

Additional File 1. ICD9 Codes for chronic pain related diagnoses

Dx Codes	Diagnosis Description	Dx Codes	Diagnosis Description
327.52	Sleep related leg cramps	717	Old bucket handle tear of medial meniscus
333.84	Organic writers' cramp	717.1	Derangement of anterior horn of medial meniscus
338	Central pain syndrome	717.2	Derangement of posterior horn of medial meniscus
338.21	Chronic pain due to trauma	717.3	Other and unspecified derangement of medial meniscus
338.28	Other chronic postoperative pain	717.4	Unspecified derangement of lateral meniscus
338.29	Other chronic pain	717.41	Bucket handle tear of lateral meniscus
338.4	Chronic pain syndrome	717.42	Derangement of anterior horn of lateral meniscus
710	Systemic lupus erythematosus	717.43	Derangement of posterior horn of lateral meniscus
711.08	Pyogenic arthritis, other specified sites	717.49	Other derangement of lateral meniscus
712.1	Chondrocalcinosis due to dicalcium phosphate crystals, unspecified site	717.5	Derangement of meniscus, not elsewhere classified
712.11	Chondrocalcinosis due to dicalcium phosphate crystals, shoulder region	717.6	Loose body in knee
712.12	Chondrocalcinosis due to dicalcium phosphate crystals, upper arm	717.7	Chondromalacia of patella
712.13	Chondrocalcinosis due to dicalcium phosphate crystals, forearm	717.81	Old disruption of lateral collateral ligament
712.14	Chondrocalcinosis due to dicalcium phosphate crystals, hand	717.82	Old disruption of medial collateral ligament
712.15	Chondrocalcinosis due to dicalcium phosphate crystals, pelvic region and thigh	717.83	Old disruption of anterior cruciate ligament
712.16	Chondrocalcinosis due to dicalcium phosphate crystals, lower leg	717.84	Old disruption of posterior cruciate ligament
712.17	Chondrocalcinosis due to dicalcium phosphate crystals, ankle and foot	717.85	Old disruption of other ligament of knee
712.18	Chondrocalcinosis due to dicalcium	717.89	Other internal derangement of knee

	phosphate crystals, other specified sites		
712.19	Chondrocalcinosis due to dicalcium phosphate crystals, multiple sites	717.9	Unspecified internal derangement of knee
712.2	Chondrocalcinosis due to pyrophosphate crystals, unspecified site	718	Articular cartilage disorder, site unspecified
712.21	Chondrocalcinosis due to pyrophosphate crystals, shoulder region	718.01	Articular cartilage disorder, shoulder region
712.22	Chondrocalcinosis due to pyrophosphate crystals, upper arm	718.02	Articular cartilage disorder, upper arm
712.23	Chondrocalcinosis due to pyrophosphate crystals, forearm	718.03	Articular cartilage disorder, forearm
712.24	Chondrocalcinosis due to pyrophosphate crystals, hand	718.04	Articular cartilage disorder, hand
712.25	Chondrocalcinosis due to pyrophosphate crystals, pelvic region and thigh	718.05	Articular cartilage disorder, pelvic region and thigh
712.26	Chondrocalcinosis due to pyrophosphate crystals, lower leg	718.07	Articular cartilage disorder, ankle and foot
712.27	Chondrocalcinosis due to pyrophosphate crystals, ankle and foot	718.08	Articular cartilage disorder, other specified site
712.28	Chondrocalcinosis due to pyrophosphate crystals, other specified sites	718.09	Articular cartilage disorder, multiple sites
712.29	Chondrocalcinosis due to pyrophosphate crystals, multiple sites	718.1	Loose body in joint, site unspecified
712.3	Chondrocalcinosis, cause unspecified, involving unspecified site	718.11	Loose body in shoulder joint
712.31	Chondrocalcinosis, cause unspecified, involving shoulder region	718.12	Loose body in upper arm joint
712.32	Chondrocalcinosis, cause unspecified, involving upper arm	718.13	Loose body in forearm joint
712.33	Chondrocalcinosis, cause unspecified, involving forearm	718.14	Loose body in hand joint

