

## Supplementary Online Content

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This supplementary material has been provided by the authors to give readers additional information about their work.

**eTable 1. List of ICD-9-CM and ICD10-CM/PCS diagnosis and procedure codes used in analyses**

Term	Code	Description
<b>ICD-9-CM diagnosis code dictionary</b>		
FND	300.11	Conversion disorder
	306.0	Musculoskeletal malfunction arising from mental factors
Other neurological disorders (Other neuro)	320 and sub codes	Bacterial meningitis
	321 and sub codes	Meningitis due to other organisms
	322 and sub codes	Meningitis of unspecified cause
	323 and sub codes	Encephalitis myelitis and encephalomyelitis
	324 and sub codes	Intracranial and intraspinal abscess
	325 and sub codes	Phlebitis and thrombophlebitis of intracranial venous sinuses
	326 and sub codes	Late effects of intracranial abscess or pyogenic infection
	330 and sub codes	Cerebral degenerations usually manifest in childhood
	331 and sub codes	Other cerebral degenerations
	332 and sub codes	Parkinson's disease
	333 and sub codes	Other extrapyramidal disease and abnormal movement disorders
	334 and sub codes	Spinocerebellar disease
	335 and sub codes	Anterior horn cell disease
	336 and sub codes	Other diseases of spinal cord
	338.0	Central pain syndrome
	340 and sub codes	Multiple sclerosis
	341 and sub codes	Other demyelinating diseases of central nervous system
	342 and sub codes	Hemiplegia and hemiparesis
	343 and sub codes	Infantile cerebral palsy
	344 and sub codes	Other paralytic syndromes
	345 and sub codes	Epilepsy and recurrent seizures
	348.2	Benign intracranial hypertension
	348.81	Temporal sclerosis
	348.9	Unspecified condition of brain
	349.0	Reaction to spinal or lumbar puncture
	349.2	Disorders of meninges, not elsewhere classified
	350 and sub codes	Trigeminal nerve disorders
	351 and sub codes	Facial nerve disorders
	352.5	Disorders of hypoglossal [12th] nerve
	352.6	Multiple cranial nerve palsies
	352.9	Unspecified disorder of cranial nerves
356 and sub codes	Hereditary and idiopathic peripheral neuropathy (not including 356.4)	

		Idiopathic progressive polyneuropathy)
	357.0	Acute infective polyneuritis
	357.4	Polyneuropathy in malignant disease
	357.81	Chronic inflammatory demyelinating polyneuritis
	357.89	Other inflammatory and toxic neuropathy
	358 and sub codes	Myoneural disorders
	359 and sub codes	Muscular dystrophies and other myopathies
	339 and sub codes	Other headache syndromes
	346 and sub codes	Migraine
	377.3 and sub codes	Optic neuritis
	377.41	Ischemic optic neuropathy
	377.5 and sub codes	Disorders of optic chiasm
	377.6 and sub codes	Disorders of other visual pathways
	377.7 and sub codes	Disorders of visual cortex
	377.9 and sub codes	Unspecified disorder of optic nerve and visual pathways
	378.7 and sub codes	Other specified strabismus
	378.8 and sub codes	Other disorders of binocular eye movements
	386.2	Vertigo of central origin
	433.01	Occlusion and stenosis of basilar artery with cerebral infarction
	433.11	Occlusion and stenosis of carotid artery with cerebral infarction
	433.21	Occlusion and stenosis of vertebral artery with cerebral infarction
	433.31	Occlusion and stenosis of multiple and bilateral precerebral arteries with cerebral infarction
	433.81	Occlusion and stenosis of other specified precerebral artery with cerebral infarction
	433.91	Occlusion and stenosis of unspecified precerebral artery with cerebral infarction
	434.01	Cerebral thrombosis with cerebral infarction
	434.11	Cerebral embolism with cerebral infarction
	434.91	Cerebral artery occlusion, unspecified with cerebral infarction
	435 and sub codes	Transient cerebral ischemia
	436 and sub codes	Acute, but ill-defined, cerebrovascular disease
	437 and sub codes	Other and ill-defined cerebrovascular disease
	438 and sub codes	Late effects of cerebrovascular disease
Other neurological disorders code non-inclusions	290 and sub codes	Dementias
	327 and sub codes	Organic sleep disorders
	337 and sub codes	Disorders of the autonomic nervous system

