injury with loss of consciousness of 30 minutes or less, initial encounter	3	TBI/CHI	
S06.9X1D Unspecified intracranial injury with loss of consciousness of 30 minutes or less, subsequent encounter	6	TBI/CHI	
S06.9X1S Unspecified intracranial injury with loss of consciousness of 30 minutes or less, sequela	4	TBI/CHI	
S06.9X2A Unspecified intracranial injury with loss of consciousness of 31 minutes to 59 minutes, initial encounter	1	TBI/CHI	
S06.9X3A Unspecified intracranial injury with loss of consciousness of 1 hour to 5 hours 59 minutes, initial encounter	1	TBI/CHI	
S06.9X3S Unspecified intracranial injury with loss of consciousness of 1 hour to 5 hours 59 minutes, sequela	1	TBI/CHI	
S06.9X5A Unspecified intracranial injury with loss of consciousness greater than 24 hours with return to pre-existing conscious level, initial encounter	4	TBI/CHI	
S06.9X5D Unspecified intracranial injury with loss of consciousness greater than 24 hours with return to pre-existing conscious level, subsequent encounter	1	TBI/CHI	
S06.9X5S Unspecified intracranial injury with loss of consciousness greater than 24 hours with return to pre-existing conscious level, sequela	2	TBI/CHI	
S06.9X9A Unspecified intracranial injury with loss of consciousness of unspecified duration, initial encounter	67	TBI/CHI	
S06.9X9D Unspecified intracranial injury with loss of consciousness of unspecified duration, subsequent encounter	1	TBI/CHI	
S06.9X9S Unspecified intracranial injury with loss of consciousness of unspecified duration, sequela	15	TBI/CHI	
S09.90XA Unspecified injury of head, initial encounter (Head injury NOS; brain injury NOS (S06.9-); head injury NOS with loss of consciousness (S06.9-); intracranial injury NOS (S06.9-))	8	TBI/CHI	

## Supplemental Table 2

Recoding of Original ICD-10-CM Codes into Diagnostic Types (DX\_TYPE) for Pre-Exam Diagnoses

Diagnosis Code & Label	Frequency	DX Label	DX_TYPE (code)
S09.90XD Unspecified injury of head, subsequent encounter (Head injury NOS; brain injury NOS (S06.9-); head injury NOS with loss of consciousness (S06.9-); intracranial injury NOS (S06.9-))	3	TBI/CHI	
S09.90XS Unspecified injury of head, sequela (Head injury NOS; brain injury NOS (S06.9-); head injury NOS with loss of consciousness (S06.9-); intracranial injury NOS (S06.9-))	3	TBI/CHI	
S14.105S Unspecified injury at C5 level of cervical spinal cord, sequela	1		
U07.1 2019-nCoV acute respiratory disease	64		
V87.7A Person injured in collision between other specified motor vehicles (traffic), initial encounter	1		
V87.7D Person injured in collision between other specified motor vehicles (traffic), subsequent encounter	1		
V89.2D Person injured in unspecified motor-vehicle accident, traffic, subsequent encounter (Motor-vehicle accident [MVA] NOS; Road (traffic) accident [RTA] NOS)	1		
W34.00A Accidental discharge from unspecified firearms or gun, initial encounter (Discharge from firearm NOS; Gunshot wound NOS; Shot NOS)	1		
Z00.00 Encounter for general adult medical examination without abnormal findings (Encounter for adult health check-up NOS)	1		
Z01.818 Encounter for other preprocedural examination	3		
Z13.41 Encounter for autism screening	1		
Z13.850 Encounter for screening for traumatic brain injury	42	TBI/CHI	
Z21 Asymptomatic human immunodeficiency virus [HIV] infection status (HIV positive NOS; Human immunodeficiency virus [HIV] disease complicating pregnancy, childbirth and the puerperium, if applicable (O98.7-); acquired immunodeficiency syndrome (B20); contact with human immunodeficiency virus [HIV] (Z20.6); exposure to human immunodeficiency virus [HIV] (Z20.6); human immunodeficiency virus [HIV] disease (B20); inconclusive	1		

**Supplemental Table 2***Recoding of Original ICD-10-CM Codes into Diagnostic Types (DX\_TYPE) for Pre-Exam Diagnoses*

<b>Diagnosis Code &amp; Label</b>	<b>Frequency</b>	<b>DX Label</b>	<b>DX_TYPE (code)</b>
laboratory evidence of human immunodeficiency virus [HIV] (R75))			
Z55.8 Other problems related to education and literacy (Problems related to inadequate teaching)	1		
Z55.9 Problems related to education and literacy, unspecified (Academic problems NOS)	1		
Z76.82 Awaiting organ transplant status (Patient waiting for organ availability)	1		
Z82.0 Family history of epilepsy and other diseases of the nervous system (Conditions classifiable to G00-G99)	2		
Z85.841 Personal history of malignant neoplasm of brain	2		
Z86.018 Personal history of other benign neoplasm	1		
Z86.59 Personal history of other mental and behavioral disorders	6		
Z86.73 Personal history of transient ischemic attack (TIA), and cerebral infarction without residual deficits (Personal history of prolonged reversible ischemic neurological deficit (PRIND); Personal history of stroke NOS without residual deficits; personal history of traumatic brain injury (Z87.820); sequelae of cerebrovascular disease (I69.-))	6		
Z86.79 Personal history of other diseases of the circulatory system	1		
Z87.730 Personal history of (corrected) cleft lip and palate	1		
Z87.82 Personal history of other (healed) physical injury and trauma (Conditions classifiable to S00-T88, except traumatic fractures)	1		
Z87.820 Personal history of traumatic brain injury	1	TBI/CHI	



**Supplemental Table 2***Recoding of Original ICD-10-CM Codes into Diagnostic Types (DX\_TYPE) for Pre-Exam Diagnoses*

<b>Diagnosis Code &amp; Label</b>	<b>Frequency</b>	<b>DX Label</b>	<b>DX_TYPE (code)</b>
Z87.820 Personal history of traumatic brain injury (personal history of transient ischemic attack (TIA), and cerebral infarction without residual deficits (Z86.73))	24	TBI/CHI	
Z92.89 Personal history of other medical treatment	1		
Z94.81 Bone marrow transplant status	1		
Z98.2 Presence of cerebrospinal fluid drainage device (Presence of CSF shunt)	1		
Z98.89 Other specified postprocedural states	1		
Z98.890 Other specified postprocedural states (Personal history of surgery, not elsewhere classified)	2		