**Table e-1.** Co-existing medical conditions that reached the 3% cohort prevalence and Bonferroni level of significance (BONF=True) for association with higher multiple sclerosis severity scores: findings from the independent analysis of the **discovery cohort** (n=3,439).

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **PheCode** | **Medical Condition** | **Prev (%)** | **OR** | **OR 95% CI** | ***P-*value** | **BONF** | **Analyzed in Ext.** |
| **208** | Benign neoplasm of colon | 3.9 | 0.96 | 0.90 | 1.03 | 0.30 | **False** | **Yes** |
| **216** | Benign neoplasm of skin | 9.4 | 0.89 | 0.85 | 0.94 | 4.93E-06 | **True** | **Yes** |
| **241** | Nontoxic nodular goiter | 3.6 | 0.96 | 0.89 | 1.03 | 0.23 | **False** | **No** |
| **244** | Hypothyroidism | 4.5 | 0.98 | 0.92 | 1.05 | 0.60 | **False** | **Yes** |
| **244.4** | Hypothyroidism NOS | 4.4 | 0.98 | 0.92 | 1.05 | 0.56 | **False** | **No** |
| **250** | Diabetes mellitus | 3.6 | 1.17 | 1.08 | 1.25 | 4.20E-05 | **True** | **Yes** |
| **250.2** | Type 2 diabetes | 3.2 | 1.20 | 1.11 | 1.30 | 9.04E-06 | **True** | **No** |
| **272** | Disorders of lipoid metabolism | 11.1 | 0.99 | 0.94 | 1.03 | 0.55 | **False** | **Yes** |
| **272.1** | Hyperlipidemia | 11 | 0.98 | 0.94 | 1.03 | 0.45 | **False** | **Yes** |
| **272.11** | Hypercholesterolemia | 3.6 | 0.96 | 0.89 | 1.03 | 0.28 | **False** | **No** |
| **276** | Disorders of fluid, electrolyte, and acid-base balance | 3.8 | 1.26 | 1.16 | 1.36 | 1.08E-08 | **True** | **Yes** |
| **278** | Overweight, obesity and other hyperalimentation | 5.6 | 1.05 | 0.99 | 1.11 | 0.097 | **False** | **Yes** |
| **278.1** | Obesity | 4.1 | 1.08 | 1.01 | 1.15 | 0.027 | **False** | **No** |
| **285** | Other anemias | 4.9 | 1.09 | 1.02 | 1.16 | 0.0066 | **False** | **Yes** |
| **290.3** | Other persistent mental disorders due to conditions classified elsewhere | 6 | 1.07 | 1.01 | 1.13 | 0.019 | **False** | **No** |
| **292** | Neurological disorders | 6.3 | 1.20 | 1.14 | 1.27 | 1.64E-10 | **True** | **No** |
| **296** | Mood disorders | 17 | 1.16 | 1.12 | 1.21 | 9.70E-15 | **True** | **Yes** |
| **296.2** | Depression | 14.2 | 1.17 | 1.12 | 1.22 | 2.83E-14 | **True** | **Yes** |
| **296.22** | Major depressive disorder | 7.1 | 1.13 | 1.07 | 1.19 | 3.35E-06 | **True** | **Yes** |
| **300** | Anxiety, phobic and dissociative disorders | 7.3 | 1.05 | 0.99 | 1.10 | 0.085 | **False** | **Yes** |
| **300.1** | Anxiety disorder | 5.7 | 1.02 | 0.97 | 1.08 | 0.44 | **False** | **Yes** |
| **304** | Adjustment reaction | 10.2 | 1.15 | 1.10 | 1.20 | 1.86E-09 | **True** | **Yes** |
| **334** | Degenerative disease of the spinal cord | 26.8 | 0.94 | 0.91 | 0.97 | 0.00034 | **True** | **Yes** |
| **340** | Migraine | 3.4 | 1.04 | 0.96 | 1.12 | 0.32 | **False** | **Yes** |
| **341** | Other demyelinating diseases of central nervous system | 31.8 | 0.92 | 0.89 | 0.95 | 3.53E-07 | **True** | **Yes** |
| **345** | Epilepsy, recurrent seizures, convulsions | 4 | 1.19 | 1.11 | 1.27 | 3.31E-07 | **True** | **Yes** |
| **345.3** | Convulsions | 3.3 | 1.21 | 1.12 | 1.30 | 2.60E-07 | **True** | **Yes** |
| **346** | Abnormal findings on study of brain and/or nervous system | 18.6 | 0.88 | 0.85 | 0.91 | 1.14E-10 | **True** | **No** |
| **346.2** | Nonspecific abnormal results of function study of brain and central nervous system | 18.5 | 0.88 | 0.85 | 0.92 | 1.25E-10 | **True** | **No** |
| **348.9** | Other conditions of brain, NOS | 31.1 | 0.94 | 0.91 | 0.97 | 0.00030 | **True** | **No** |
| **350** | Abnormal movement | 10.8 | 1.24 | 1.19 | 1.30 | 1.39E-19 | **True** | **Yes** |
| **350.2** | Abnormality of gait | 5.8 | 1.24 | 1.16 | 1.32 | 3.04E-11 | **True** | **No** |
| **351** | Other peripheral nerve disorders | 4.1 | 1.03 | 0.97 | 1.10 | 0.34 | **False** | **Yes** |
| **368** | Visual disturbances | 3.9 | 1.00 | 0.94 | 1.07 | 0.89 | **False** | **Yes** |
| **377** | Disorders of optic nerve and visual pathways | 6.1 | 0.97 | 0.92 | 1.03 | 0.32 | **False** | **Yes** |
| **377.3** | Optic neuritis/neuropathy | 5.6 | 0.97 | 0.91 | 1.02 | 0.24 | **False** | **Yes** |
| **386.9** | Dizziness and giddiness (Light-headedness and vertigo) | 5.7 | 1.01 | 0.95 | 1.07 | 0.70 | **False** | **Yes** |
| **401** | Hypertension | 11.6 | 1.09 | 1.04 | 1.14 | 0.00055 | **False** | **Yes** |
| **401.1** | Essential hypertension | 11.4 | 1.09 | 1.04 | 1.14 | 0.00049 | **False** | **Yes** |
| **418** | Nonspecific chest pain | 11.2 | 1.04 | 0.99 | 1.09 | 0.12 | **False** | **Yes** |
| **427** | Cardiac dysrhythmias | 10.3 | 1.11 | 1.06 | 1.17 | 1.32E-05 | **True** | **Yes** |
| **427.5** | Arrhythmia (cardiac) NOS | 4.4 | 1.24 | 1.15 | 1.33 | 6.86E-09 | **True** | **No** |
| **427.9** | Palpitations | 3.1 | 0.90 | 0.84 | 0.98 | 0.011 | **False** | **No** |
| **433** | Cerebrovascular disease | 3.2 | 1.07 | 0.99 | 1.16 | 0.070 | **False** | **Yes** |
| **465** | Acute upper respiratory infections of multiple or unspecified sites | 8.6 | 0.91 | 0.86 | 0.96 | 0.00074 | **False** | **Yes** |
| **480** | Pneumonia | 3.6 | 1.33 | 1.23 | 1.44 | 2.84E-12 | **True** | **Yes** |
| **495** | Asthma | 3.9 | 1.00 | 0.94 | 1.07 | 0.99 | **False** | **Yes** |
| **512** | Other symptoms of respiratory system | 14 | 1.06 | 1.01 | 1.10 | 0.012 | **False** | **Yes** |
| **512.7** | Shortness of breath | 4.7 | 1.11 | 1.04 | 1.18 | 0.0015 | **False** | **No** |
| **512.8** | Cough | 7.7 | 1.04 | 0.98 | 1.09 | 0.19 | **False** | **Yes** |
| **512.9** | Other dyspnea | 4.1 | 1.00 | 0.94 | 1.07 | 0.89 | **False** | **No** |
| **530** | Diseases of esophagus | 5.6 | 1.01 | 0.95 | 1.07 | 0.84 | **False** | **Yes** |
| **530.1** | Esophagitis, GERD and related diseases | 5.3 | 1.00 | 0.94 | 1.06 | 0.92 | **False** | **Yes** |
| **530.11** | GERD | 4.7 | 1.01 | 0.95 | 1.08 | 0.71 | **False** | **No** |
| **591** | Urinary tract infection | 14.5 | 1.32 | 1.26 | 1.38 | 7.41E-33 | **True** | **Yes** |
| **593** | Hematuria | 5.4 | 1.29 | 1.21 | 1.38 | 5.48E-15 | **True** | **Yes** |
| **596** | Other disorders of bladder | 15.9 | 1.45 | 1.39 | 1.52 | 4.77E-58 | **True** | **Yes** |
| **596.5** | Functional disorders of bladder | 15.6 | 1.44 | 1.38 | 1.51 | 1.40E-56 | **True** | **Yes** |
| **599** | Other symptoms/disorders or the urinary system | 18.8 | 1.33 | 1.28 | 1.38 | 1.81E-42 | **True** | **Yes** |