	338 and sub codes	Pain, not elsewhere classified other than 338.0
	348.0	Cerebral cysts
	348.1	Anoxic brain damage
	348.3 and sub codes	Encephalopathy, not elsewhere classified
	348.4	Compression of brain
	348.5	Cerebral edema
	348.8 and sub codes	Other conditions of brain
	348.82	Brain death
	348.89	Other conditions of brain
	352.0	Disorders of olfactory (1st) nerve
	352.1	Glossopharyngeal neuralgia
	356.4	Idiopathic progressive polyneuropathy
	377.0	Papilledema
	386.1 and sub codes	Other and unspecified peripheral vertigo
	386.3 and sub codes	Labyrinthitis
	780.3 and sub codes	Convulsions
	781 and sub codes	Symptoms involving nervous and musculoskeletal systems
	784 and sub codes	Headache
	792.0	Nonspecific abnormal findings in cerebrospinal fluid
Other neurological disorders code exclusions = Neurosurgery	191 and sub codes	Malignant neoplasm of brain
	192 and sub codes	Malignant neoplasm of other and unspecified parts of nervous system
	198.3	Secondary malignant neoplasm of brain and spinal cord
	225 and sub codes	Benign neoplasm of brain and other parts of nervous system
	430 and sub codes	Subarachnoid hemorrhage
	431 and sub codes	Intracerebral hemorrhage
	432 and sub codes	Other and unspecified intracranial hemorrhage
Neuro-inflammatory/demyelinating disease including multiple sclerosis (MS)	340 and sub codes	Multiple sclerosis
	341 and sub codes	Other demyelinating diseases of central nervous system
Refractory epilepsy (excluding partial or generalized status epilepticus)	345.01	Generalized nonconvulsive epilepsy, with intractable epilepsy
	345.11	Generalized convulsive epilepsy, with intractable epilepsy
	345.41	Localization-related (focal) (partial) epilepsy and epileptic syndromes with complex partial seizures, with intractable epilepsy
	345.51	Localization-related (focal) (partial) epilepsy and epileptic syndromes with simple partial seizures, with intractable epilepsy
	345.61	Infantile spasms, with intractable epilepsy
	345.71	Epilepsia partialis continua

	345.81	Other forms of epilepsy and recurrent seizures, with intractable epilepsy
	345.91	Epilepsy, unspecified, with intractable epilepsy
Anterior horn cell diseases (AHCD)	335 and sub codes	Anterior horn cell disease
Any psychiatric symptoms (any psych sx) not including drug or alcohol abuse, obsessive compulsive disorder or disorders of attention	295 and sub codes	Schizophrenic disorders
	296 and sub codes	Episodic mood disorders
	297 and sub codes	Delusional disorders
	298 and sub codes	Other nonorganic psychoses
	300.0 and sub codes	Anxiety states
	300.2 and sub codes	Phobic disorders
	301 and sub codes	Personality disorders
	308 and sub codes	Acute reaction to stress (proxy for PTSD)
Mood disorders	296 and sub codes	Episodic mood disorders
Anxiety disorders	300.0 and sub codes	Anxiety states
	300.2 and sub codes	Phobic disorders
Functional somatic disorders (FSD)	564.1	Irritable bowel syndrome
	729.1	Myalgia and myositis, unspecified (fibromyalgia proxy)
	780.71	Chronic fatigue syndrome
	300.8 and sub codes	Somatoform disorders
	337.20	Reflex sympathetic dystrophy, unspecified
	337.21	Reflex sympathetic dystrophy of the upper limb
	337.22	Reflex sympathetic dystrophy of the lower limb
	337.29	Reflex sympathetic dystrophy of other specified site
	306.1	Respiratory malfunction arising from mental factors
	306.2	Cardiovascular malfunction arising from mental factors
	306.3	Skin disorder arising from mental factors
	306.4	Gastrointestinal malfunction arising from mental factors
	306.5 and sub codes	Genitourinary malfunction arising from mental factors
	306.50	Psychogenic genitourinary malfunction, unspecified
	306.51	Psychogenic vaginismus
	306.52	Psychogenic dysmenorrhea
	306.53	Psychogenic dysuria
	306.59	Other genitourinary malfunction arising from mental factors
	306.6	Endocrine disorder arising from mental factors
	306.7	Disorder of organs of special sense arising from mental factors
306.8	Other specified psychophysiological malfunction	
306.9	Unspecified psychophysiological malfunction	