712.34	Chondrocalcinosis, cause unspecified, involving hand	718.15	Loose body in pelvic joint
712.35	Chondrocalcinosis, cause unspecified, involving pelvic region and thigh	718.17	Loose body in ankle and foot joint
712.36	Chondrocalcinosis, cause unspecified, involving lower leg	718.18	Loose body in joint of other specified site
712.37	Chondrocalcinosis, cause unspecified, involving ankle and foot	718.19	Loose body in joint of multiple sites
712.38	Chondrocalcinosis, cause unspecified, involving other specified sites	719.4	Pain in joint, site unspecified
712.39	Chondrocalcinosis, cause unspecified, involving multiple sites	719.41	Pain in joint, shoulder region
712.8	Other specified crystal arthropathies, site unspecified	719.42	Pain in joint, upper arm
712.81	Other specified crystal arthropathies, shoulder region	719.43	Pain in joint, forearm
712.82	Other specified crystal arthropathies, upper arm	719.44	Pain in joint, hand
712.83	Other specified crystal arthropathies, forearm	719.45	Pain in joint, pelvic region and thigh
712.84	Other specified crystal arthropathies, hand	719.46	Pain in joint, lower leg
712.85	Other specified crystal arthropathies, pelvic region and thigh	719.47	Pain in joint, ankle and foot
712.86	Other specified crystal arthropathies, lower leg	719.48	Pain in joint, other specified sites
712.87	Other specified crystal arthropathies, ankle and foot	719.49	Pain in joint, multiple sites
712.88	Other specified crystal arthropathies, other specified sites	719.5	Stiffness of joint, not elsewhere classified, unspecified site
712.89	Other specified crystal arthropathies, multiple sites	719.51	Stiffness of joint, not elsewhere classified, shoulder region
712.9	Unspecified crystal arthropathy, site unspecified	719.52	Stiffness of joint, not elsewhere classified, upper arm
712.91	Unspecified crystal arthropathy, shoulder region	719.53	Stiffness of joint, not elsewhere classified, forearm

712.92	Unspecified crystal arthropathy, upper arm	719.54	Stiffness of joint, not elsewhere classified, hand
712.93	Unspecified crystal arthropathy, forearm	719.55	Stiffness of joint, not elsewhere classified, pelvic region and thigh
712.94	Unspecified crystal arthropathy, hand	719.56	Stiffness of joint, not elsewhere classified, lower leg
712.95	Unspecified crystal arthropathy, pelvic region and thigh	719.57	Stiffness of joint, not elsewhere classified, ankle and foot
712.96	Unspecified crystal arthropathy, lower leg	719.58	Stiffness of joint, not elsewhere classified, other specified site
712.97	Unspecified crystal arthropathy, ankle and foot	719.59	Stiffness of joints, not elsewhere classified, multiple sites
712.98	Unspecified crystal arthropathy, other specified sites	721	Cervical spondylosis without myelopathy
712.99	Unspecified crystal arthropathy, multiple sites	721.3	Lumbosacral spondylosis without myelopathy
714	Rheumatoid arthritis	721.7	Traumatic spondylopathy
714.89	Other specified inflammatory polyarthropathies	721.8	Other allied disorders of spine
715	Generalized osteoarthritis, unspecified site	721.9	Spondylosis of unspecified site without mention of myelopathy
715.04	Generalized osteoarthritis, involving hand	722.4	Degeneration of cervical intervertebral disc
715.09	Generalized osteoarthritis, involving multiple sites	722.51	Degeneration of thoracic or thoracolumbar intervertebral disc
715.1	Primary localized osteoarthritis, specified site	722.52	Degeneration of lumbar or lumbosacral intervertebral disc
715.11	Primary localized osteoarthritis, shoulder region	722.6	Degeneration of intervertebral disc, site unspecified
715.12	Primary localized osteoarthritis, upper arm	722.8	Postlaminectomy syndrome, unspecified region
715.13	Primary localized osteoarthritis, forearm	722.81	Postlaminectomy syndrome, cervical region
715.14	Primary localized osteoarthritis, hand	722.82	Postlaminectomy syndrome, thoracic region
715.15	Primary localized osteoarthritis, pelvic region and thigh	722.83	Postlaminectomy syndrome, lumbar region
715.16	Primary localized osteoarthritis,	723	Spinal stenosis in cervical region

	lower leg		
715.17	Primary localized osteoarthritis, ankle and foot	723.1	Cervicalgia
715.18	Primary localized osteoarthritis, other specified sites	723.2	Cervicocranial syndrome
715.2	Secondary localized osteoarthritis, unspecified site	723.3	Cervicobrachial syndrome (diffuse)
715.21	Secondary localized osteoarthritis, shoulder region	723.4	Brachial neuritis or radiculitis nos
715.22	Secondary localized osteoarthritis, upper arm	724	Spinal stenosis, unspecified region other than cervical
715.23	Secondary localized osteoarthritis, forearm	724.01	Spinal stenosis of thoracic region
715.24	Secondary localized osteoarthritis, involving hand	724.02	Spinal stenosis, lumbar region, without neurogenic claudication
715.25	Secondary localized osteoarthritis, pelvic region and thigh	724.03	Spinal stenosis, lumbar region, with neurogenic claudication
715.26	Secondary localized osteoarthritis, lower leg	724.09	Spinal stenosis, other region other than cervical
715.27	Secondary localized osteoarthritis, ankle and foot	724.1	Pain in thoracic spine
715.28	Secondary localized osteoarthritis, other specified site	724.2	Lumbago
715.3	Localized osteoarthritis not specified whether primary or secondary, unspecified site	724.3	Sciatica
715.31	Localized osteoarthritis not specified whether primary or secondary, shoulder region	724.4	Thoracic or lumbosacral neuritis or radiculitis, unspecified
715.32	Localized osteoarthritis not specified whether primary or secondary, upper arm	724.5	Unspecified backache
715.33	Localized osteoarthritis not specified whether primary or secondary, forearm	726.1	Unspecified disorders of bursae and tendons in shoulder region
715.34	Localized osteoarthritis not specified whether primary or secondary, hand	726.11	Calcifying tendinitis of shoulder
715.35	Localized osteoarthritis not specified whether primary or secondary, pelvic	726.12	Bicipital tenosynovitis