| **599.2** | Retention of urine | 4 | 1.35 | 1.25 | 1.45 | 5.28E-14 | **True** | **Yes** |
| **599.4** | Urinary incontinence | 7.9 | 1.40 | 1.32 | 1.48 | 3.83E-28 | **True** | **Yes** |
| **599.5** | Frequency of urination and polyuria | 11.3 | 1.28 | 1.22 | 1.34 | 3.38E-25 | **True** | **Yes** |
| **611** | Abnormal findings on mammogram or breast exam | 8.6 | 0.93 | 0.88 | 0.98 | 0.0037 | **False** | **No** |
| **611.1** | Abnormal mammogram | 4.3 | 0.92 | 0.86 | 0.99 | 0.023 | **False** | **No** |
| **611.3** | Lump or mass in breast | 4.6 | 0.90 | 0.84 | 0.96 | 0.0020 | **False** | **No** |
| **613** | Other nonmalignant breast conditions | 3.4 | 0.95 | 0.88 | 1.02 | 0.14 | **False** | **Yes** |
| **614** | Inflammatory diseases of female pelvic organs | 4.7 | 0.90 | 0.84 | 0.97 | 0.0038 | **False** | **Yes** |
| **614.5** | Inflammatory disease of cervix, vagina, and vulva | 4.1 | 0.88 | 0.81 | 0.95 | 0.0014 | **False** | **Yes** |
| **614.52** | Vaginitis and vulvovaginitis | 3.6 | 0.88 | 0.81 | 0.96 | 0.0035 | **False** | **Yes** |
| **619** | Noninflammatory female genital disorders | 3.7 | 0.95 | 0.88 | 1.02 | 0.19 | **False** | **Yes** |
| **625** | Pain and other symptoms associated with female genital organs | 3.2 | 0.93 | 0.86 | 1.01 | 0.074 | **False** | **Yes** |
| **626** | Disorders of menstruation and other abnormal bleeding from female genital tract | 8.5 | 0.94 | 0.89 | 1.00 | 0.038 | **False** | **Yes** |
| **626.1** | Irregular menstrual cycle/bleeding | 6.2 | 0.94 | 0.88 | 1.00 | 0.045 | **False** | **Yes** |
| **627** | Menopausal and postmenopausal disorders | 7.2 | 1.04 | 0.98 | 1.10 | 0.24 | **False** | **Yes** |
| **627.2** | Symptomatic menopause | 3.9 | 0.98 | 0.91 | 1.05 | 0.56 | **False** | **No** |
| **681** | Superficial cellulitis and abscess | 4.9 | 1.17 | 1.09 | 1.25 | 4.26E-06 | **True** | **Yes** |
| **687.1** | Rash and other nonspecific skin eruption | 3.9 | 1.00 | 0.94 | 1.08 | 0.90 | **False** | **Yes** |
| **687.4** | Disturbance of skin sensation | 11.1 | 0.90 | 0.86 | 0.95 | 1.95E-05 | **True** | **Yes** |
| **694** | Dyschromia and Vitiligo | 3.6 | 0.90 | 0.83 | 0.97 | 0.0047 | **False** | **No** |
| **694.2** | Other dyschromia | 3.5 | 0.90 | 0.83 | 0.97 | 0.0055 | **False** | **No** |
| **701** | Other hypertrophic and atrophic conditions of skin | 3.4 | 0.90 | 0.84 | 0.97 | 0.0069 | **False** | **Yes** |
| **702** | Degenerative skin conditions and other dermatoses | 4.9 | 0.89 | 0.83 | 0.95 | 0.00034 | **True** | **Yes** |
| **702.2** | Seborrheic keratosis | 3.8 | 0.88 | 0.81 | 0.94 | 0.00059 | **False** | **No** |
| **706** | Diseases of sebaceous glands | 4.9 | 0.96 | 0.90 | 1.03 | 0.26 | **False** | **Yes** |
| **721** | Spondylosis and allied disorders | 5.4 | 0.96 | 0.90 | 1.02 | 0.15 | **False** | **Yes** |
| **721.1** | Spondylosis without myelopathy | 4.6 | 0.95 | 0.89 | 1.02 | 0.15 | **False** | **No** |
| **722** | Intervertebral disc disorders | 9.9 | 0.96 | 0.91 | 1.00 | 0.050 | **False** | **Yes** |
| **722.1** | Displacement of intervertebral disc | 4 | 0.98 | 0.92 | 1.05 | 0.63 | **False** | **Yes** |
| **722.6** | Degeneration of intervertebral disc | 6 | 0.96 | 0.90 | 1.01 | 0.12 | **False** | **No** |
| **726** | Peripheral enthesopathies and allied syndromes | 5.9 | 0.99 | 0.93 | 1.05 | 0.65 | **False** | **Yes** |
| **740** | Osteoarthrosis | 6.9 | 0.95 | 0.90 | 1.01 | 0.094 | **False** | **Yes** |
| **740.9** | Osteoarthrosis NOS | 6.1 | 0.96 | 0.90 | 1.01 | 0.14 | **False** | **No** |
| **741** | Symptoms and disorders of the joints | 8.6 | 1.16 | 1.11 | 1.22 | 2.26E-09 | **True** | **Yes** |
| **741.3** | Difficulty in walking | 5.6 | 1.26 | 1.18 | 1.34 | 1.37E-13 | **True** | **No** |
| **743** | Osteoporosis, osteopenia and pathological fracture | 12.1 | 1.21 | 1.16 | 1.27 | 1.47E-15 | **True** | **Yes** |
| **743.1** | Osteoporosis | 5.6 | 1.40 | 1.30 | 1.51 | 2.08E-19 | **True** | **Yes** |
| **743.11** | Osteoporosis NOS | 5.4 | 1.39 | 1.29 | 1.50 | 1.98E-18 | **True** | **No** |
| **743.9** | Osteopenia or other disorder of bone and cartilage | 8.1 | 1.11 | 1.05 | 1.17 | 7.10E-05 | **True** | **No** |
| **745** | Pain in joint | 18.2 | 1.00 | 0.96 | 1.04 | 0.98 | **False** | **Yes** |
| **760** | Back pain | 13.4 | 1.02 | 0.98 | 1.06 | 0.36 | **False** | **Yes** |
| **761** | Cervicalgia | 5 | 0.99 | 0.93 | 1.05 | 0.67 | **False** | **Yes** |
| **770** | Myalgia and myositis unspecified | 3.4 | 1.01 | 0.93 | 1.08 | 0.87 | **False** | **No** |
| **771.1** | Swelling of limb | 4.2 | 1.14 | 1.07 | 1.22 | 0.00015 | **True** | **No** |
| **783** | Fever of unknown origin | 6.1 | 1.23 | 1.16 | 1.30 | 2.18E-11 | **True** | **Yes** |
| **785** | Abdominal pain | 12.2 | 1.02 | 0.97 | 1.06 | 0.48 | **False** | **Yes** |
| **789** | Nausea and vomiting | 3.3 | 1.21 | 1.12 | 1.30 | 1.36E-06 | **True** | **Yes** |
| **798** | Malaise and fatigue | 12.7 | 1.12 | 1.07 | 1.17 | 8.65E-07 | **True** | **Yes** |
| **840** | Sprains and strains | 3.9 | 0.95 | 0.89 | 1.02 | 0.17 | **False** | **Yes** |
| **939** | Atopic/contact dermatitis due to other or unspecified | 6.1 | 1.00 | 0.94 | 1.06 | 0.94 | **False** | **Yes** |

Note: Related ICD-9 codes of a single medical condition are mapped to a single phenotype code or PheCode (column 1). Prevalence (Prev) is defined as the percentage of the patients in the cohort having a medical condition as indicated by the PheCode. Odds ratio (OR) represents the estimated factor by which the odds of the presence of the given medical condition changes per unit increase of the MSSS (on the decile scale), holding controlled covariates constant. We indicated whether a medical condition reached the Bonferroni (BONF) threshold of significance in an independent analysis of the discovery cohort and extension cohort as True (T) or False (F), respectively. We indicated whether a medical condition was included in discovery analysis and extension analysis (Analyzed in Ext.) as Yes (Y) or No (N), respectively.

**Table e-2.** Co-existing medical conditions that reached the 3% cohort prevalence and Bonferroni level of significance (BONF=True) for association with higher multiple sclerosis severity scores: findings from independent analysis of the **extension** **cohort** (n=4,876).