<b>ICD-10-CM diagnosis code dictionary</b>		
FND	F44.4	Conversion disorder with motor symptom or deficit
	F44.5	Conversion disorder with seizures or convulsions
	F44.6	Conversion disorder with sensory symptom or deficit
	F44.7	Conversion disorder with mixed symptom presentation
Other neurological disorders (Other neuro)	G00-G09 and sub codes	Inflammatory diseases of the central nervous system
	G10-G14 and sub codes	Systemic atrophies primarily affecting the central nervous system
	G20-G26 and sub codes	Extrapyramidal and movement disorders
	G30-G32 and sub codes	Other degenerative diseases of the nervous system
	G35-G37 and sub codes	Demyelinating diseases of the central nervous system
	G40 and sub codes	Epilepsy and recurrent seizures
	G43 and sub codes	Migraine
	G44 and sub codes	Other headache syndromes
	G45 and sub codes	Transient cerebral ischemic attacks and related syndromes
	G46 and sub codes	Vascular syndromes of brain in cerebrovascular diseases
	G50 and sub codes	Disorders of trigeminal nerve
	G51 and sub codes	Facial nerve disorders
	G52.1 and sub codes	Disorders of glossopharyngeal nerve
	G52.2 and sub codes	Disorders of vagus nerve
	G52.3 and sub codes	Disorders of hypoglossal nerve
	G52.7 and sub codes	Disorders of multiple cranial nerves
	G52.8 and sub codes	Disorders of other specified cranial nerves
	G52.9 and sub codes	Cranial nerve disorder, unspecified
	G53 and sub codes	Cranial nerve disorders in diseases classified elsewhere
	G54 and sub codes	Nerve root and plexus disorders
	G55 and sub codes	Nerve root and plexus compressions in diseases classified elsewhere
	G56 and sub codes	Mononeuropathies of upper limb
	G57 and sub codes	Mononeuropathies of lower limb
	G58 and sub codes	Other mononeuropathies
	G59 and sub codes	Mononeuropathy in diseases classified elsewhere
	G60.0	Hereditary motor and sensory neuropathy

G60.1	Refsum's disease
G60.2	Neuropathy in association with hereditary ataxia
G60.8	Other hereditary and idiopathic neuropathies
G61 and sub codes	Inflammatory polyneuropathy
G64 and sub codes	Other disorders of peripheral nervous system
G65 and sub codes	Sequelae of inflammatory and toxic polyneuropathies
G70 and sub codes	Myasthenia gravis and other myoneural disorders
G71 and sub codes	Primary disorders of muscles
G72.0	Drug-induced myopathy
G72.1	Alcoholic myopathy
G72.2	Myopathy due to other toxic agents
G72.3	Periodic paralysis
G72.4	Inflammatory and immune myopathies, not elsewhere classified
G73 and sub codes	Disorders of myoneural junction and muscle in diseases classified elsewhere
G80-83 and sub codes	Cerebral palsy and other paralytic syndromes
G89.0	Central pain syndrome
G91.2	(Idiopathic) normal pressure hydrocephalus
G93.2	Benign intracranial hypertension
G93.49	Other encephalopathy
G93.7	Reye's syndrome
G93.81	Temporal sclerosis
G94	Other disorders of brain in diseases classified elsewhere
G99 and sub codes	Other disorders of nervous system in diseases classified elsewhere
H46	Optic neuritis
H47.01	Ischemic optic neuropathy
H47.49	Disorders of optic chiasm in (due to) other disorders
H47.5	Disorders of other visual pathways
H47.6 and sub codes	Disorders of visual cortex
H50.89 and sub codes	Other specified strabismus
H55.89	Other irregular eye movements
H81.4	Vertigo of central origin
I63 and sub codes	Cerebral infarction
I67.7	Cerebral arteritis, not elsewhere classified
I67.8	Other specified cerebrovascular diseases

	I69 and sub codes	Sequelae of cerebrovascular disease
Other neurological disorders code non-inclusions	F01-F09 and sub codes	Mental disorders due to know physiological conditions
	G47 and sub codes	Sleep disorders
	G52.0	Disorders of olfactory nerve
	G60.3	Idiopathic progressive polyneuropathy
	G60.9	Hereditary and idiopathic neuropathy, unspecified
	G62 and sub codes	Other and unspecified polyneuropathies
	G63 and sub codes	Polyneuropathy in diseases classified elsewhere
	G72.8	Other specified myopathies
	G72.9	Myopathy, unspecified
	G89 and sub codes	Pain, not elsewhere classified (other than G89.0, Central pain)
	G90 and sub codes	Disorders of autonomic nervous system
	G91 and sub codes	Hydrocephalus (other than G91.2, (Idiopathic) normal pressure hydrocephalus)
	G92 and sub codes	Toxic encephalopathy
	G93.0	Cerebral cysts
	G93.1	Anoxic brain damage
	G93.3	Postviral fatigue syndrome
	G93.40	Encephalopathy, unspecified
	G93.41	Metabolic encephalopathy
	G93.5	Compression of brain
	G93.6	Cerebral edema
	G93.82	Brain death
	G93.89	Other specified disorders of brain
	G93.9	Disorder of brain, unspecified
	G95 and sub codes	Other and unspecified diseases of spinal cord
	G96 and sub codes	Other disorders of central nervous system
	G97 and sub codes	Intraoperative and postprocedural complications and disorders of nervous system, not elsewhere classified
	G98 and sub codes	Other disorders of nervous system not elsewhere classified
	R25-R29 and sub codes	Symptoms and signs involving the nervous and musculoskeletal systems
	R51 and sub codes	Headache
	R56 and sub codes	Convulsions, not elsewhere classified
	R83 and sub codes	Abnormal findings in cerebrospinal fluid
Other neurological disorders code exclusions = Neurosurgery	C70	Malignant neoplasm of meninges
	C71	Malignant neoplasm of brain



