**Supplementary Appendix S3:** Definition of pain conditions

The following ICD-9 and ICD-10 diagnosis were used to define the existence of a pain condition. The appearance of any of these codes, even once, in inpatient or outpatient data, was sufficient to assign the patient as having a pain diagnosis.

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| **ICD9** | **ICD10** | **ICD9 Description** | **ICD10 Description** |
| 5319 | B029 | Herpes zoster with other nervous system complications | Herpes zoster with other nervous system complications |
| 5312 | B0222 | Postherpetic trigeminal neuralgia |  |
| 3572 | E0842 | Polyneuropathy in diabetes | Diabetes mellitus due to underlying condition with diabetic polyneuropathy |
| E0942 | Drug or chemical induced diabetes mellitus with neurological complications with diabetic polyneuropathy |
| E1042 | Type 1 diabetes mellitus with diabetic polyneuropathy |
| E1142 | Type 2 diabetes mellitus with diabetic polyneuropathy |
| 2496 | E1342 | Secondary diabetes mellitus with neurological manifestations, not stated as uncontrolled, or unspecified | Other specified diabetes mellitus with diabetic polyneuropathy |
| 2700 | E720 | Disturbances of amino-acid transport | Disorders of amino-acid transport, unspecified |
| 340 | G35 | Multiple sclerosis | Multiple sclerosis |
| 3460 | G43109 | Migraine with aura, without mention of intractable migraine without mention of status migrainosus | Migraine with aura, not intractable, without status migrainosus |
| 3469 | G43909 | Migraine unspecified | Migraine, unspecified, not intractable, without status migrainosus |
| 3390 | G449 | Cluster headache syndrome, unspecified | Cluster headache syndrome, unspecified, not intractable |
| 30781 | G44209 | Tension headache | Tension-type headache, unspecified, not intractable |
| 3501 | G500 | Trigeminal neuralgia | Trigeminal neuralgia |
| 3502 | G501 | Atypical Face Pain | Atypical Face Pain |
| 3518 | G518 | Other facial nerve disorders | Other facial nerve disorders |
| 3530 | G540 | Brachial plexus lesions | Brachial plexus disorders |
| 3536 | G546 | Phantom limb (syndrome) | Phantom limb syndrome with pain |
| 3538 | G548 | Other nerve root and plexus disorders | Other nerve root and plexus disorders |
| 3540 | G560 | Carpal tunnel syndrome | Carpal tunnel syndrome, unspecified upper limb |
| 3541 | G5610 | Other lesion of median nerve | Other lesions of median nerve, unspecified upper limb |
| 3544 | G5640 | Causalgia of upper limb | Causalgia of unspecified upper limb |
| 3549 | G5690 | Mononeuritis of upper limb, unspecified | Unspecified mononeuropathy of unspecified upper limb |
| 3551 | G5710 | Meralgia paresthetica | Meralgia paresthetica, unspecified lower limb |
| 35571 | G5770 | Causalgia of lower limb | Causalgia of unspecified lower limb |
| 3558 | G5790 | Mononeuritis of lower limb, unspecified | Unspecified mononeuropathy of unspecified lower limb |
| 3559 | G589 | Mononeuritis of unspecified site | Mononeuropathy, unspecified |
| 3569 | G609 | Unspecified hereditary and idiopathic peripheral neuropathy | Hereditary and idiopathic neuropathy, unspecified |
| 3380 | G890 | Central pain syndrome | Central pain syndrome |
| 3383 | G893 | Neoplasm related pain (acute) (chronic) | Neoplasm related pain (acute) (chronic) |
| 3384 | G894 | Chronic pain syndrome | Chronic pain syndrome |
| 33721 | G90519 | Reflex sympathetic dystrophy of the upper limb | Complex regional pain syndrome I of unspecified upper limb |
| 33722 | G90529 | Reflex sympathetic dystrophy of the lower limb | Complex regional pain syndrome I of unspecified lower limb |
| 33729 | G9059 | Reflex sympathetic dystrophy of other specified site | Complex regional pain syndrome I of other specified site |
| 4439 | I739 | Peripheral vascular disease, unspecified | Peripheral vascular disease, unspecified |
| 56942 | K6289 | Anal or rectal pain | Other specified diseases of anus and rectum |
