The development of a disease classification system, based on the International Classification of Diseases, for use by neurologists

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SUMMARY Effective planning and evaluation of medical services is only possible if appropriate and reliable information is available. Diagnoses of patients seen are essential data. The epidemiological value of standard, reliable diagnostic data could also be considerable. The International Classification of Diseases (ICD) is the only system currently available which provides a common basis of classification for general statistical use. A booklet, using ICD codes, for classifying in-patients and out-patients seen by neurologists has been developed. It is simple and easy to use, affords the necessary economy of time, and should result in uniformity of coding. Reliability studies confirm that inaccuracies occur when patients' diagnoses are coded retrospectively from their medical files, even when observers are medically trained. It is recommended that doctors should accept personal responsibility for coding patients' diagnoses at the time of consultation or discharge from hospital.

The manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death (ICD), currently based on the recommendations of the ninth revision conference, 1975, and adopted by the twenty-ninth World Health Assembly,¹ is used for the coding of all hospital in-patients and day cases. It is the only accepted system which provides a common basis of classification of diagnoses for national and international statistical use.

Coding of patients (often undertaken weeks or months after a patient's discharge from hospital) is usually done by clerks who have no medical training, and are usually centrally-based in the medical records department of the hospital. They have to interpret a patient's diagnosis from the discharge summary and notes held within the patient's medical file, in order to arrive at one or more codes from the ICD. Problems may arise if the patient has several diseases, such as stroke and head injury, or if the terms used in the discharge summary are not synonymous with those in the ICD, for example Steele Richardson Olszewski syndrome.

The validity and reliability of the information derived has been questioned many times,²⁻⁶ with claims that 17%-40% of cases are inaccurately coded.⁷⁻⁹ The

process for coding in-patients' diagnoses remains unchanged even after implementation of the Korner recommendations.¹⁰ The diagnoses of out-patients are not routinely recorded,¹¹ although they represent a substantial workload within most medical specialties.

Responsibility for coding has not been accepted generally by clinicians. There are probably several reasons for this. Some doctors may not be happy with the system adopted in the ICD, others may argue that their busy clinical schedule does not afford them the time, or that it is impractical to carry two volumes of the ICD round the hospital and the task of locating the directory would be both laborious and time-consuming.

To analyse the use of his own department the clinician must have baseline data. For instance, the neurologist would need to know the number of cases of motor neuron disease and epilepsy currently being seen in the department. He might also require information about the problems generated, for example the number of patients with uncontrolled epileptic attacks. Such information clearly has implications for the management of his service, e.g. the way clinics are organised. Analyses of this type are impossible with existing routine information.

"For the sake of analysing the use of his own unit and for the sake of his colleagues in epidemiology, he (the clinician) should accept the responsibility of making the diagnostic coding as accurate as possible".¹² Some doctors have developed their own personal diagnostic index. However, the ICD is the

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only standardised coding system currently available. The question is: Can the ICD form the basis for a classification of neurological disorders which might eventually become widely acceptable?

This study addresses the following particular questions:

(1) Is it possible to develop a comprehensive booklet for classifying neurology in-patients and out-patients, based on the ICD, which could achieve uniformity of coding and not consume an unreasonable amount of time?

(2) Can the booklet be made small enough to fit into a jacket pocket and/or brief case?

(3) Who should be responsible for undertaking the necessary coding?

Method

Research site

The study was undertaken in the Neurology Department, Frenchay Hospital (a 538-bed district general hospital on the outskirts of Bristol), which is part of the Subregional Neurosciences Department of the South West Regional Health Authority. The diagnoses of patients seen in the department cover the normal range seen in any neurology department, and include acute neurological problems (for example meningitis) and those with chronic disability (for example multiple sclerosis).

Development of a booklet

The ICD is divided into seventeen diagnostic groups (for example neoplasms, diseases of the circulatory system), including one for "Symptoms, Signs and Ill-Defined Conditions". Under each group diagnoses are classified generally to 3 digits (for example mononeuritis of upper limb 354) and then further subdivided to 4 digits (for example carpal tunnel syndrome 3540, other lesion of median nerve 3541, lesion of ulnar nerve 3542, etc.). A special booklet, the size of a pocket diary, was constructed with the most common neurological diseases, using 4-digit ICD codes. It was produced in an alphabetical and numerical format (similar to the ICD itself).