	C72	Malignant neoplasm of spinal cord, cranial nerves and other parts of central nervous system
	C79.3	Secondary malignant neoplasm of brain and cerebral meninges
	C79.4	Secondary malignant neoplasm of other and unspecified parts of nervous system
	D33	Benign neoplasm of brain and other parts of central nervous system
	I60	Nontraumatic subarachnoid hemorrhage
	I61	Nontraumatic intracerebral hemorrhage
	I62	Other and unspecified nontraumatic intracranial hemorrhage
Neuro-inflammatory/demyelinating disease including multiple sclerosis (MS)	G35 and sub codes	Multiple sclerosis
	G36 and sub codes	Other acute disseminated demyelination
	G37 and sub codes	Other demyelinating diseases of central nervous system
Refractory epilepsy (excluding partial or generalized status epilepticus)	G40.019	Localization-related (focal) (partial) idiopathic epilepsy and epileptic syndromes with seizures of localized onset, intractable, without status epilepticus
	G40.119	Localization-related (focal) (partial) symptomatic epilepsy and epileptic syndromes with simple partial seizures, intractable, without status epilepticus
	G40.219	Localization-related (focal) (partial) symptomatic epilepsy and epileptic syndromes with complex partial seizures, intractable, without status epilepticus
	G40.319	Generalized idiopathic epilepsy and epileptic syndromes, intractable, without status epilepticus
	G40.A19	Absence epileptic syndrome, intractable, without status epilepticus
	G40.B19	Juvenile myoclonic epilepsy, intractable, without status epilepticus
	G40.419	Other generalized epilepsy and epileptic syndromes, intractable, without status epilepticus
	G40.804	Other epilepsy, intractable, without status epilepticus
	G40.814	Lennox-Gastaut syndrome, intractable, without status epilepticus
	G40.824	Epileptic spasms, intractable, without status epilepticus
	G40.919	Epilepsy, unspecified, intractable, without status epilepticus
Anterior horn cell diseases (AHCD)	G12 and sub codes	Spinal muscular atrophy and related syndromes
Any psychiatric symptoms (any psych sx) not including drug or alcohol abuse, obsessive compulsive disorder or disorders of attention	F30-F39 and sub codes	Mood [affective] disorders
	F20-F29 and sub codes	Schizophrenia, schizotypal, delusional, and other non-mood psychotic disorders
	F40 and sub codes	Phobic anxiety disorders
	F41 and sub codes	Other anxiety disorders

	F43.1 and sub codes	Post-traumatic stress disorder (PTSD)
	F60 and sub codes	Specific personality disorders
Mood disorders	F30-39 and sub codes	Mood [affective] disorders
Anxiety disorders	F40 and sub codes	Phobic anxiety disorders
	F41 and sub codes	Other anxiety disorders
Functional somatic disorders(FSD)	K58	Irritable bowel syndrome
	M79.7	Fibromyalgia
	R53.82	Chronic fatigue, unspecified (proxy for Chronic fatigue syndrome)
	F45 and sub codes	Somatoform disorders
	G90.5 and sub codes	Complex regional pain syndrome I (CRPS I)
	F44.8	Other dissociative and conversion disorders
	F45.8	Other somatoform disorders
<b>ICD-9-CM Procedure codes dictionary</b>		
All rehabilitation services	93 and sub codes	Physical Therapy, Respiratory Therapy, Rehabilitation, And Related Procedures
Physical therapy (PT)	93.0 and sub codes	Diagnostic Physical Therapy
	93.1 and sub codes	Physical Therapy Exercises
	93.2 and sub codes	Other Physical Therapy Musculoskeletal Manipulation
	93.3 and sub codes	Other Physical Therapy Therapeutic Procedures
Occupational therapy (OT)	93.83	Occupational therapy
Speech and language pathology (SLP)	93.7 and sub codes	Speech And Reading Rehabilitation And Rehabilitation Of The Blind
Psychiatric consultation (Psych consult)	94.1 and sub codes	Psychiatric Interviews, Consultations and Evaluations
Psychiatric treatment/procedures (Psych treatment)	94 and sub codes	Procedures Related To The Psyche
All radiology	87 and sub codes	Other Diagnostic Radiology And Related Techniques
	88 and sub codes	Other Diagnostic Radiology And Related Techniques
Neuroradiology	87.03	Computerized axial tomography of head (CT head)
	88.38	Other computerized axial tomography (CT spine)
	88.91	Magnetic resonance imaging of brain and brain stem (MRI head)
	88.93	Magnetic resonance imaging of spinal canal (MRI spine)
	88.41	Arteriography of cerebral arteries
	88.61	Phlebography of veins of head and neck using contrast material
	87.01	Pneumoencephalogram
	87.02	Oher contrast radiogram of head