	region and thigh		
715.36	Localized osteoarthritis not specified whether primary or secondary, lower leg	726.31	Medial epicondylitis of elbow
715.37	Localized osteoarthritis not specified whether primary or secondary, ankle and foot	726.32	Lateral epicondylitis of elbow
715.38	Localized osteoarthritis not specified whether primary or secondary, other specified sites	726.33	Olecranon bursitis
715.8	Osteoarthritis involving more than one site, but not specified as generalized, unspecified site	726.39	Other enthesopathy of elbow region
715.89	Osteoarthritis involving multiple sites, but not specified as generalized	726.61	Pes anserinus tendinitis or bursitis
715.9	Osteoarthritis, unspecified whether generalized or localized, unspecified site	726.62	Tibial collateral ligament bursitis
715.91	Osteoarthritis, unspecified whether generalized or localized, shoulder region	726.63	Fibular collateral ligament bursitis
715.92	Osteoarthritis, unspecified whether generalized or localized, upper arm	726.64	Patellar tendinitis
715.93	Osteoarthritis, unspecified whether generalized or localized, forearm	726.65	Prepatellar bursitis
715.94	Osteoarthritis, unspecified whether generalized or localized, hand	726.71	Achilles bursitis or tendinitis
715.95	Osteoarthritis, unspecified whether generalized or localized, pelvic region and thigh	726.72	Tibialis tendinitis
715.96	Osteoarthritis, unspecified whether generalized or localized, lower leg	727	Unspecified synovitis and tenosynovitis
715.97	Osteoarthritis, unspecified whether generalized or localized, ankle and foot	727.01	Synovitis and tenosynovitis in diseases classified elsewhere
715.98	Osteoarthritis, unspecified whether generalized or localized, other specified sites	727.04	Radial styloid tenosynovitis
716.1	Traumatic arthropathy, site unspecified	727.05	Other tenosynovitis of hand and wrist

716.11	Traumatic arthropathy, shoulder region	727.06	Tenosynovitis of foot and ankle
716.12	Traumatic arthropathy, upper arm	727.09	Other synovitis and tenosynovitis
716.13	Traumatic arthropathy, forearm	727.2	Specific bursitides often of occupational origin
716.14	Traumatic arthropathy, hand	727.3	Other bursitis disorders
716.15	Traumatic arthropathy, pelvic region and thigh	727.81	Contracture of tendon (sheath)
716.16	Traumatic arthropathy, lower leg	728.85	Spasm of muscle
716.17	Traumatic arthropathy, ankle and foot	728.89	Other disorder of muscle, ligament, and fascia
716.18	Traumatic arthropathy, other specified sites	728.9	Unspecified disorder of muscle, ligament, and fascia
716.19	Traumatic arthropathy, multiple sites	729.1	Unspecified myalgia and myositis
716.49	Transient arthropathy, multiple sites	729.2	Unspecified neuralgia, neuritis, and radiculitis
716.5	Unspecified polyarthropathy or polyarthritis, site unspecified	729.3	Panniculitis, unspecified site
716.51	Unspecified polyarthropathy or polyarthritis, shoulder region	729.39	Panniculitis of other sites
716.52	Unspecified polyarthropathy or polyarthritis, upper arm	729.5	Pain in soft tissues of limb
716.53	Unspecified polyarthropathy or polyarthritis, forearm	729.82	Cramp of limb
716.54	Unspecified polyarthropathy or polyarthritis, hand	729.89	Other musculoskeletal symptoms referable to limbs
716.55	Unspecified polyarthropathy or polyarthritis, pelvic region and thigh	780.96	Generalized pain
716.56	Unspecified polyarthropathy or polyarthritis, lower leg	784.92	Jaw pain
716.57	Unspecified polyarthropathy or polyarthritis, ankle and foot	786.5	Unspecified chest pain
716.58	Unspecified polyarthropathy or polyarthritis, other specified sites	786.51	Precordial pain
716.59	Unspecified polyarthropathy or polyarthritis, multiple sites	786.52	Painful respiration