To develop the booklet further the diseases and major symptoms of 429 patients (63 in-patients, 366 out-patients [79 new referrals and 287 follow-ups]), who came under the care of two neurologists over an 8 week period, were added. It is impractical to present a detailed analysis of these patients but certain general conclusions can be drawn and these are discussed within the results section.

Reliability of coding

Stage 1 Using the booklet, the reliability of coding was first tested using the medical files of 84 consecutive out-patients attending the neurology clinics (16 new patients and 68 follow-up patients). These were coded by five observers independently: two neurology registrars, two clerks, one of whom had experience of coding patients' diagnoses from medical files, and a researcher (VAW).

Stage 2 The ideal way of checking reliability of coding by doctors would be for the same patients to be seen by, say,

three different doctors (either together or separately), each doctor coding independently. However, this was beyond the resources of this study and may well, in fact, be an unacceptable ordeal for patients. To check the reliability of doctors' coding, it was decided to draw up a list of 50 patients' diagnoses for coding by five doctors: three consultant neurologists (DTW, RLH, MJC), one registrar and one senior house officer.

Fifty consecutive patients' files (28 in-patients, 22 out-patients), received into the neurology office during July 1987 for typing of reports or letters, were examined (by VAW). A note was made of the diagnoses or major symptoms reported in the correspondence and a list of these formulated (see appendix 1). This was then circulated, together with a neurology coding booklet, to the five observers who were asked to code each item. Three separate codes were allowed with the instruction to code in order of priority. There was also a specific instruction to "code" not diagnose!

Results

Development of booklet

When developing the booklet a number of problems were highlighted.

(1) Some disorders had no code listed in the ICD index, for example facial migraine. These were included in the booklet by adding a further subdivision, and fourth digit, under the general diagnosis (such as migraine).

(2) Some cases had more than one applicable code. We therefore decided to amalgamate certain diagnoses, for example, all forms of headache (excluding migraine) were coded 784-0, non-haemorrhagic stroke was allocated four specific codes only—brain stem stroke 433-8, left hemisphere stroke 434-7, right hemisphere stroke 434-8, other or unspecified stroke 436-0.

(3) Many patients had no formal diagnosis, for example, a patient with "giddiness" or attacks of disturbed thought. We decided to code patients with no formal diagnosis according to their presenting or major symptom.

(4) Some patients were outside the realm of neurology. We included common non-neurological

Table 1 Reliability of coding out-patients' diagnoses from medical files

	New Referrals (n = 16)	Follow-ups (n = 68)	Total (n = 84)
5 Observers agreed	12 (75%)	41 (60%)	53 (63%)
4/5 Observers agreed	0	14 (21%)	14 (17%)
3/5 Observers agreed (2 same)	1 (6%)	3 (4%)	4 (5%)
3/5 Observers agreed (2 different)	1 (6%)	5 (7%)	6 (7%)
2/5 + 2/5 Observers agreed (1 different)	2 (13%)	1 (2%)	3 (4%)
2/5 Observers agreed (3 different)	0	4 (6%)	4 (5%)

codes to make the booklet as comprehensive as possible. Further codes could be extracted from the ICD and added as required. The booklet has, in fact, been expanded in the department during 1987 and its present form, which includes some guidelines for use, is shown in appendix 2.

Reliability of coding

Stage 1 The results of reliability of coding from medical files by five varied observers using the booklet are given in the table. Fifty-three (63%) patients were coded identically by the five observers, and in four more cases the disagreement occurred only in patients who had two or more diagnoses.

In the 14 cases with a single observer disagreeing, seven were accounted for by one neurology registrar (probably indicating the difficulty of coding from patients' files—even with medical training) and 2 by the clerk with experience of ICD coding from patients' files.

Fifteen of the 31 cases in which there was not full agreement had no clearcut pathological diagnosis, for example dystonic movements or vertigo of uncertain cause.

Stage 2 Forty-two (84%) of the diagnoses presented on the typed list (see appendix 1) were coded identically by all five doctors. Those where discrepancies occurred need discussion: in one case (no. 14—pneumonia, cardiac failure, ischaemic heart disease) all five observers allocated the same three codes but in a different priority order. Two more cases were given the same two codes but, again, in a different order. Another two cases were given the same primary code by all five observers. However, in one case two observers added one identical second code; while in the second four observers added two identical codes. In case number 20, the condition given in the list was "atypical migraine"; four doctors coded it "migraine" but one coded it as "transient ischaemic attack". In case 46, two doctors coded spastic left hemiparesis 342.1 (spastic hemiplegia), while the other three coded it as stroke. Case 18 presents a more complicated picture. Two observers coded diabetes mellitus as the first primary code and two others as the second code. Other first and second codes included 335.8—muscular atrophy (one observer), 353.9—nerve root and plexus disorders (two observers), and 355.9—neuropathic muscle wasting (one observer).