	87.04	Other tomography of head
	87.17	Other x-ray of skull
	87.2 and sub codes	X-ray of spine
Electroencephalogram (EEG) or long-term monitoring (LTM)	89.14	Electroencephalogram
	89.19	Video and radio-telemetered electroencephalographic monitoring
Lumbar puncture (LP)	03.31	Spinal tap
<b>ICD-10-PCS Procedure codes dictionary</b>		
All rehabilitation services	F00-F0F and sub codes	Physical Therapy, Respiratory Therapy, Rehabilitation, And Related Procedures
Physical therapy (PT)	F01 and sub codes	Motor and/or Nerve Function Assessment
	F02 and sub codes	Activities of Daily Living Assessment
	F070-F073	Motor Treatment – Neurological System
	F07J-F07M	Motor Treatment – Musculoskeletal System
	F0C3	Vestibular Treatment – Neurological System
Occupational therapy (OT)	F08J-F08M	Activities of Daily Living Treatment - Musculoskeletal System
Speech and language pathology (SLP)	F003 and sub codes	Speech Assessment - Neurological System - Whole Body
	F00Z and sub codes	Speech Assessment - None
	F063 and sub codes	Speech Treatment - Neurological System - Whole Body
	F06Z and sub codes	Speech Treatment - None
Psychiatric consultation (Psych consult)	GZ14 and sub codes	Neurobehavioral and Cognitive Status
	GZ5 and sub scores	Individual Psychotherapy
Psychiatric treatment/procedures (Psych treatment)	GZ1-GZJ and sub codes	Mental Health procedures
All radiology	B0-BY and sub codes	Imaging
Neuroradiology	B0 and sub codes	Imaging - Central Nervous System
	B020 and sub codes	Computerized axial tomography of brain (CT head)
	B02B	Computerized axial tomography of spinal cord (CT spine)
	B030	Magnetic Resonance Imaging brain (MRI head)
	B03B	Magnetic Resonance Imaging spinal cord (MRI spine)
Electroencephalogram (EEG) or long-term monitoring (LTM)	4A00X	Measurement of Central Nervous Electrical Activity, External Approach
	4A0034Z	Measurement of Central Nervous Electrical Activity, Percutaneous Approach
	4A10X4Z	Monitoring of Central Nervous Electrical Activity, External Approach
	4A1034Z	Monitoring of Central Nervous Electrical Activity, Percutaneous Approach

Lumbar puncture (LP)	009U3Z	Drainage of Spinal Canal, Percutaneous Approach, Diagnostic
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**eTable 2. Composition of FND diagnosis and overlap between FND and neurological comparator diagnoses across databases**

ICD-9CM coding				
FND and degree of overlap with other neurological disorders	Adults age 18+ (NIS 2014), subpopulation n= 5,950,391 weighted 29,751,964	Pediatric age 5-17 (KID 2012), subpopulation n=778,518 weighted 1,098,342	Adults age 18+ (NEDS 2014), subpopulation n= 25,132,855 weighted 111,530,998	Pediatric age 5-17 (NEDS 2014), subpopulation n= 3,361,983 weighted 14,969,328
Composition of FND cohort				
FND total, N	23795	2686	33440	3345
300.11 Conversion disorder, N (%)	22890 (96.32)	2640 (98.27)	32214 (96.34)	3286 (98.25)
306.0 Musculoskeletal malfunction arising from mental factors, N (%)	935 (3.93)	52 (1.95)	1315 (3.93)	168 (2.04)
Overlap between FND and comparator conditions				
MS and FND, N (% of MS )	525 (0.34)	≤10 (0.90)	463 (0.17)	≤10
Refractory epilepsy and FND, N (% of ref epilepsy)	250 (1.03)	23 (0.24)	76 (0.44)	≤10
AHCD and FND, N (% of AHCD)	≤10	0, 0 (0)	≤10	0 (0)
ICD-10CM coding				
FND and degree of overlap with other neurological disorders	Adults age 18+ (NIS 2017), subpopulation n=6,084,184, weighted 30,420,907	Pediatric age 5-17 (KID 2016), subpopulation n=697,625 weighted 965,132	Adults age 18+ (NEDS 2017), subpopulation n= 27,275,790 weighted 118,034,396	Pediatric age 5-17 (NEDS 2017), subpopulation n= 3,604,331 weighted 15,522,879
FND total, N	22895	1264	36359	3800
Overlap between FND and comparator conditions				
MS and FND, N (% of MS )	715 (0.42)	≤10	757 (0.24)	≤10
MS and FND, N (% of FND )	715 (3.12)	≤10	757 (2.08)	≤10
Refractory epilepsy and FND, N (% of ref epilepsy)	195 (0.68)	17 (0.13)	120 (0.43)	≤10
Refractory epilepsy and FND, N (% of FND)	195 (0.85)	17 (1.33)	120 (0.33)	≤10
AHCD and FND, N (% of AHCD)	≤10	0 (0)	≤10	0 (0)
AHCD and FND, N (% of FND)	≤10	0 (0)	≤10	0 (0)
Overlap with other pertinent conditions				
Epilepsy and FND, N (% of Epilepsy)	3240 (0.30)	139 (0.20)	3255 (0.17)	191 (0.15)
Epilepsy and FND, N (% of FND)	3240 (14.15)	139 (11.02)	3255 (8.95)	191 (5.02)