| 6960 | L4059 | Psoriatic arthropathy | Other psoriatic arthropathy |
| 7140 | M069 | Rheumatoid arthritis | Rheumatoid arthritis, unspecified |
| 71590 | M159 | Osteoarthrosis, unspecified whether generalized or localized, site unspecified | Polyosteoarthritis, unspecified |
| 71590 | M159 | Osteoarthrosis, unspecified whether generalized or localized, site unspecified | Polyosteoarthritis, unspecified |
| M199 | Primary osteoarthritis, unspecified site |
| 71940 | M2550 | Pain in joint, site unspecified | Pain in joint, site unspecified |
| 71941 | M25519 | Pain in joint, shoulder region | Pain in unspecified shoulder |
| 71945 | M25559 | Pain in joint, pelvic region and thigh | Pain in unspecified hip |
| 71946 | M25569 | Pain in joint, lower leg | Pain in unspecified knee |
| 71947 | M25579 | Pain in joint, ankle and foot | Pain in unspecified ankle and joints of unspecified foot |
| 5246 | M2660 | Temporomandibular joint disorders | Temporomandibular joint disorder, unspecified |
| 7200 | M459 | Ankylosing spondylitis | Ankylosing spondylitis of unspecified sites in spine |
| 7210 | M47812 | Cervical spondylosis without myelopathy | Spondylosis without myelopathy or radiculopathy, cervical region |
| 7231 | M542 | Cervicalgia |
| 7241 | M480 | Spinal stenosis, thoracic region | Spinal stenosis, site unspecified |
| 7230 | M482 | Spinal stenosis in cervical region |
| 7242 | M486 | Spinal stenosis, lumbar region, without neurogenic claudication | Spinal stenosis, lumbar region |
| 7242 | M545 | Lumbago | Low back pain |
| 72252 | M5136 | Degeneration of lumbar or lumbosacral intervertebral disc | Other intervertebral disc degeneration, lumbar region |
| 7246 | M533 | Disorders of sacrum | Sacrococcygeal disorders, not elsewhere classified |
| 7238 | M5382 | Other syndromes affecting cervical region | Other specified dorsopathies, cervical region |
| 7234 | M5413 | Brachial neuritis or radiculitis NOS | Radiculopathy, cervicothoracic region |
| 7244 | M5417 | Thoracic or lumbosacral neuritis or radiculitis, unspecified | Radiculopathy, lumbosacral region |
| 7241 | M546 | Pain in thoracic spine |  |
| 72881 | M6010 | Interstitial myositis | Interstitial myositis of unspecified site |
| 7291 | M609 | Myalgia and myositis, unspecified | Myositis, unspecified |
| M791 | Myalgia |
| M797 | Fibromyalgia |
| 72700 | M659 | Synovitis and tenosynovitis, unspecified | Synovitis and tenosynovitis, unspecified |
| 72610 | M75100 | Disorders of bursae and tendons in shoulder region, unspecified | Unspecified rotator cuff tear or rupture of unspecified shoulder, not specified as traumatic |
| 72632 | M7710 | Lateral epicondylitis | Lateral epicondylitis, unspecified elbow |
| 7295 | M79609 | Pain in limb | Pain in unspecified limb |
| M79643 | Pain in unspecified hand |
| 7336 | M940 | Tietze's disease | Chondrocostal junction syndrome [Tietze] |
| 72281 | M961 | Postlaminectomy syndrome, cervical region | Postlaminectomy syndrome, not elsewhere classified |
| 72283 |  | Postlaminectomy syndrome, lumbar region |
| 5920 | N200 | Calculus of kidney | Calculus of kidney |
| 7880 | N23 | Renal colic | Unspecified renal colic |
| 5951 | N3010 | Chronic interstitial cystitis | Interstitial cystitis (chronic) without hematuria |
| N3011 | Interstitial cystitis (chronic) with hematuria |
| 6089 | N509 | Unspecified disorder of male genital organs | Disorder of male genital organs, unspecified |
| 62570 | N94819 | Vulvodynia, unspecified | Vulvodynia, unspecified |
| 78652 | R0789 | Painful respiration | Other chest pain |
| 78909 | R1010 | Abdominal pain, other specified site | Upper abdominal pain, unspecified |
| R1030 | Lower abdominal pain, unspecified |
| 78907 | R1084 | Abdominal pain, generalized | Abdominal pain, generalized |
| 6259 | R102 | Unspecified symptom associated with female genital organs | Pelvic and perineal pain |
| 7840 | R51 | Headache | Headache |