Discussion

The Griffiths Report,¹³ which has been the basis of recent management structures, challenged the National Health Service (NHS) Management Boards and Chairmen "to ascertain how well the service is

being delivered at local level". Consequently, evaluation, audit, and peer review are some of the most commonly used expressions in managerial circles in the NHS today. The current climate would seem to dictate that clinicians must themselves judge the effectiveness of what they do.

To examine the processes at work within his own department a clinician must have available accurate, complete and relevant information. Information on the diagnoses of patients is seen to be of paramount importance to clinicians, managers and epidemiologists. However, clinicians, researchers and administrators have little confidence in the diagnostic information routinely collected on hospital in-patients.¹⁴ Accurate coding requires considerable medical knowledge and reliable information will probably only be forthcoming if clinicians accept personal responsibility for coding patients' diagnoses themselves.

Development of booklet

The booklet developed in this study is now in routine use within the Neurology Department of Frenchay Hospital. The clinical neurologists participating do not find it difficult or time-consuming to code patients' diagnoses at the time of their consultation (out-patients) or discharge from hospital (in-patients).

The methodology involved in constructing the ICD booklet could be easily replicated in any medical specialty. Use of a simple booklet, such as the one developed in this study, would achieve the necessary uniformity of coding and the necessity of carrying around two volumes of the ICD would be avoided. The statistics derived on in-patients and out-patients could benefit the audit process and be of considerable epidemiological value.

The main aim of this study was to develop a common basis of classification which could be used by any neurology department. It was not intended to present an all encompassing classification but endeavoured to provide a skeleton upon which others could build. For instance, only two codes are used for epilepsy (generalised epilepsy 345.1, focal or partial epilepsy (including temporal lobe)—345.4). Such an arrangement by itself does not allow the clinician to separate out different types of epilepsy. However, it is perfectly possible to subdivide classifications on the basis of anatomical location, pathology or EEG findings to suit personal requirements. This might be the subject of a series of further studies.

It is important to recognise that the disease classification system, based on the ICD, developed in this study can be adapted and expanded to suit the purposes of any neurology department, or individual neurologist.

Reliability

The first study of reliability showed that, when simply given the hospital medical files, five varied observers agreed upon a single diagnosis in 63% of neurology out-patients. The two doctors involved coded differently in some cases. This relatively low rate of agreement has implications if diagnostic information on out-patients is to be extracted from medical files; although it is no worse than the accuracy found in studies on in-patients.⁶⁻⁸

Factors militating against a high level of agreement in this first reliability study included the requirement to code from the medical files; the relatively high proportion (18%) of patients with no clear-cut diagnosis which has previously been noted to reduce reliability;¹⁵ and the different experience of observers. A major obstacle faced by all coders was trying to discover any diagnosis (or even major symptom) from the medical files. This information was usually, though not always, given in the letters relating to patients seen for the first time, but was rarely present in letters relating to follow-up patients.

The second study of reliability, when doctors were asked to code diagnoses from a typed list, indicated total agreement in 42 (84%) cases. The reasons for disagreement seemed to be primarily related to a doctor's inclination to "diagnose" the condition rather than simply allocate a symptom-related code (three cases), and the difficulty in prioritising codes from a typed list (five cases).

The list circulated to the observers had specific instructions to enter codes in order of priority, the first being the main principal diagnosis, and to code, not diagnose. However, the results indicate that these instructions might not have been followed.

It could be argued that if coding was undertaken at the time of seeing the patient the difficulties encountered may not have arisen. The facility to code more than one diagnosis is apparent but, again, the necessity to code secondary conditions and the priority order of codes is extremely difficult to decide from a typed list such as that presented. Again, when the patient is with a doctor the significance of multiple diagnoses or symptoms would probably be more apparent.

The difficulties encountered in this second reliability study were probably just as great as those encountered in coding from patients' medical files. Both reliability studies support the contention that accurate coding of patients' diagnoses is a virtually impossible task when attempted retrospectively from patients' medical files, even for those medically trained!