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **PheCode** | **Medical Condition** | **Prev (%)** | **OR** | **OR 95% CI** | ***P-*value** | **BONF** | **Analyzed in Ext.** |
| **8** | Intestinal infection | 21.3 | 0.99 | 0.97 | 1.01 | 0.40 | **False** | **No** |
| **8.5** | Bacterial enteritis | 3.6 | 1.15 | 1.09 | 1.21 | 4.01E-07 | **True** | **No** |
| **38** | Septicemia | 8.3 | 1.44 | 1.38 | 1.50 | 1.18E-57 | **True** | **No** |
| **41** | Bacterial infection NOS | 23.6 | 1.22 | 1.19 | 1.25 | 5.90E-59 | **True** | **No** |
| **41.1** | Staphylococcus infections | 4.4 | 1.46 | 1.38 | 1.56 | 4.85E-35 | **True** | **No** |
| **41.2** | Streptococcus infection | 8.7 | 1.15 | 1.11 | 1.19 | 3.75E-15 | **True** | **No** |
| **41.4** | E. coli | 8.3 | 1.37 | 1.32 | 1.43 | 2.26E-49 | **True** | **No** |
| **53** | Herpes zoster | 6.1 | 0.94 | 0.90 | 0.98 | 0.0064 | **False** | **No** |
| **54** | Herpes simplex | 7.3 | 0.93 | 0.89 | 0.96 | 0.00016 | **False** | **No** |
| **78** | Viral warts & HPV | 3.7 | 0.92 | 0.87 | 0.98 | 0.0048 | **False** | **No** |
| **79** | Viral infection | 23 | 0.98 | 0.95 | 1.00 | 0.051 | **False** | **No** |
| **81** | Infection/inflammation of internal prostheses  | 4 | 1.51 | 1.41 | 1.61 | 9.43E-33 | **True** | **No** |
| **110** | Dermatophytosis / Dermatomycosis | 14.1 | 1.09 | 1.06 | 1.12 | 8.23E-09 | **True** | **No** |
| **110.1** | Dermatophytosis | 5.6 | 1.24 | 1.18 | 1.29 | 4.71E-19 | **True** | **No** |
| **110.11** | Dermatophytosis of nail | 4.1 | 1.32 | 1.24 | 1.40 | 9.40E-21 | **True** | **No** |
| **112** | Candidiasis | 10.3 | 1.05 | 1.02 | 1.08 | 0.0031 | **False** | **No** |
| **172** | Skin cancer | 8.4 | 0.96 | 0.92 | 0.99 | 0.023 | **False** | **No** |
| **172.2** | Other non-epithelial cancer of skin | 6.6 | 0.96 | 0.92 | 1.00 | 0.033 | **False** | **No** |
| **174** | Breast cancer | 5.2 | 0.95 | 0.91 | 0.99 | 0.023 | **False** | **No** |
| **174.1** | Breast cancer [female] | 3.7 | 0.95 | 0.90 | 1.01 | 0.082 | **False** | **No** |
| **174.11** | Malignant neoplasm of female breast | 3.7 | 0.95 | 0.90 | 1.01 | 0.084 | **False** | **No** |
| **180** | Cervical cancer and dysplasia | 4.1 | 0.99 | 0.94 | 1.04 | 0.65 | **False** | **No** |
| **180.3** | Cervical intraepithelial neoplasia [CIN] | 3.7 | 0.99 | 0.93 | 1.04 | 0.58 | **False** | **No** |
| **195** | Cancer, suspected or other | 4.4 | 0.99 | 0.94 | 1.04 | 0.73 | **False** | **No** |
| **195.1** | Malignant neoplasm, other | 3.2 | 0.99 | 0.94 | 1.05 | 0.76 | **False** | **No** |
| **199** | Neoplasm of uncertain behavior | 5.1 | 0.93 | 0.89 | 0.97 | 0.0015 | **False** | **No** |
| **208** | Benign neoplasm of colon | 3.6 | 0.89 | 0.84 | 0.94 | 6.02E-05 | **True** | **Yes** |
| **214** | Lipoma | 3.4 | 0.96 | 0.91 | 1.02 | 0.21 | **False** | **No** |
| **216** | Benign neoplasm of skin | 30.2 | 0.92 | 0.90 | 0.94 | 1.67E-14 | **True** | **Yes** |
| **218** | Benign neoplasm of uterus | 6.5 | 0.96 | 0.92 | 1.00 | 0.050 | **False** | **No** |
| **218.1** | Uterine leiomyoma | 6.2 | 0.96 | 0.92 | 1.00 | 0.046 | **False** | **No** |
| **240** | Simple and unspecified goiter | 3.2 | 1.03 | 0.98 | 1.09 | 0.22 | **False** | **No** |
| **242** | Thyrotoxicosis with or without goiter | 3.1 | 0.94 | 0.89 | 1.00 | 0.046 | **False** | **No** |
| **244** | Hypothyroidism | 10.3 | 0.97 | 0.93 | 1.00 | 0.045 | **False** | **Yes** |
| **246** | Other disorders of thyroid | 7.7 | 0.95 | 0.91 | 0.99 | 0.0069 | **False** | **No** |
| **250** | Diabetes mellitus | 15.8 | 1.00 | 0.98 | 1.03 | 0.80 | **False** | **Yes** |
| **259** | Other endocrine disorders | 3.8 | 0.98 | 0.93 | 1.04 | 0.56 | **False** | **No** |
| **272** | Disorders of lipoid metabolism | 18.7 | 0.92 | 0.90 | 0.95 | 2.39E-09 | **True** | **Yes** |
| **272.1** | Hyperlipidemia | 3.2 | 0.96 | 0.90 | 1.02 | 0.15 | **False** | **Yes** |
| **274** | Gout and other crystal arthropathies | 3.2 | 0.97 | 0.91 | 1.03 | 0.26 | **False** | **No** |
| **276** | Disorders of fluid, electrolyte, and acid-base balance | 8.9 | 1.27 | 1.22 | 1.32 | 1.41E-35 | **True** | **Yes** |
| **276.1** | Electrolyte imbalance | 3.4 | 1.32 | 1.24 | 1.41 | 1.10E-18 | **True** | **No** |
| **276.5** | Hypovolemia | 4.8 | 1.29 | 1.23 | 1.36 | 3.88E-23 | **True** | **No** |
| **278** | Overweight, obesity and other hyperalimentation | 9 | 0.95 | 0.92 | 0.99 | 0.0053 | **False** | **Yes** |
| **279** | Disorders involving the immune mechanism | 4 | 1.00 | 0.95 | 1.05 | 0.94 | **False** | **No** |
| **280** | Iron deficiency anemias | 10.3 | 1.02 | 0.99 | 1.06 | 0.20 | **False** | **No** |
| **281** | Other deficiency anemia | 3.8 | 1.02 | 0.97 | 1.07 | 0.55 | **False** | **No** |
| **285** | Other anemias | 11.5 | 1.09 | 1.05 | 1.12 | 2.07E-07 | **True** | **Yes** |
| **286** | Coagulation defects | 3.2 | 1.09 | 1.03 | 1.16 | 0.0018 | **False** | **No** |
| **289** | Other diseases of blood and blood-forming organs | 4.4 | 1.03 | 0.98 | 1.08 | 0.20 | **False** | **No** |
| **290** | Delirium dementia and amnestic and other | 6.9 | 1.19 | 1.14 | 1.24 | 8.07E-17 | **True** | **No** |
| **291** | Other specified nonpsychotic and/or transient mental disorders | 19.4 | 1.09 | 1.06 | 1.11 | 7.05E-11 | **True** | **No** |
| **291.4** | Specific nonpsychotic mental disorders due to brain damage | 4 | 1.13 | 1.07 | 1.19 | 2.16E-06 | **True** | **No** |
| **291.8** | Alteration of consciousness | 14.1 | 1.06 | 1.03 | 1.09 | 3.08E-05 | **True** | **No** |
| **293** | Symptoms involving head and neck | 59 | 0.94 | 0.92 | 0.96 | 4.43E-09 | **True** | **No** |
| **295** | Schizophrenia and other psychotic disorders | 6.3 | 1.12 | 1.07 | 1.16 | 9.94E-08 | **True** | **No** |
| **295.3** | Psychosis | 4.4 | 1.14 | 1.08 | 1.19 | 1.69E-07 | **True** | **No** |
| **296** | Mood disorders | 59.4 | 1.02 | 1.00 | 1.04 | 0.12 | **False** | **Yes** |
| **296.1** | Bipolar | 3.5 | 1.07 | 1.01 | 1.13 | 0.014 | **False** | **No** |
| **296.2** | Depression | 58.2 | 1.01 | 0.99 | 1.03 | 0.24 | **False** | **Yes** |
| **296.22** | Major depressive disorder | 3.2 | 1.07 | 1.01 | 1.13 | 0.019 | **False** | **Yes** |
| **300** | Anxiety, phobic and dissociative disorders | 56.9 | 0.95 | 0.94 | 0.97 | 5.03E-06 | **True** | **Yes** |
| **300.1** | Anxiety disorder | 10.9 | 0.98 | 0.95 | 1.01 | 0.17 | **False** | **Yes** |