Where applicable, data are presented with weighted estimate sample (N) and corresponding percentage of total (column %). Unweighted value (n) is not shown; in cases where the unweighted  $n \leq 10$ , the weighted N are not available (denoted by  $\leq 10$ ). This reflects the most recent data from the 2017 NIS, 2016 KID and 2017 NEDS for ICD-10 data and 2014 NIS, 2012 KID and 2014 NEDS for ICD-9 data. Data on composition of FND diagnosis across its composite ICD-9 diagnosis codes and degree of overlap between FND and the neurological comparator conditions (both ICD-9 and ICD-10 coding) is demonstrated. Total % in the composition of the ICD-9 FND cohort exceed 100%, as some patients having both ICD-9 300.11 and 306.0 diagnostic codes.

Abbreviations: NIS: National/Nationwide Inpatient Sample; KID: Kids' Inpatient Database; NEDS: Nationwide Emergency Department Sample; FND: functional neurological disorder; MS: demyelinating disease including multiple sclerosis; ref epilepsy: refractory epilepsy; AHCD: anterior horn cell diseases including amyotrophic lateral sclerosis and spinal muscular atrophy

**eTable 3. Missing data for healthcare utilization comparison from NIS 2017, KID 2016 and NEDS 2017**

	Adults age 18+ (NIS 2017), subpopulation n=6,084,184, weighted 30,420,907		Pediatric age 5-17 (KID 2016), subpopulation n=697,625 weighted 965,132		Adults age 18+ (NEDS 2017), subpopulation n= 27,275,790 weighted 118,034,396		Pediatric age 5-17 (NEDS 2017), subpopulation n= 3,604,331 weighted 15,522,879	
Demographic variable	FND, n=4579, weighted 22,895	Non-FND neuro, n=983,923 weighted 4,919,614	FND, n=913, weighted 1,264	Non-FND neuro, n=89,261, weighted 124,053	FND, n=8215, weighted 36359	Non-FND neuro, n=1986050, weighted 8625167	FND, n=856, weighted 3,800	Non-FND neuro, n=75974, weighted 328,609
Age No. with data, (%)	4579, 22895 (100)	983923, 4,919,614 (100)	913, 1264 (100)	89261, 124,053 (100)	8215, 36359 (100.00)	1986050, 8625167 (100.00)	856, 3800 (100.00)	75974, 328609 (100.00)
Gender, No. with data, n (%)	4578, 22890 (99.98)	983893, 4919464 (100.00)	913, 1264 (100)	89245, 124031 (99.98)	8214, 36354 (99.99)	1985970, 8624789 (100.00)	856, 3800 (100.00)	75970, 328587 (99.99)
Race No. with data, n (%)	4392, 21960 (95.92)	951901, 4759504 (96.75)	830, 1147 (90.91)	81839, 113634 (91.69)				
Elective/non-elective, No. with data, n (%)	4569, 22845 (99.78)	982030, 4910149 (99.81)	912, 1262 (99.89)	88977, 123675 (99.68)				
Zip code Income quartile, No. with data, n (%)	4495, 22475 (98.17)	967311, 4836554 (98.31)	901, 1247 (98.69)	87803, 122007 (98.37)	8066, 35697 (98.19)	1952241, 8479642 (98.30)	835, 3705 (97.55)	75122, 324939 (98.88)
LOS No. with data, n (%)	4759, 23795 (100)	983811, 4919054 (99.99)	913, 1264 (100)	89238, 124022 (99.97)				
Disposition category, No. with data, n (%)	4576, 22880 (99.93)	983145, 4915724 (99.92)	913, 1264 (100)	89164, 123915 (99.89)	8215, 36359 (100.00)	1986050, 8625167 (100.00)	856, 3800 (100.00)	75974, 328609 (100.00)
Primary payer with data, n, N (%)	4567, 22835 (99.74)	982434, 4912169 (99.85)	912, 1262 (99.84)	89097, 123818 (99.81)	8170, 36125 (99.36)	1981962, 8604396 (99.76)	855, 3795 (99.87)	75817, 327786 (99.75)

All data are stated as sample number, weighted number and % non-missing. Empty cells in the NEDS are due to the data not being covered in this database.