Conclusions

We conclude that the only way to improve accuracy of diagnostic coding is for the doctor to decide upon the

relevant diagnosis and code it at the time of a patient's consultation or discharge from hospital. A simple booklet, such as the one developed in this study, could achieve the necessary uniformity of coding and economy of time.

As stated previously, in this study we were unable to investigate the accuracy of doctors coding at the time of consultation or discharge, and this is an area for further study. In undertaking such a study it will be important to ensure that reliability of the "coding" function is tested, and not the extent to which doctors reach the same diagnostic conclusions.

The ICD is the only standardised and currently accepted system of classification and should be used. Although the booklet developed in this study relates to clinical neurology the same principle could easily be adopted to encompass other medical specialties.

There is now an urgent need for the adoption of a widely accepted disease classification system for neurologists. It is suggested that the Association of British Neurologists might now consider supporting the development of a nationwide diagnostic index.

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30. Epilepsy. Generalised convulsions
31. Fascio-scapulo humeral dystrophy
32. Headaches
33. Cervical spondylosis with myelopathy
34. Right frontal haemorrhage with intra-ventricular extension
35. Motor neuron disease
36. Recurrent cerebrovascular ischaemia affecting vertebrobasilar and carotid territory (some residual dysarthria)
37. Right amaurosis fugax
38. Attack of loss of consciousness probably due to alcohol intoxication
39. Malignant infiltration of brachial plexus. Secondary to breast carcinoma
40. Grand mal fits following RTA. Craniotomy with resection of an epidermoid cyst from the right anterior cranial fossa
41. Andrenoleukodystrophy
42. Vertigo
43. Right sided intra-cerebral and subarachnoid bleed with extensive brain shift
44. Probable Multiple Sclerosis
45. Brain stem ischaemia sometimes triggered by neck extension, suggestive of vertebral artery compromise
46. Spastic left hemiparesis
47. Congenital idiopathic hypoglycaemia. Temporal Lobe Epilepsy
48. Left-sided headache, probably migrainous
49. Parkinsons disease
50. Petit mal epilepsy

Appendix 1

List of diagnoses and symptoms for coding by doctors

Please code each of the following. Up to 3 codes may be used, but please enter in order of priority, the first being the main principal diagnosis.
 Note: 'Coding' not diagnosing of patients is required.

Code: 1 2 3

1. Acute confusional state
2. Stroke affecting left hemisphere
3. Acute episodes of pain right side of face
4. Papilloedema (cause unknown)
5. Encephalitis
6. Cerebral infarct (right temporal region)
7. Probable ulnar nerve palsy in left hand; cannot rule out a T1 root lesion
8. Episode of acute labyrinthitis secondary to a viral infection in Oct. '86; improved but post-viral syndrome
9. Transient ischaemic attacks affecting right hemisphere
10. Right parietal glioma
11. Hypercalcaemia, cerebral infarct in right frontal and right temporal regions
12. Multiple sclerosis
13. Minor epilepsy (Invest: no evidence of petit mal or temporal lobe epilepsy)
14. Pneumonia, cardiac failure, ischaemic heart disease
15. Right cerebral infarction with transient ischaemic attacks
16. Right parietal glioma
17. Transient ischaemic attack, rheumatoid arthritis
18. Diabetes mellitus, proximal muscular weakness. Diabetic Amyotrophy?
19. Right sided lateral medullary syndrome
20. Atypical attack of migraine
21. Bilateral subdural haematomas
22. Non-convulsive status
23. Multiple sclerosis
24. Cerebral secondaries, primary unknown
25. Left-sided ulnar nerve palsy
26. Brain stem stroke
27. Epilepsy (EEG: excessive underlying slow activity and some indefinite left temporal sharp waves and non-specific generalised paroxysmal discharges)
28. Transient ischaemic attack possibly affecting left hemisphere
29. Migraine attacks

Appendix 2

Coding Booklet

Recommended Guidelines

Note: Symptoms as well as diseases can be coded.