| **300.4** | Dysthymic disorder | 3.9 | 1.06 | 1.01 | 1.12 | 0.016 | **False** | **No** |
| **300.8** | Acute reaction to stress | 28.3 | 0.95 | 0.92 | 0.97 | 8.86E-07 | **True** | **No** |
| **301** | Personality disorders | 5.3 | 1.02 | 0.98 | 1.07 | 0.27 | **False** | **No** |
| **302** | Sexual and gender identity disorders | 3.8 | 1.02 | 0.97 | 1.07 | 0.51 | **False** | **No** |
| **303** | Psychogenic and somatoform disorders | 4 | 0.96 | 0.91 | 1.01 | 0.13 | **False** | **No** |
| **304** | Adjustment reaction | 19.5 | 1.00 | 0.97 | 1.02 | 0.95 | **False** | **Yes** |
| **306** | Other mental disorder | 8.4 | 1.04 | 1.00 | 1.08 | 0.026 | **False** | **No** |
| **316** | Substance addiction and disorders | 9 | 1.05 | 1.01 | 1.08 | 0.0071 | **False** | **No** |
| **317** | Alcohol-related disorders | 4.1 | 1.02 | 0.97 | 1.07 | 0.37 | **False** | **No** |
| **323** | Encephalitis | 3.1 | 1.02 | 0.96 | 1.08 | 0.48 | **False** | **No** |
| **327** | Sleep disorders | 5.9 | 1.00 | 0.96 | 1.05 | 0.91 | **False** | **No** |
| **331** | Other cerebral degenerations | 3.2 | 1.11 | 1.05 | 1.17 | 0.00039 | **False** | **No** |
| **333** | Extrapyramidal disease and abnormal movement disorders | 4.4 | 1.12 | 1.07 | 1.17 | 5.56E-06 | **True** | **No** |
| **334** | Degenerative disease of the spinal cord | 8.3 | 1.05 | 1.01 | 1.09 | 0.0090 | **False** | **Yes** |
| **340** | Migraine | 22.7 | 0.97 | 0.95 | 0.99 | 0.015 | **False** | **Yes** |
| **340.1** | Migraine with aura | 3.1 | 0.97 | 0.92 | 1.03 | 0.38 | **False** | **No** |
| **341** | Other demyelinating diseases of central nervous system | 9.1 | 1.06 | 1.02 | 1.10 | 0.00098 | **False** | **Yes** |
| **342** | Hemiplegia | 3.8 | 1.16 | 1.10 | 1.22 | 4.36E-08 | **True** | **No** |
| **344** | Other paralytic syndromes | 18.9 | 1.42 | 1.37 | 1.46 | 1.85E-10 | **True** | **No** |
| **345** | Epilepsy, recurrent seizures, convulsion | 11.4 | 1.13 | 1.09 | 1.16 | 2.65E-14 | **True** | **Yes** |
| **345.3** | Convulsions | 4 | 1.23 | 1.17 | 1.30 | 2.49E-15 | **True** | **Yes** |
| **348** | Other conditions of brain | 10.4 | 1.02 | 0.99 | 1.06 | 0.19 | **False** | **No** |
| **349** | Other and unspecified disorders of the nervous system | 44.8 | 1.10 | 1.08 | 1.12 | 8.69E-20 | **True** | **No** |
| **350** | Abnormal movement | 14.9 | 1.11 | 1.08 | 1.14 | 9.97E-14 | **True** | **Yes** |
| **350.1** | Abnormal involuntary movements | 12.8 | 1.10 | 1.07 | 1.13 | 1.57E-10 | **True** | **No** |
| **351** | Other peripheral nerve disorders | 16.6 | 0.94 | 0.92 | 0.97 | 1.47E-05 | **True** | **Yes** |
| **352** | Disorders of other cranial nerves | 8.5 | 1.03 | 1.00 | 1.07 | 0.075 | **False** | **No** |
| **352.1** | Trigeminal nerve disorders [CN5] | 4.7 | 1.10 | 1.05 | 1.16 | 4.00E-05 | **True** | **No** |
| **353** | Nerve root and plexus disorders | 5.8 | 0.99 | 0.95 | 1.04 | 0.78 | **False** | **No** |
| **356** | Hereditary and idiopathic peripheral neuropathy | 7.9 | 0.99 | 0.95 | 1.02 | 0.46 | **False** | **No** |
| **357** | Inflammatory and toxic neuropathy | 3.1 | 1.00 | 0.94 | 1.05 | 0.87 | **False** | **No** |
| **359** | Muscular dystrophies and other myopathies | 6.4 | 1.10 | 1.06 | 1.15 | 9.73E-07 | **True** | **No** |
| **360** | Disorders of the globe | 3.3 | 0.94 | 0.89 | 1.00 | 0.036 | **False** | **No** |
| **361** | Retinal detachments and defects | 4.3 | 0.91 | 0.87 | 0.96 | 0.00049 | **False** | **No** |
| **362** | Other retinal disorders | 15.4 | 0.94 | 0.91 | 0.97 | 1.18E-05 | **True** | **No** |
| **364** | Corneal opacity and other disorders of cornea | 7.8 | 0.93 | 0.89 | 0.96 | 0.00010 | **True** | **No** |
| **365** | Glaucoma | 23.4 | 0.92 | 0.90 | 0.94 | 6.01E-12 | **True** | **No** |
| **366** | Cataract | 16.4 | 0.96 | 0.93 | 0.99 | 0.0036 | **False** | **No** |
| **366.2** | Senile cataract | 6.4 | 0.93 | 0.89 | 0.98 | 0.0033 | **False** | **No** |
| **367** | Disorders of refraction and accommodation | 49.8 | 0.96 | 0.94 | 0.98 | 2.75E-05 | **True** | **No** |
| **367.1** | Myopia | 13.1 | 0.95 | 0.92 | 0.98 | 0.00094 | **False** | **No** |
| **367.2** | Astigmatism | 7.8 | 0.94 | 0.90 | 0.97 | 0.00083 | **False** | **No** |
| **367.8** | Hypermetropia | 5.8 | 0.97 | 0.93 | 1.02 | 0.25 | **False** | **No** |
| **367.9** | Blindness and low vision | 4.3 | 1.09 | 1.04 | 1.15 | 0.00023 | **False** | **No** |
| **368** | Visual disturbances | 40.2 | 0.95 | 0.93 | 0.97 | 9.33E-07 | **True** | **Yes** |
| **368.2** | Diplopia and disorders of binocular vision | 4.9 | 1.02 | 0.97 | 1.07 | 0.45 | **False** | **No** |
| **368.4** | Visual field defects | 6.4 | 0.94 | 0.90 | 0.98 | 0.0024 | **False** | **No** |
| **368.9** | Subjective visual disturbances | 7.1 | 0.92 | 0.89 | 0.96 | 9.55E-05 | **True** | **No** |
| **369** | Infection of the eye | 7.5 | 0.92 | 0.89 | 0.96 | 6.10E-05 | **True** | **No** |
| **369.5** | Conjunctivitis, infectious | 4.4 | 0.91 | 0.87 | 0.96 | 0.00030 | **False** | **No** |
| **370** | Keratitis | 7.4 | 0.91 | 0.88 | 0.95 | 6.24E-06 | **True** | **No** |
| **371** | Inflammation of the eye | 31.6 | 0.93 | 0.91 | 0.95 | 2.53E-10 | **True** | **No** |
| **371.3** | Inflammation of eyelids | 9.6 | 0.93 | 0.90 | 0.97 | 0.00014 | **False** | **No** |
| **374** | Other disorders of eyelids | 7.3 | 0.96 | 0.92 | 1.00 | 0.048 | **False** | **No** |
| **375** | Disorders of lacrimal system | 3.1 | 0.95 | 0.89 | 1.00 | 0.060 | **False** | **No** |
| **377** | Disorders of optic nerve and visual path | 50.3 | 1.00 | 0.98 | 1.02 | 0.86 | **False** | **Yes** |
| **377.1** | Optic atrophy | 10.1 | 1.03 | 1.00 | 1.07 | 0.039 | **False** | **No** |
| **377.3** | Optic neuritis/neuropathy | 12.8 | 0.98 | 0.95 | 1.01 | 0.12 | **False** | **Yes** |
| **378** | Strabismus and other disorders of binocular eye movements | 17.6 | 1.04 | 1.01 | 1.06 | 0.0049 | **False** | **No** |
| **378.2** | Nystagmus and other irregular eye movements | 4.6 | 1.11 | 1.06 | 1.17 | 8.00E-06 | **True** | **No** |
| **379** | Other disorders of eye | 40.7 | 0.96 | 0.94 | 0.98 | 2.61E-05 | **True** | **No** |
| **379.1** | Scleritis and episcleritis | 4.1 | 0.96 | 0.91 | 1.01 | 0.093 | **False** | **No** |
| **379.5** | Disorders of iris and ciliary body | 3.5 | 0.96 | 0.91 | 1.01 | 0.15 | **False** | **No** |