Abbreviations: NIS: National/Nationwide Inpatient Sample; KID: Kids' Inpatient Database; NEDS: Nationwide Emergency Department Sample; FND: Functional neurological disorders; non-FND neuro: non-FND non-headache or neurosurgical neurological comparison group; No.: number; LOS: length of stay.

**eTable 4. Clinical characteristics of FND vs other neurological disorders in adult and pediatric populations and inpatient healthcare resource utilization (NIS 2014 and KID 2012 ICD-9 comparator data)**

	Adults age 18+ (NIS 2014), subpopulation n= 5,950,391 weighted 29,751,964			Pediatric age 5-17 (KID 2012), subpopulation n=778,518 weighted 1,098,342		
Demographic variable	FND, N= 23,795	Non-FND neuro, N=4,740,612	p	FND, N=2,686	Non-FND neuro, N=119,433	p
Age, median (IQR)	44.48 (32.16, 55.75)	66.68 (52.73, 79.13)	<0.0001	14.16 (11.90, 15.55)	11.46 (7.51, 14.58)	<0.0001
Age category, yr N (%)			<0.0001			<0.0001
5-12				700 (26.06)	62,186 (57.03)	
13-17				1,986 (73.94)	46,850 (42.97)	
18-40	9,365 (39.36)	550,845 (11.62)				
41-65	11,555 (48.56)	1,640,270 (34.60)				
>65	2,875 (12.08)	2,549,496 (53.78)				
Male, N (%)	6,285 (26.41)	2,054,336 (43.34)	<0.0001	769 (28.63)	60,584 (50.73)	<0.0001
White, N (%)	14,530 (65.54)	3,268,312 (72.47)	<0.0001	1,415 (60.02)	61,554 (56.95)	0.51
Non-elective, N (%)	20,520 (86.55)	3,949,811 (83.64)	0.0004	2,295 (85.63)	83,326 (69.96)	<0.0001
Socioeconomic status						
Zip code Income quartile, N (%)			<0.0001			0.68
0-25th percentile	8,190 (35.25)	1,381,616 (29.78)		701 (26.75)	31,283 (26.76)	
26-50th percentile	6,575 (28.30)	1,294,245 (27.90)		665 (25.35)	28,145 (24.08)	
51-75th percentile	5,195 (22.32)	1,058,225 (22.81)		639 (24.38)	28,862 (24.69)	
76-100th percentile	3,275 (14.10)	905,571 (19.52)		617 (23.52)	28,598 (24.47)	
Medical and psychiatric demographics						



No. of chronic conditions, mean (SE mean)	6.68 (0.06)	7.34 (0.02)	<0.0001	3.25 (0.06)	3.67 (0.04)	<0.0001
Psychiatric comorbidity						
Any psych sx, N (%)	13,250 (55.68)	1,100,830 (23.22)	<0.0001	1,093 (40.70)	11,771 (9.86)	<0.0001
Mood disorder, N (%)	6,490 (27.27)	376,290 (7.94)	<0.0001	417 (15.53)	6,507 (5.45)	<0.0001
Anxiety disorders, N (%)	8,505 (35.74)	699,395 (14.75)	<0.0001	750 (27.93)	5,633 (4.72)	<0.0001
Associated functional conditions						
FSD, N (%)	2480 (10.42)	189730 (4.00)	<0.0001	151 (5.61)	1198 (1.00)	<0.0001
Length of stay						
Length of stay, days, mean (SE mean)	4.62 (0.10)	5.87 (0.03)	<0.0001	4.45 (0.34)	5.43 (0.10)	0.0021
Utilization of hospital services						
All rehab services (PT/OT/speech etc), N (%)	755 (3.17)	242,155 (5.11)	<0.0001	112 (4.17)	6,792 (5.69)	0.42
PT, N (%)	425 (1.79)	97,095 (2.05)	0.25	96 (3.59)	1,891 (1.58)	0.31
OT, N (%)	320 (1.34)	78,925 (1.66)	0.12	72 (2.67)	1,372 (1.15)	0.40
SLP, N (%)	75 (0.32)	34,235 (0.72)	<0.0001	≤10	588 (0.49)	0.82
Psych management, (%)	320 (1.34)	48,625 (1.03)	0.14	25 (0.92)	490 (0.41)	0.037
Psych consult, N (%)	≤10	3,045 (0.06)	0.14	≤10	47 (0.04)	0.026
Workup						
All radiology, N (%)	2,075 (8.72)	520,500 (10.98)	<0.0001	261 (9.71)	8,995 (7.53)	0.004
Neuroradiology, N (%)	1,180 (4.96)	162,775 (3.43)	<0.0001	228 (8.50)	6,161 (5.16)	<0.0001
CT head, N (%)	515 (2.16)	71,215 (1.50)	0.0091	32 (1.19)	1,284 (1.08)	0.66
CT spine, N (%)	≤10	11,250 (0.24)	0.51	≤10	130 (0.11)	0.68
MRI head, N (%)	630 (2.65)	60,465 (1.28)	<0.0001	173 (6.44)	4,391 (3.68)	<0.0001
MRI spine, N (%)	180 (0.76)	9,290 (0.20)	<0.0001	61 (2.27)	810 (0.68)	<0.0001
EEG or EEG LTM, N (%)	2,385 (10.02)	69,090 (1.46)	<0.0001	452 (16.84)	13,371 (11.20)	0.0004