1. If a *diagnosis does not appear* in the coding sheet, please refer to International Classification of Diseases for appropriate code.
2. If patient has a *possible or probable disease* initially classify under that disease, even though not certain.
3. Unless a psychiatrist or psychologist is involved with patient, try and avoid using codes for *mental disorders*.
4. If there is *more than one diagnosis* take the one which the patient is consulting about. If, however, patient is actually consulting about more than one disease (e.g. epilepsy and stroke) code each separately—in order of priority if possible.
5. If patient has *no formal diagnosis*, code according to presenting or major symptom.
6. If patient is consulting about *faints* and is on anticonvulsant drugs (e.g. tegretol, phenytoin) use epilepsy code, even if not sure epileptic. If anticonvulsant drugs have not been prescribed, and patient is undiagnosed, code 7802.
7. If patient is having '*odd turns*' (e.g. giddiness, 'distant' feelings, etc.) which you are unable to diagnose, code 7804.
8. Refer to numerical coding sheet for general *vague symptoms*.
9. If patient has *no disease or major symptom remaining* at the time of consultation code 0000.

NEUROLOGY CODES—Numerical Index

0000 No disease or major symptom

INFECTIOUS AND PARASITIC DISEASES

- 0130 Tuberculosis of meninges and CNS
- 0369 Meningococcal infection
- 0370 Tetanus
- 0389 Septicaemia

- 0459 Acute Poliomyelitis
- 0469 Slow virus infection of CNS
- 0539 Herpes Zoster, Shingles
- 0949 Neurosyphilis
- 1179 Mycoses
- 1300 Toxoplasmosis
- 1350 Cerebral Sarcoidosis
- 1361 Behçet's syndrome
- 1371 Late effects of CNS tuberculosis
- 1380 Late effects of poliomyelitis

NEOPLASMS

- 1729 Malignant Melanoma
- 1909 Malignant Neoplasm of eye
- 1919 Malignant Neoplasm of Brain, inc. Astrocytoma, Glioma, etc.
- 1929 Malignant Neoplasm of nervous system, inc. Spinal cord, cranial nerves, etc.
- 1983 Malignant Secondary—Brain and spinal cord
- 1984 Malignant Secondary—other parts of nervous system
- 1985 Malignant Secondary—Bone
- 2019 Hodgkin's disease
- 2028 Lymphoma (malignant)
- 2030 Myelomatosis
- 2089 Leukaemia
- 2140 Lipoma
- 2251 Acoustic neuroma
- 2259 Benign Neoplasm brain and other parts of nervous system
- 2370 Craniopharyngioma & Pituitary Neoplasm
- 2377 Neurofibromatosis (von Recklinghausen's disease)
- 2379 Other neoplasms endocrine glands and nervous system

ENDOCRINE, NUTRITIONAL AND METABOLIC DISEASES AND IMMUNITY DISORDERS

- 2427 Thyrotoxicosis with or without goitre
- 2469 Disorders of thyroid
- 2500 Diabetes Mellitus
- 2505 Diabetes with neurological manifestations
- 2511 Hyperinsulinism
- 2512 Hypoglycaemia
- 2549 Diseases of thymus gland
- 2592 Carcinoid syndrome
- 2669 Deficiency of B-complex components
- 2729 Disorders of lipid metabolism
- 2732 Paraproteinaemia
- 2750 Disorders of mineral metabolism

DISEASES OF BLOOD AND BLOOD-FORMING ORGANS

- 2800 Iron deficiency anaemia

MENTAL DISORDERS

- 2909 Senile and Presenile Dementia
- 2919 Alcoholic psychoses
- 2959 Schizophrenia
- 2989 Psychosis, confusion
- 3009 Neurotic disorders, e.g. anxiety, panic attacks, hysteria, neurotic depression
- 3030 Alcohol dependence syndrome
- 3069 Physiological malfunction arising from mental factors
- 3109 Organic brain syndrome
- 3190 Mental retardation

DISEASES OF THE NERVOUS SYSTEM AND SENSE ORGANS*Inflammatory diseases of central nervous system*

- 3204 Tuberculous Meningitis
- 3209 Bacterial Meningitis
- 3217 Viral Meningitis
- 3229 Other Meningitis
- 3234 Encephalitis due to infection
- 3238 Other encephalitis, myelitis and encephalomyelitis, excluding bacterial
- Royal Free Disease
- 3240 Intracranial abscess
- 3241 Intraspinal abscess
- 3250 Phlebitis and thrombophlebitis of intracranial venous sinuses

Hereditary and degenerative diseases of central nervous system

- 3300 Leucodystrophy
- 3309 Other cerebral degenerations usually manifest in childhood
- 3310 Alzheimer's disease
- 3311 Pick's disease