| **380** | Disorders of external ear | 21.4 | 0.99 | 0.97 | 1.01 | 0.36 | **False** | **No** |
| **381** | Otitis media and Eustachian tube disorders | 28.4 | 0.93 | 0.91 | 0.95 | 3.00E-10 | **True** | **No** |
| **381.1** | Otitis media | 21.7 | 0.95 | 0.92 | 0.97 | 1.36E-05 | **True** | **No** |
| **381.11** | Suppurative and unspecified otitis media | 20.8 | 0.95 | 0.93 | 0.97 | 4.40E-05 | **True** | **No** |
| **386** | Vertiginous syndromes and other disorder | 14.3 | 0.93 | 0.91 | 0.96 | 4.64E-06 | **True** | **No** |
| **386.9** | Dizziness and giddiness (Light-headedness and vertigo) | 3.9 | 0.98 | 0.93 | 1.04 | 0.54 | **False** | **Yes** |
| **388** | Other disorders of ear | 15.7 | 0.96 | 0.93 | 0.99 | 0.0028 | **False** | **No** |
| **389** | Hearing loss | 11.2 | 0.96 | 0.93 | 0.99 | 0.0089 | **False** | **No** |
| **401** | Hypertension | 33.4 | 0.93 | 0.91 | 0.95 | 5.52E-10 | **True** | **Yes** |
| **401.1** | Essential hypertension | 32.1 | 0.93 | 0.91 | 0.95 | 4.80E-11 | **True** | **Yes** |
| **411** | Ischemic Heart Disease | 21.7 | 0.96 | 0.94 | 0.99 | 0.0029 | **False** | **No** |
| **411.2** | Myocardial infarction | 4.9 | 1.01 | 0.96 | 1.06 | 0.63 | **False** | **No** |
| **411.3** | Angina pectoris | 12.3 | 0.94 | 0.91 | 0.97 | 0.00015 | **False** | **No** |
| **411.4** | Coronary atherosclerosis | 4.3 | 0.91 | 0.86 | 0.96 | 0.00052 | **False** | **No** |
| **411.8** | Other chronic ischemic heart disease, unspecified | 8.1 | 0.95 | 0.91 | 0.98 | 0.0060 | **False** | **No** |
| **414** | Other forms of chronic heart disease | 6.1 | 0.93 | 0.89 | 0.97 | 0.0016 | **False** | **No** |
| **415** | Pulmonary heart disease | 3.6 | 1.13 | 1.07 | 1.20 | 7.69E-06 | **True** | **No** |
| **418** | Nonspecific chest pain | 13.9 | 0.92 | 0.89 | 0.95 | 2.87E-08 | **True** | **Yes** |
| **427** | Cardiac dysrhythmias | 18.1 | 0.99 | 0.96 | 1.01 | 0.37 | **False** | **Yes** |
| **427.7** | Tachycardia NOS | 4.3 | 0.99 | 0.95 | 1.04 | 0.83 | **False** | **No** |
| **428** | Congestive heart failure; nonhypertensive | 6.1 | 1.08 | 1.03 | 1.12 | 0.0013 | **False** | **No** |
| **429** | Ill-defined descriptions and complication | 46.8 | 0.99 | 0.97 | 1.01 | 0.16 | **False** | **No** |
| **429.3** | Symptoms involving cardiovascular system | 46.7 | 0.98 | 0.96 | 1.00 | 0.13 | **False** | **No** |
| **433** | Cerebrovascular disease | 10.4 | 1.08 | 1.04 | 1.11 | 8.43E-06 | **True** | **Yes** |
| **433.2** | Occlusion of cerebral arteries | 3.7 | 1.03 | 0.98 | 1.09 | 0.23 | **False** | **No** |
| **433.3** | Cerebral ischemia | 3.4 | 1.03 | 0.97 | 1.09 | 0.35 | **False** | **No** |
| **433.31** | Transient cerebral ischemia | 3.4 | 1.02 | 0.97 | 1.08 | 0.41 | **False** | **No** |
| **433.6** | Acute, but ill-defined cerebrovascular disease | 3.8 | 1.06 | 1.01 | 1.12 | 0.023 | **False** | **No** |
| **443** | Peripheral vascular disease | 4.8 | 1.15 | 1.10 | 1.20 | 1.28E-08 | **True** | **No** |
| **451** | Phlebitis and thrombophlebitis | 5.9 | 1.11 | 1.06 | 1.16 | 2.19E-06 | **True** | **No** |
| **454** | Varicose veins | 7.8 | 0.94 | 0.91 | 0.98 | 0.0013 | **False** | **No** |
| **454.1** | Varicose veins of lower extremity | 7.1 | 0.93 | 0.89 | 0.96 | 0.00018 | **False** | **No** |
| **455** | Hemorrhoids | 13.6 | 0.96 | 0.93 | 0.99 | 0.0052 | **False** | **No** |
| **459** | Other disorders of circulatory system | 4 | 1.04 | 0.99 | 1.09 | 0.16 | **False** | **No** |
| **459.9** | Circulatory disease NEC | 3.6 | 1.02 | 0.97 | 1.08 | 0.43 | **False** | **No** |
| **464** | Acute sinusitis | 30.2 | 0.88 | 0.86 | 0.90 | 6.24E-26 | **True** | **No** |
| **465** | Acute upper respiratory infections of multiple or unspecified sites | 67.1 | 0.89 | 0.87 | 0.91 | 1.31E-25 | **True** | **Yes** |
| **465.2** | Acute pharyngitis | 30.4 | 0.89 | 0.87 | 0.91 | 2.87E-25 | **True** | **No** |
| **465.4** | Acute laryngitis and tracheitis | 6.7 | 0.92 | 0.88 | 0.96 | 0.00011 | **True** | **No** |
| **470** | Septal Deviations/Turbinate Hypertrophy | 3.2 | 0.94 | 0.89 | 1.00 | 0.042 | **False** | **No** |
| **472** | Chronic pharyngitis and nasopharyngitis | 9.7 | 0.92 | 0.88 | 0.95 | 7.79E-07 | **True** | **No** |
| **473** | Diseases of the larynx and vocal cords | 3.6 | 0.94 | 0.89 | 0.99 | 0.021 | **False** | **No** |
| **474** | Acute and chronic tonsillitis | 11.8 | 0.92 | 0.89 | 0.95 | 3.06E-07 | **True** | **No** |
| **474.1** | Acute tonsillitis | 10.4 | 0.91 | 0.88 | 0.94 | 1.59E-07 | **True** | **No** |
| **475** | Chronic sinusitis | 6.8 | 0.95 | 0.91 | 0.98 | 0.0068 | **False** | **No** |
| **476** | Allergic rhinitis | 18 | 0.92 | 0.90 | 0.95 | 2.26E-09 | **True** | **No** |
| **479** | Other upper respiratory disease | 10.6 | 0.96 | 0.93 | 0.99 | 0.0083 | **False** | **No** |
| **480** | Pneumonia | 21 | 1.16 | 1.14 | 1.19 | 1.04E-32 | **True** | **Yes** |
| **480.1** | Bacterial pneumonia | 5.2 | 1.20 | 1.14 | 1.25 | 3.35E-14 | **True** | **No** |
| **480.2** | Viral pneumonia | 3.5 | 1.27 | 1.19 | 1.34 | 3.46E-15 | **True** | **No** |
| **480.5** | Bronchopneumonia and lung abscess | 4.5 | 1.20 | 1.14 | 1.26 | 7.28E-13 | **True** | **No** |
| **481** | Influenza | 19.9 | 0.98 | 0.95 | 1.00 | 0.047 | **False** | **No** |
| **483** | Acute bronchitis and bronchiolitis | 35.8 | 0.95 | 0.93 | 0.97 | 1.13E-05 | **True** | **No** |
| **495** | Asthma | 15 | 0.93 | 0.90 | 0.95 | 1.43E-07 | **True** | **Yes** |
| **496** | Chronic airway obstruction | 8.4 | 1.03 | 0.99 | 1.07 | 0.13 | **False** | **No** |
| **496.2** | Chronic bronchitis | 3.6 | 1.01 | 0.96 | 1.07 | 0.62 | **False** | **No** |
| **497** | Bronchitis | 23.8 | 0.96 | 0.94 | 0.98 | 0.0012 | **False** | **No** |
| **501** | Pneumonitis due to inhalation of food or vomitus | 3.6 | 1.76 | 1.61 | 1.92 | 1.41E-36 | **True** | **No** |
| **512** | Other symptoms of respiratory system | 13.9 | 1.01 | 0.98 | 1.04 | 0.64 | **False** | **Yes** |
| **512.8** | Cough | 5.7 | 0.93 | 0.89 | 0.97 | 0.0014 | **False** | **Yes** |
| **513** | Respiratory abnormalities | 6.3 | 1.03 | 0.99 | 1.07 | 0.13 | **False** | **No** |
| **519** | Other diseases of respiratory system, not elsewhere classified | 52.3 | 0.98 | 0.96 | 1.00 | 0.014 | **False** | **No** |
| **519.9** | Symptoms involving respiratory system and other chest symptoms | 51.7 | 0.97 | 0.96 | 0.99 | 0.0098 | **False** | **No** |