LP, N (%)	1,095 (4.60)	106,365 (2.24)	<0.0001	213 (7.92)	7,741 (6.48)	0.0375
Disposition						
Disposition category, N (%)			<0.0001			<0.0001
Home	16,690 (70.19)	2,216,636 (46.78)		2449 (91.21)	104,714 (87.69)	
Other facility/rehab	3,605 (15.16)	1,449,196 (30.59)		139 (5.19)	4,197 (3.51)	
Home with home health care	2,430 (10.22)	760,625 (16.05)		28 (1.05)	6,842 (5.73)	
AMA	500 (2.10)	49,580 (1.05)		≤10	143 (0.12)	
Died	140 (0.59)	138,610 (2.93)		0 (0)	786 (0.66)	

Where applicable, data are presented with weighted estimate sample (N) and corresponding percentage of total (column %), or otherwise described in parentheses based on non-missing data. Unweighted value (n) is not shown; in cases where the unweighted n≤10, the weighted N are not available (denoted by ≤10). P values are t tests for continuous variables and Chi squared p value for categorical variables.

Abbreviations: NIS: National/Nationwide Inpatient Sample; KID: Kids' Inpatient Database; FND: Functional neurological disorders; non-FND neuro: non-FND non-headache or neurosurgical neurological comparison group; IQR: Interquartile range; No.: number; Any psychiatric sx: the presence of anxiety, affective, psychotic, or personality disorders; FSD: Functional somatic disorders (IBS, fibromyalgia, chronic fatigue, etc.); Rehab: rehabilitation; PT: physical therapy; OT: occupational therapy; SLP: Speech and language pathology; Psych: psychiatric; EEG: electroencephalography; EEG LTM: EEG long-term monitoring/continuous video monitoring; CT: Computed tomography; MRI: Magnetic resonance imaging; LP: lumbar puncture; AMA: Against Medical Advice.

**eTable 5. Ten-year annual total charge estimates across all databases in adults and children 2008-2017, highlighting years with overlap**

Year	Total charges adult FND			Total charges pediatric FND			Overall Total
	NIS total charges, \$	NEDS Total charges, \$	NIS + NEDS, \$	KID total charges, \$	NEDS Total charges, \$	KID+NEDS, \$	Adult + Pediatric charges, \$
2008	\$407.2 M	\$42.1 M	\$449.4 M		\$3.7 M		
2009	\$497.6 M	\$54.8 M	\$552.4 M	\$51.1 M	\$3.6 M	\$54.7 M	\$607.1 M
2010	\$591.8 M	\$66.2 M	\$658.0 M		\$5.4 M		
2011	\$636.6 M	\$74.9 M	\$711.4 M		\$7.0 M		
2012	\$702.4 M	\$86.4 M	\$788.8 M	\$74.7 M	\$7.4 M	\$82.0 M	\$870.9 M
2013	\$736.6 M	\$93.8 M	\$830.4 M		\$6.3 M		
2014	\$859.1 M	\$116.4 M	\$975.5 M		\$9.1 M		
2015	Data not shown owing to transition in coding from ICD-9 to ICD-10 mid-year						
2016	\$601.9 M	\$73.3 M	\$675.2 M	\$35.7 M	\$8.0 M	\$43.7 M	\$718.9 M
2017	<b>\$1,065.6 M</b>	<b>\$149.9 M</b>	<b>\$1,215.5 M</b>		<b>\$12.9 M</b>		<b>\$1,228.4* M</b>

All charge data are expressed in 2017 dollars and sample size is of non-missing data. Gradient fill in total charges and mean charges per patient in FND, with increasing red color indicating increasing charges. Data from NIS from 2008-2011 are adjusted using trend weights to account for change in database sampling.

**\* Not including KID inpatient charge data, which is unavailable for this year.**

Abbreviations: NIS: National/Nationwide Inpatient Sample; KID: Kids' Inpatient Database; NEDS: Nationwide Emergency Department Sample; FND: functional neurological disorder; M: million.