- 3313 Communicating hydrocephalus
- 3315 Jakob-Creutzfeldt disease
- 3319 Other cerebral degenerations
- 3320 Parkinson's disease
- 3330 Degenerative disease of the Basal ganglia
- Steele Richardson
- Supernuclear bulbar palsy
- 3331 Essential, intention and familial tremor
- 3332 Myoclonus
- 3333 Tics of organic origin
- 3334 Huntington's chorea
- 3335 Choreo-athetosis
- 3336 Idiopathic torsion dystonia
- Dystonia musculorum deformans
- 3337 Symptomatic torsion dystonia
- Athetoid cerebral palsy/athetosis
- 3338 Fragments of Torsion dystonia, inc. Spasmodic torticollis, Organic writers' cramp
- 3339 Other extrapyramidal disease and abnormal movement disorders
- Restless leg syndrome
- 3340 Friedreich's Ataxia
- 3341 Hereditary spastic paraplegia
- 3342 Primary Cerebellar degeneration
- 3343 Cerebellar ataxia
- 3349 Other Spinocerebellar disease
- 3350 Werdnig-Hoffman disease
- Spinal muscular atrophy—infantile
- 3351 Kugelberg-Welander disease
- Spinal muscular atrophy—adult
- 3352 Motor neuron disease
- Progressive muscular atrophy
- Progressive bulbar palsy
- 3358 Other Anterior horn cell disease
- Post poliomyelitis (Muscular atrophy)
- 3360 Syringomyelia
- 3361 Vascular Myelopathy
- 3363 Myelopathy
- Cervical spondylosis (with myelopathy) including Spinal Cord Compression
- 3379 Disorders of the autonomic nervous system

Other disorders of central nervous system

- 3400 Multiple Sclerosis
- 3421 Spastic hemiplegia
- 3439 Infantile cerebral palsy
- 3440 Quadriplegia
- 3441 Paraplegia (lower limbs)
- 3446 Cauda equina syndrome, Neurogenic bladder
- 3449 Other paralytic syndromes
- 3451 Generalised Epilepsy
- 3454 Focal or partial Epilepsy including temporal lobe epilepsy
- 3461 Migraine headache
- 3463 Facial migraine
- 3468 Hemiplegic migraine
- 3470 Cataplexy and narcolepsy
- 3480 Cerebral cysts
- 3481 Anoxic brain damage
- 3482 Benign intracranial hypertension
- 3483 Encephalopathy, Cerebral dysfunction
- 3499 Other unspecified disorders of nervous system

Disorders of peripheral nervous system

- 3509 Trigeminal nerve disorders
- 3510 Bell's palsy
- 3519 Other facial nerve disorders
- 3529 Other cranial nerve disorders
- 3530 Brachial plexus lesion
- 3531 Lumbosacral plexus lesions
- 3539 Nerve root and plexus disorders
- Thoracic outlet syndrome
- 3540 Carpal tunnel syndrome
- 3541 Median nerve lesion
- 3542 Ulnar nerve lesion
- 3543 Radial nerve lesion
- 3545 Mononeuritis multiplex
- 3549 Unspecified mononeuritis of upper limb
- 3551 Meralgia paraesthetica
- 3552 Femoral nerve lesion
- 3553 Lateral popliteal nerve lesion

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- 3559 Unspecified mononeuritis of lower limb
Neuropathic muscle wasting
Neurogenic atrophy
- 3561 Charcot-Marie-Tooth disease
Peroneal muscular atrophy
- 3563 Refsum's disease
- 3570 Guillain-Barré syndrome
- 3579 Neuropathy (unless specific name given)
- 3580 Myasthenia Gravis
- 3589 Other myoneural disorders
- 3591 Muscular dystrophy
- 3592 Myotonic disorders
- 3599 Other muscular dystrophies and myopathies

Disorders of the eye and adnexa

- 3623 Retinal vascular occlusion
- 3627 Retinitis pigmentosa
- 3684 Visual field defect (no known cause)
Scotoma
- 3689 Visual disturbance, unspecified
Transient blindness
- 3699 Blindness & visual loss
- 3749 Disorders of eyelids
- 3763 Exophthalmic eye disease
- 3770 Papilloedema
- 3773 Optic neuritis
- 3777 Cortical blindness
- 3779 Other unspecified disorders of optic nerve and visual pathways
- 3785 Ocular palsy
- 3787 Duane's syndrome
Progressive external ophthalmoplegia
- 3794 Adie pupil & anomalies of pupillary function
- 3795 Nystagmus

Diseases of the ear and mastoid process

- 3860 Meniere's disease
- 3863 Labyrinthitis
- 3883 Tinnitus
- 3889 Other disorders of ear
- 3899 Unspecified deafness