| **520** | Disorders of tooth development | 4.1 | 1.07 | 1.02 | 1.12 | 0.0089 | **False** | **No** |
| **521** | Diseases of hard tissues of teeth | 5.2 | 1.13 | 1.08 | 1.18 | 2.11E-08 | **True** | **No** |
| **522** | Diseases of pulp and periapical tissues | 3.5 | 1.07 | 1.01 | 1.13 | 0.013 | **False** | **No** |
| **523** | Gingival and periodontal diseases | 3.4 | 1.15 | 1.09 | 1.21 | 8.28E-07 | **True** | **No** |
| **525** | Other diseases of the teeth and supporting structures | 3.1 | 1.03 | 0.97 | 1.09 | 0.34 | **False** | **No** |
| **528** | Diseases of the oral soft tissues, excluding lesions specific for gingiva and tongue | 6.1 | 1.01 | 0.97 | 1.05 | 0.62 | **False** | **No** |
| **530** | Diseases of esophagus | 12.8 | 0.96 | 0.93 | 0.99 | 0.010 | **False** | **Yes** |
| **530.1** | Esophagitis, GERD and related diseases | 5.9 | 0.95 | 0.91 | 0.99 | 0.011 | **False** | **Yes** |
| **531** | Peptic ulcer (excl. esophageal) | 7.4 | 1.00 | 0.96 | 1.04 | 0.97 | **False** | **No** |
| **532** | Dysphagia | 4.4 | 1.27 | 1.20 | 1.33 | 3.02E-19 | **True** | **No** |
| **535** | Gastritis and duodenitis | 18.1 | 0.97 | 0.94 | 0.99 | 0.017 | **False** | **No** |
| **536** | Disorders of function of stomach | 8.4 | 0.99 | 0.95 | 1.02 | 0.45 | **False** | **No** |
| **537** | Other disorders of stomach and duodenum | 7.8 | 1.03 | 0.99 | 1.07 | 0.14 | **False** | **No** |
| **540** | Appendiceal conditions | 3.6 | 1.05 | 1.00 | 1.11 | 0.076 | **False** | **No** |
| **550** | Abdominal hernia | 8.4 | 0.92 | 0.89 | 0.95 | 9.86E-06 | **True** | **No** |
| **550.1** | Inguinal hernia | 3.2 | 0.92 | 0.87 | 0.98 | 0.0078 | **False** | **No** |
| **555** | Inflammatory bowel disease and other gastroenteritis and colitis | 4.1 | 1.02 | 0.97 | 1.07 | 0.47 | **False** | **No** |
| **558** | Noninfectious gastroenteritis | 11 | 1.01 | 0.98 | 1.04 | 0.52 | **False** | **No** |
| **560** | Intestinal obstruction without mention of hernia | 4.7 | 1.21 | 1.16 | 1.28 | 8.30E-15 | **True** | **No** |
| **562** | Diverticulosis and diverticulitis | 4.2 | 0.95 | 0.90 | 1.00 | 0.041 | **False** | **No** |
| **564** | Functional digestive disorders | 17.9 | 1.02 | 1.00 | 1.05 | 0.090 | **False** | **No** |
| **564.1** | Irritable Bowel Syndrome | 3.6 | 0.92 | 0.87 | 0.97 | 0.0033 | **False** | **No** |
| **565** | Anal and rectal conditions | 7.1 | 1.00 | 0.96 | 1.04 | 0.90 | **False** | **No** |
| **569** | Other disorders of intestine | 15.8 | 1.00 | 0.97 | 1.02 | 0.76 | **False** | **No** |
| **573** | Other disorders of liver | 3.6 | 1.00 | 0.95 | 1.05 | 0.95 | **False** | **No** |
| **574** | Cholelithiasis and cholecystitis | 10.7 | 0.99 | 0.96 | 1.02 | 0.45 | **False** | **No** |
| **574.1** | Cholelithiasis | 7.7 | 1.02 | 0.98 | 1.06 | 0.33 | **False** | **No** |
| **574.12** | Cholelithiasis with other cholecystitis | 5.7 | 1.01 | 0.97 | 1.06 | 0.54 | **False** | **No** |
| **575** | Other biliary tract disease | 6 | 0.99 | 0.95 | 1.04 | 0.75 | **False** | **No** |
| **578** | Gastrointestinal hemorrhage | 8.4 | 1.06 | 1.03 | 1.10 | 0.00090 | **False** | **No** |
| **579** | Other symptoms involving abdomen and pelvis | 68.4 | 0.99 | 0.96 | 1.01 | 0.18 | **False** | **No** |
| **585** | Renal failure | 3.9 | 1.13 | 1.07 | 1.19 | 4.32E-06 | **True** | **No** |
| **586** | Other disorders of the kidney and ureter | 3.8 | 1.11 | 1.06 | 1.17 | 5.83E-05 | **True** | **No** |
| **590** | Pyelonephritis | 9.6 | 1.25 | 1.21 | 1.30 | 3.49E-36 | **True** | **No** |
| **591** | Urinary tract infection | 25.8 | 1.36 | 1.33 | 1.40 | 5.90E-11 | **True** | **Yes** |
| **592** | Cystitis and urethritis | 50.1 | 1.12 | 1.09 | 1.14 | 1.17E-24 | **True** | **No** |
| **592.1** | Cystitis | 12.5 | 1.16 | 1.13 | 1.20 | 5.34E-22 | **True** | **No** |
| **592.11** | Acute cystitis | 5 | 1.10 | 1.05 | 1.15 | 3.18E-05 | **True** | **No** |
| **592.12** | Chronic cystitis | 3.9 | 1.17 | 1.11 | 1.23 | 5.08E-09 | **True** | **No** |
| **593** | Hematuria | 5.3 | 1.12 | 1.07 | 1.17 | 1.11E-06 | **True** | **Yes** |
| **594** | Urinary calculus | 15 | 1.18 | 1.15 | 1.21 | 3.63E-30 | **True** | **No** |
| **594.2** | Calculus of lower urinary tract | 5.1 | 1.63 | 1.53 | 1.74 | 1.34E-47 | **True** | **No** |
| **594.8** | Renal colic | 6.7 | 1.07 | 1.03 | 1.12 | 0.00032 | **False** | **No** |
| **596** | Other disorders of bladder | 30.9 | 1.25 | 1.22 | 1.28 | 1.82E-78 | **True** | **Yes** |
| **596.5** | Functional disorders of bladder | 15.6 | 1.31 | 1.27 | 1.35 | 6.16E-69 | **True** | **Yes** |
| **597** | Other disorders of urethra and urinary tract | 35.3 | 1.10 | 1.08 | 1.13 | 6.09E-20 | **True** | **No** |
| **597.1** | Urethral stricture (not specified as infectious) | 6 | 1.04 | 1.00 | 1.08 | 0.074 | **False** | **No** |
| **598** | Abnormal findings on examination of urine | 11.3 | 0.99 | 0.96 | 1.02 | 0.56 | **False** | **No** |
| **599** | Other symptoms/disorders or the urinary | 59.5 | 1.13 | 1.11 | 1.15 | 6.57E-30 | **True** | **Yes** |
| **599.2** | Retention of urine | 6.8 | 1.32 | 1.26 | 1.38 | 7.61E-33 | **True** | **Yes** |
| **599.4** | Urinary incontinence | 9.3 | 1.16 | 1.12 | 1.20 | 3.89E-17 | **True** | **Yes** |
| **599.5** | Frequency of urination and polyuria | 4.4 | 1.03 | 0.98 | 1.08 | 0.23 | **False** | **Yes** |
| **600** | Hyperplasia of prostate | 6.7 | 1.04 | 0.99 | 1.09 | 0.14 | **False** | **No** |
| **601** | Inflammatory diseases of prostate | 4.7 | 1.00 | 0.95 | 1.05 | 0.99 | **False** | **No** |
| **602** | Other disorders of prostate | 3 | 0.97 | 0.91 | 1.03 | 0.31 | **False** | **No** |
| **604** | Disorders of penis | 3.5 | 1.08 | 1.02 | 1.14 | 0.010 | **False** | **No** |
| **608** | Other disorders of male genital organs | 4.9 | 1.03 | 0.98 | 1.08 | 0.29 | **False** | **No** |
| **610** | Benign mammary dysplasias | 15.9 | 0.92 | 0.89 | 0.94 | 5.63E-09 | **True** | **No** |
| **610.1** | Cystic mastopathy | 3.1 | 0.96 | 0.91 | 1.02 | 0.22 | **False** | **No** |
| **610.4** | Benign neoplasm of breast | 7 | 0.94 | 0.90 | 0.97 | 0.0011 | **False** | **No** |
| **613** | Other nonmalignant breast conditions | 31.3 | 0.89 | 0.87 | 0.91 | 1.16E-22 | **True** | **Yes** |
| **614** | Inflammatory diseases of female pelvic organs | 33.4 | 0.95 | 0.93 | 0.97 | 4.39E-05 | **True** | **Yes** |