DISEASES OF THE CIRCULATORY SYSTEM

- 3989 Rheumatic heart disease
- 4010 Malignant hypertension
- 4011 Benign hypertension
- 4149 Ischaemic heart disease
- 4179 Diseases of pulmonary circulation
- 4219 Acute or subacute bacterial endocarditis
- 4289 Heart failure
- 4299 Other forms of heart disease
- 4300 Subarachnoid haemorrhage
- 4310 Intracerebral haemorrhage
- 4329 Other intracranial haemorrhage
- 4331 Carotid artery occlusion
- 4338 Brain stem stroke
- 4347 Left hemisphere stroke
- 4348 Right hemisphere stroke
- 4350 Transient ischaemic attack
- 4360 Stroke, unspecified
Medullary syndrome
- 4373 Cerebral aneurysm
- 4375 Moyamoya disease
- 4379 Ill-defined cerebrovascular disease
- 4409 Artherosclerosis
- 4439 Peripheral vascular disease
- 4465 Cranial arteritis
- 4479 Other disorders of arteries and arterioles
- 4489 Diseases of capillaries
- 4599 Other disorders of circulatory system

DISEASES OF THE RESPIRATORY SYSTEM

- 4619 Acute Sinusitis
- 4860 Pneumonia

DISEASES OF THE DIGESTIVE SYSTEM

- 5249 Dentofacial anomalies, including malocclusion

DISEASES OF THE GENITOURINARY SYSTEM

- 5990 Urinary tract infection

COMPLICATIONS OF PREGNANCY, CHILDBIRTH AND THE PUERPERIUM

- 6426 Eclampsia

DISEASES OF THE MUSCULOSKELETAL SYSTEM AND CONNECTIVE TISSUE

- 7104 Polymyositis
- 7140 Rheumatoid arthritis
- 7159 Osteoarthritis
- 7169 Other unspecified arthropathies and related disorders
- 7197 Difficulty in walking
- 7200 Ankylosing spondylitis and other inflammatory spondylopathies
- 7210 Cervical spondylosis without myelopathy
- 7219 Other Spondylosis and allied disorders
- 7225 Lumbar disc lesion
- 7229 Intervertebral disc disorders
- 7239 Other disorders of cervical region
- 7240 Spinal stenosis
- 7249 Unspecified back disorders
- 7250 Polymyalgia rheumatica
- 7269 Peripheral enthesopathies & allied syndromes
- 7282 Muscular wasting and disuse atrophy
Myofibrosis
- 7289 Limb weakness (no known cause)
- 7295 Pain in limb
- 7299 Unspecified disorders of muscles and other soft tissues
- 7309 Osteomyelitis, periostitis and other infections involving bone
- 7310 Paget's disease
- 7320 Bamberger-Marie disease

CONGENITAL ANOMALIES

- 7410 Spina bifida with hydrocephalus
- 7419 Spina bifida without hydrocephalus
- 7429 Congenital anomalies of brain, spinal cord and nervous system
- 7469 Congenital heart disease

SYMPTOMS, SIGNS AND ILL-DEFINED CONDITIONS

- 7802 Syncope and collapse
Vasovagal attack
- 7804 Odd turns, dizziness and giddiness
Vertigo
- 7809 Other general, vague symptoms
- 7810 Abnormal involuntary movements
Head/neck, limb, etc. Facial hemispasm.
- 7819 Other symptoms involving nervous and musculoskeletal systems
- 7829 Symptoms involving skin and other integumentary tissue
- 7840 Headache (all forms, exc. migraine)
- 7845 Speech disturbance
Dysphasia, Dysarthria
- 7849 Other symptoms involving head and neck
- 7859 Symptoms involving cardiovascular system
- 7869 Symptoms involving respiratory system and other chest symptoms
- 7872 Dysphagia
- 7883 Incontinence of urine
- 7889 Other symptoms involving urinary system

INJURY AND POISONING

- 8300 Dislocation of jaw
- 8520 Subdural haematoma—following injury
- 8540 Head/brain injury
- 9860 Toxic effect of carbon monoxide
- 9952 Adverse effect of drug