| **614.5** | Inflammatory disease of cervix, vagina, and vulva | 31 | 0.96 | 0.93 | 0.98 | 0.00019 | **False** | **Yes** |
| **614.51** | Cervicitis and endocervicitis | 3.6 | 0.94 | 0.89 | 1.00 | 0.040 | **False** | **No** |
| **614.52** | Vaginitis and vulvovaginitis | 4.9 | 1.00 | 0.95 | 1.05 | 0.97 | **False** | **Yes** |
| **615** | Endometriosis | 5.8 | 0.97 | 0.93 | 1.01 | 0.16 | **False** | **No** |
| **618** | Genital prolapse | 4.3 | 0.91 | 0.86 | 0.96 | 0.00022 | **False** | **No** |
| **619** | Noninflammatory female genital disorders | 41.8 | 0.91 | 0.89 | 0.93 | 6.60E-15 | **True** | **Yes** |
| **619.2** | Disorders of uterus, NEC | 5.1 | 0.94 | 0.89 | 0.98 | 0.0052 | **False** | **No** |
| **619.3** | Noninflammatory disorders of cervix | 18.4 | 0.91 | 0.88 | 0.93 | 8.48E-12 | **True** | **No** |
| **619.4** | Noninflammatory disorders of vagina | 6.4 | 0.99 | 0.95 | 1.03 | 0.48 | **False** | **No** |
| **622** | Polyp of female genital organs | 3 | 0.96 | 0.90 | 1.02 | 0.15 | **False** | **No** |
| **624.9** | stress incontinence, female | 4.5 | 0.92 | 0.88 | 0.97 | 0.0021 | **False** | **No** |
| **625** | Pain and other symptoms associated with female genital organs | 16.8 | 0.93 | 0.90 | 0.96 | 9.11E-07 | **True** | **Yes** |
| **626** | Disorders of menstruation and other abnormal bleeding from female genital tract | 44.6 | 0.91 | 0.88 | 0.93 | 2.67E-15 | **True** | **Yes** |
| **626.1** | Irregular menstrual cycle/bleeding | 14.6 | 0.99 | 0.96 | 1.02 | 0.55 | **False** | **Yes** |
| **626.11** | Absent or infrequent menstruation | 4 | 0.92 | 0.88 | 0.98 | 0.0047 | **False** | **No** |
| **626.12** | Excessive or frequent menstruation | 8.2 | 1.03 | 0.99 | 1.06 | 0.15 | **False** | **No** |
| **626.8** | Infertility, female | 4.6 | 0.89 | 0.85 | 0.94 | 2.85E-05 | **True** | **No** |
| **627** | Menopausal and postmenopausal disorders | 25.7 | 0.92 | 0.90 | 0.95 | 1.28E-09 | **True** | **Yes** |
| **627.1** | Postmenopausal bleeding | 3.3 | 0.98 | 0.92 | 1.03 | 0.41 | **False** | **No** |
| **628** | Ovarian cyst | 4.8 | 0.98 | 0.94 | 1.03 | 0.46 | **False** | **No** |
| **634** | Miscarriage; stillbirth | 5.3 | 0.91 | 0.87 | 0.96 | 0.00019 | **False** | **No** |
| **636** | Early or threatened labor; hemorrhage in early pregnancy | 4.8 | 0.93 | 0.88 | 0.98 | 0.0044 | **False** | **No** |
| **646** | Other complications of pregnancy NEC | 7.2 | 0.90 | 0.86 | 0.94 | 2.01E-06 | **True** | **No** |
| **649** | Other conditions or status of the mother | 4.6 | 0.93 | 0.88 | 0.98 | 0.0044 | **False** | **No** |
| **653** | Problems associated with amniotic cavity | 4.1 | 0.90 | 0.85 | 0.96 | 0.00049 | **False** | **No** |
| **655** | Known or suspected fetal abnormality affecting management of mother | 5.1 | 0.92 | 0.88 | 0.97 | 0.0016 | **False** | **No** |
| **681** | Superficial cellulitis and abscess | 36.8 | 1.07 | 1.05 | 1.09 | 5.33E-10 | **True** | **Yes** |
| **681.1** | Cellulitis and abscess of fingers/toes | 9.3 | 1.11 | 1.07 | 1.15 | 1.77E-09 | **True** | **No** |
| **686** | Other local infections of skin and subcutaneous tissue | 16.8 | 1.04 | 1.01 | 1.07 | 0.0048 | **False** | **No** |
| **686.1** | Carbuncle and furuncle | 6.3 | 1.05 | 1.01 | 1.09 | 0.015 | **False** | **No** |
| **687.1** | Rash and other nonspecific skin eruption | 6.6 | 1.05 | 1.01 | 1.09 | 0.022 | **False** | **Yes** |
| **687.4** | Disturbance of skin sensation | 8.6 | 1.00 | 0.97 | 1.04 | 0.95 | **False** | **Yes** |
| **689** | Disorder of skin and subcutaneous tissue | 33.1 | 0.99 | 0.97 | 1.01 | 0.23 | **False** | **No** |
| **690** | Erythematosquamous dermatosis | 9.7 | 1.00 | 0.96 | 1.03 | 0.83 | **False** | **No** |
| **695** | Erythematous conditions | 9.8 | 0.99 | 0.96 | 1.03 | 0.69 | **False** | **No** |
| **696** | Psoriasis and related disorders | 6.1 | 0.98 | 0.94 | 1.02 | 0.26 | **False** | **No** |
| **698** | Pruritus and related conditions | 4 | 0.97 | 0.92 | 1.02 | 0.28 | **False** | **No** |
| **700** | Corns and callosities | 8 | 1.01 | 0.97 | 1.05 | 0.58 | **False** | **No** |
| **701** | Other hypertrophic and atrophic conditions of skin | 8.6 | 0.97 | 0.94 | 1.01 | 0.16 | **False** | **Yes** |
| **702** | Degenerative skin conditions and other dermatoses | 12.7 | 0.97 | 0.94 | 1.00 | 0.061 | **False** | **Yes** |
| **703** | Diseases of nail, NOS | 20.2 | 1.19 | 1.16 | 1.22 | 2.65E-38 | **True** | **No** |
| **703.1** | Ingrowing nail | 3.1 | 1.15 | 1.08 | 1.22 | 2.26E-06 | **True** | **No** |
| **704** | Diseases of hair and hair follicles | 5.4 | 0.96 | 0.92 | 1.00 | 0.074 | **False** | **No** |
| **706** | Diseases of sebaceous glands | 16.1 | 0.95 | 0.93 | 0.98 | 0.00051 | **False** | **Yes** |
| **706.2** | Sebaceous cyst | 3.3 | 0.98 | 0.93 | 1.04 | 0.45 | **False** | **No** |
| **707** | Chronic ulcer of skin | 8.7 | 1.50 | 1.43 | 1.57 | 2.02E-65 | **True** | **No** |
| **707.1** | Decubitus ulcer | 4.9 | 1.80 | 1.66 | 1.94 | 7.73E-49 | **True** | **No** |
| **709** | Diffuse diseases of connective tissue | 3.1 | 0.95 | 0.90 | 1.01 | 0.10 | **False** | **No** |
| **714** | Rheumatoid arthritis and other inflammatory polyarthropathies | 7.8 | 0.96 | 0.93 | 1.00 | 0.038 | **False** | **No** |
| **716** | Other arthropathies | 9.9 | 0.95 | 0.92 | 0.99 | 0.0048 | **False** | **No** |
| **716.9** | Arthropathy NOS | 9 | 0.96 | 0.92 | 0.99 | 0.014 | **False** | **No** |
| **720** | Spinal stenosis | 30.6 | 0.96 | 0.94 | 0.98 | 0.00019 | **False** | **No** |
| **721** | Spondylosis and allied disorders | 4.3 | 0.96 | 0.92 | 1.01 | 0.15 | **False** | **Yes** |
| **722** | Intervertebral disc disorders | 13.3 | 0.97 | 0.94 | 1.00 | 0.035 | **False** | **Yes** |
| **722.1** | Displacement of intervertebral disc | 7 | 0.96 | 0.92 | 1.00 | 0.052 | **False** | **Yes** |
| **723** | Other disorders of cervical region | 27.7 | 0.93 | 0.91 | 0.95 | 1.39E-10 | **True** | **No** |
| **724** | Other and unspecified disorders of back | 53.4 | 0.92 | 0.91 | 0.94 | 2.21E-14 | **True** | **No** |
| **726** | Peripheral enthesopathies and allied syndromes | 11.8 | 0.97 | 0.94 | 1.00 | 0.029 | **False** | **Yes** |
| **726.1** | Enthesopathy | 5.2 | 0.99 | 0.95 | 1.04 | 0.66 | **False** | **No** |