NEUROLOGY CODES—Alphabetical Index

A

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- Abscess—Intraspinal 3241
- Adie pupil & anomalies of pupillary function 3794
- Adverse effect of drug 9952
- Alcohol dependence syndrome 3030
- Alcoholic psychoses 2919
- Alzheimer's disease 3310
- Amaurosis fugax 3699
- Amnesia—auditory 7849
- Amnesia—psychogenic/hysterical 3001
- Amnesia—retrograde 7809
- Amnesia—transient global 4350

Amyotrophy—neuralgic
 Anaemia—Iron deficiency
 Aneurysm—basilar
 Aneurysm—cerebral
 Ankylosing spondylitis
 Anoxic brain damage
 Anterior horn cell disease, unspecified (MND = 3352)
 Arachnoiditis
 Arteriovenous malformation—congenital
 Artherosclerosis
 Arthritis—Rheumatoid
 Astrocytoma
 Ataxia—cerebellar
 Ataxia—Friedreich's
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 Athetosis
 Atrophy—cerebellar
 Atrophy—cerebral, unspecified
 Atrophy—muscular
 Atrophy—neurogenic
 Atrophy—peroneal muscular
 Atrophy—progressive muscular
 Atrophy—tongue
 Atypical face pain
 Autonomic nervous system disorders

B

Back disorders, unspecified
 Bacterial endocarditis—acute or subacute
 Bacterial meningitis
 Bamber-Marie disease
 Basal ganglia disease
 Behcets' syndrome
 Bell's palsy
 Blackouts/fainting (no known cause)
 Blepharospasm
 Blindness—transient
 Blindness & visual loss
 Bone neoplasm (malig. second.)
 Brachial neuritis
 Brachial plexus lesion
 Brain damage—anoxic
 Brain disease—vascular origin (ill-defined)
 Brain injury
 Brain neoplasm (malignant)
 Brain neoplasm (malig. second.)
 Brain stem episode
 Brain stem infarction
 Brain stem lesion cause unknown
 Brain stem stroke
 Brain syndrome (organic)
 Brain tumour benign
 Brain tumour malignant
 Bruit (NOS)
 Bulbar Palsy (other than MND)

C

Carbon monoxide poisoning
 Carcinoid syndrome
 Cardiac failure
 Carotid artery occlusion disease
 Carpal tunnel syndrome
 Cataplexy
 Cauda equina syndrome
 Cerebellar ataxia
 Cerebellar atrophy
 Cerebellar degeneration
 Cerebellar syndrome
 Cerebral anoxia
 Cerebral atrophy, unspecified
 Cerebral cysts
 Cerebral dysfunction
 Cerebral haemorrhage
 Cerebral infarction, unspecified
 Cerebral ischaemia
 Cerebral metastasis (malignant)
 Cerebral metastasis (malig. second.)
 Cerebral palsy—athetoid

Cerebral palsy—infantile unspecified
 Cerebral sarcoidosis
 CVA—see Stroke
 Cerebrovascular disease—ill-defined
 Cerebrovascular ischaemic attack
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 Cervical myelopathy
 Cervical radiculopathy
 Cervical root lesion/irritation
 Cervical spondylosis (with myelopathy)
 Cervical spondylosis (without myelopathy or radiculopathy)
 Charcot-Marie-Tooth disease
 Chorea-athetosis
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 Confusion
 Congenital anomalies of brain, spinal cord & nervous system
 Congenital heart disease
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 Cranial nerves—neoplasm (malig.)
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D

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 Dementia
 Demyelination
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 Diplegia (no known cause)
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 Dizziness
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 Dysphagia (no known cause)
 Dysphasia (no known cause)
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 Dystonic movements
 Dystrophia myotonica
 Dystrophy—facioscapulohumeral
 Dystrophy—muscular

E

Ear disorders
 Eclampsia
 Encephalitis—due to infection
 Encephalitis—other, excluding bacterial
 Encephalomyelitis
 Encephalopathy
 Endocarditis—acute or subacute
 Endocrine glands and nervous system neoplasm (unspec.)
 Entosopathies—peripheral
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 Epilepsy—Generalised
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 Eyelid disorders
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F

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 Facial hemispasm
 Facial myokymia
 Facial nerve disorders, other than Bell's palsy
 Facial palsy
 Facioscapulohumeral dystrophy
 Fainting/blackouts (no known cause)
 Familial tremor
 Fasciculations—benign
 Femoral nerve lesion
 Femoral neuropathy
 Fractures—look under site

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Haemorrhage—intracerebral	4310	Meningitis—viral	3217
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Spinal muscular atrophy—infantile	3350	Weakness—limb (no known cause)	7289
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