| **727** | Other disorders of synovium, tendon, and bursa | 36.9 | 0.93 | 0.91 | 0.95 | 1.38E-11 | **True** | **No** |
| **727.1** | Synovitis and tenosynovitis | 3.5 | 0.91 | 0.86 | 0.97 | 0.0021 | **False** | **No** |
| **728** | Disorders of muscle, ligament, and fascia | 28.9 | 0.97 | 0.95 | 1.00 | 0.021 | **False** | **No** |
| **729** | Other disorders of soft tissues | 29.8 | 0.98 | 0.95 | 1.00 | 0.024 | **False** | **No** |
| **735** | Acquired foot deformities | 7.6 | 0.96 | 0.93 | 1.00 | 0.058 | **False** | **No** |
| **740** | Osteoarthrosis | 23.1 | 0.94 | 0.91 | 0.96 | 3.29E-07 | **True** | **Yes** |
| **740.1** | Osteoarthritis; localized | 3 | 0.91 | 0.86 | 0.97 | 0.0029 | **False** | **No** |
| **741** | Symptoms and disorders of the joints | 25.5 | 0.94 | 0.92 | 0.96 | 5.57E-07 | **True** | **Yes** |
| **742** | Derangement of joint, non-traumatic | 4.3 | 0.94 | 0.90 | 0.99 | 0.022 | **False** | **No** |
| **742.9** | Other derangement of joint | 3.7 | 0.94 | 0.89 | 0.99 | 0.023 | **False** | **No** |
| **743** | Osteoporosis, osteopenia and pathological fracture | 12.8 | 1.02 | 0.99 | 1.05 | 0.19 | **False** | **Yes** |
| **743.1** | Osteoporosis | 5.3 | 1.06 | 1.01 | 1.11 | 0.010 | **False** | **Yes** |
| **745** | Pain in joint | 6.2 | 0.96 | 0.92 | 1.00 | 0.035 | **False** | **Yes** |
| **760** | Back pain | 21.9 | 0.97 | 0.95 | 0.99 | 0.013 | **False** | **Yes** |
| **761** | Cervicalgia | 6.5 | 0.93 | 0.89 | 0.97 | 0.00097 | **False** | **Yes** |
| **769** | Nonallopathic lesions NEC | 55.5 | 0.93 | 0.91 | 0.95 | 1.47E-13 | **True** | **No** |
| **781** | Symptoms involving nervous and musculoskeletal system | 82.5 | 0.98 | 0.95 | 1.00 | 0.070 | **False** | **No** |
| **782** | Symptoms involving skin and other integumentary system | 63.6 | 0.95 | 0.93 | 0.97 | 1.32E-06 | **True** | **No** |
| **782.3** | Edema | 3.5 | 1.15 | 1.09 | 1.21 | 1.14E-06 | **True** | **No** |
| **783** | Fever of unknown origin | 4.4 | 1.28 | 1.22 | 1.35 | 1.89E-20 | **True** | **Yes** |
| **785** | Abdominal pain | 16.9 | 1.00 | 0.98 | 1.03 | 0.73 | **False** | **Yes** |
| **788** | Syncope and collapse | 3 | 1.00 | 0.94 | 1.06 | 0.97 | **False** | **No** |
| **789** | Nausea and vomiting | 7.2 | 1.07 | 1.04 | 1.12 | 0.00017 | **False** | **Yes** |
| **790** | Nonspecific findings on examination of blood | 7.2 | 1.00 | 0.97 | 1.04 | 0.87 | **False** | **No** |
| **798** | Malaise and fatigue | 10.8 | 0.99 | 0.96 | 1.02 | 0.52 | **False** | **Yes** |
| **800** | Fracture of lower limb | 9.9 | 1.11 | 1.07 | 1.15 | 2.70E-09 | **True** | **No** |
| **800.1** | Fracture of neck of femur | 3.2 | 1.20 | 1.12 | 1.27 | 1.88E-08 | **True** | **No** |
| **800.3** | Fracture of tibia and fibula | 4.4 | 1.11 | 1.06 | 1.16 | 2.76E-05 | **True** | **No** |
| **801** | Fracture of ankle and foot | 9.1 | 1.05 | 1.02 | 1.09 | 0.0030 | **False** | **No** |
| **801.1** | Fracture of foot | 5.3 | 1.07 | 1.02 | 1.12 | 0.0023 | **False** | **No** |
| **803** | Fracture of upper limb | 9.1 | 0.96 | 0.92 | 0.99 | 0.016 | **False** | **No** |
| **803.2** | Fracture of radius and ulna | 5.1 | 0.93 | 0.89 | 0.98 | 0.0042 | **False** | **No** |
| **803.3** | Fracture of clavicle or scapula | 3.6 | 0.93 | 0.88 | 0.98 | 0.0075 | **False** | **No** |
| **804** | Fracture of hand or wrist | 5.1 | 0.96 | 0.91 | 1.00 | 0.061 | **False** | **No** |
| **807** | Fracture of ribs | 3.7 | 0.96 | 0.91 | 1.02 | 0.16 | **False** | **No** |
| **809** | Fracture of unspecified bones | 8.2 | 1.03 | 0.99 | 1.07 | 0.12 | **False** | **No** |
| **817** | Concussion | 3.5 | 1.08 | 1.02 | 1.14 | 0.0056 | **False** | **No** |
| **819** | Skull and face fracture and other intercranial injury | 4.4 | 1.04 | 1.00 | 1.10 | 0.077 | **False** | **No** |
| **830** | Dislocation | 5 | 0.95 | 0.91 | 1.00 | 0.046 | **False** | **No** |
| **835** | Internal derangement of knee | 12.3 | 0.91 | 0.89 | 0.94 | 2.03E-08 | **True** | **No** |
| **840** | Sprains and strains | 67.5 | 0.95 | 0.93 | 0.97 | 8.96E-07 | **True** | **Yes** |
| **840.3** | Joint/ligament sprain | 9.7 | 0.98 | 0.94 | 1.01 | 0.16 | **False** | **No** |
| **841** | Sprains and strains of back and neck | 41.3 | 0.92 | 0.91 | 0.94 | 5.35E-14 | **True** | **No** |
| **842** | Other sprains and strains | 17.2 | 0.95 | 0.92 | 0.97 | 8.68E-05 | **True** | **No** |
| **870** | Open wounds of head; neck; and trunk | 20 | 1.00 | 0.98 | 1.03 | 0.85 | **False** | **No** |
| **870.3** | Other open wound of head and face | 7.3 | 1.06 | 1.02 | 1.10 | 0.0021 | **False** | **No** |
| **871** | Open wounds of extremities | 18.6 | 0.93 | 0.91 | 0.96 | 1.22E-07 | **True** | **No** |
| **871.1** | Open wound of hand except finger(s) | 3.8 | 0.92 | 0.87 | 0.97 | 0.0034 | **False** | **No** |
| **871.2** | Open wound of finger(s) | 9 | 0.90 | 0.87 | 0.94 | 5.37E-08 | **True** | **No** |
| **907** | Injuries to the nervous system | 5.5 | 1.00 | 0.96 | 1.05 | 0.98 | **False** | **No** |
| **916** | Contusion | 21.8 | 1.00 | 0.98 | 1.02 | 0.92 | **False** | **No** |
| **939** | Atopic/contact dermatitis due to other or unspecified | 36.6 | 0.98 | 0.96 | 1.00 | 0.065 | **False** | **Yes** |
| **947** | Urticaria | 6.8 | 0.96 | 0.92 | 0.99 | 0.026 | **False** | **No** |
| **967** | Adverse effects of sedatives or other ce | 7.2 | 1.03 | 0.99 | 1.07 | 0.16 | **False** | **No** |
| **979** | Adverse effects of sedatives or other central nervous system depressants and anesthetics | 5 | 1.08 | 1.03 | 1.12 | 0.0015 | **False** | **No** |

Note: Related ICD-9 codes of a single medical condition are mapped to a single phenotype code or PheCode (column 1). Prevalence (Prev) is defined as the percentage of the patients in the cohort having a medical condition as indicated by the PheCode. Odds ratio (OR) represents the estimated factor by which the odds of the presence of the given medical condition changes per unit increase of the MSSS (on the decile scale), holding controlled covariates constant. We indicated whether a medical condition reached the Bonferroni (BONF) threshold of significance in an independent analysis of the discovery cohort and extension cohort as True (T) or False (F), respectively. We indicated whether a medical condition was included in discovery analysis and extension analysis (Analyzed in Ext.) as Yes (Y) or No (N), respectively.