

**Appendix 1 (as supplied by authors): International Classification of Diseases, 9<sup>th</sup> Revision, Clinical Modification (ICD-9-CM) Format Coding Used for Cohort Formation and Formation of Study Covariates**

**1. Coding for exclusion criteria in cohort formation. Exclusion criteria was assess in the one-year period prior to index date (defined in the manuscript). A broad set of ICD-9-CM coding was used to exclude as many patients as possible with prior conditions of the kidney. Coding was obtained from a large number of validation studies from the following two systematic reviews for diseases of the kidney [1-2]**

250.40: Diabetes mellitus with renal manifestation, type II or unspecified type, not stated as uncontrolled

250.41: Diabetes mellitus with renal manifestation, type I not stated as uncontrolled

250.42: Diabetes mellitus with renal manifestation, type II or unspecified type, uncontrolled

250.43: Diabetes mellitus with renal manifestation, type I uncontrolled

403.11: Benign hypertensive renal disease with renal failure

403.91: Unspecified hypertensive renal disease with renal failure

404.13: Hypertensive heart and chronic kidney disease, benign, with heart failure and chronic kidney disease stage V or end stage renal disease

404.92: Hypertensive heart and chronic kidney disease, unspecified, without heart failure and with chronic kidney disease stage V or end stage renal disease

404.93: Hypertensive heart and chronic kidney disease, unspecified, with heart failure and chronic kidney disease stage V or end stage renal disease

581.0: Nephrotic syndrome with lesion of proliferative glomerulonephritis

581.1: Nephrotic syndrome with lesion of membranous glomerulonephritis

581.2: Nephrotic syndrome with lesion of membranoproliferative glomerulonephritis

581.3: Nephrotic syndrome with lesion of minimal change glomerulonephritis

581.81: Nephrotic syndrome in diseases classified elsewhere

581.89: Other nephrotic syndrome with specified pathological lesion in kidney

582.1: Chronic glomerulonephritis with lesion of membranous glomerulonephritis

582.2: Chronic glomerulonephritis with lesion of membranoproliferative glomerulonephritis

582.81: Chronic glomerulonephritis in diseases classified elsewhere

582.89: Other chronic glomerulonephritis with specified pathological lesion in kidney

582.9: Chronic glomerulonephritis with unspecified pathological lesion in kidney

583.0: Nephritis and nephropathy not specified as acute or chronic with lesion of proliferative glomerulonephritis

583.6: Nephritis and nephropathy not specified as acute or chronic with lesion of renal cortical necrosis

583.81: Nephritis and nephropathy not specified as acute or chronic in diseases classified elsewhere

583.89: Other nephritis and nephropathy not specified as acute or chronic with specified pathological lesion in kidney

583.9: Nephritis and nephropathy not specified as acute or chronic with unspecified pathological lesion in kidney

584.0: Acute renal failure ARF, unspecified

584.5: Acute tubular necrosis

584.6: Cortical ARF

584.7: Medullary ARF

584.8: ARF with other specified pathologic lesion

584.9: ARF not otherwise specified

585: Renal failure chronic

585.1: Chronic kidney disease stage I

585.2: Chronic kidney disease stage II

585.3: Chronic kidney disease stage III

585.4: Chronic kidney disease stage IV

585.5: Chronic kidney disease stage V

585.6: End stage renal disease

585.9: Chronic kidney disease unspecified

586: Renal failure unspecified

587: Renal sclerosis unspecified

588: Disorders resulting from impaired renal function

588.0: Renal osteodystrophy

588.1: Nephrogenic diabetes insipidus

588.8: Other specified disorders resulting from impaired renal function

588.81: Secondary hyperparathyroidism (of renal origin)

588.89: Other specified disorders resulting from impaired renal function

588.9: Unspecified disorder resulting from impaired renal function

V42.0: Kidney replaced by transplant

V45.1: Postsurgical renal dialysis status

V56.2: Fitting and adjustment of peritoneal dialysis catheter

V56.0: Aftercare involving extracorporeal dialysis

V56.31: Encounter for adequacy testing for hemodialysis

V56.32: Encounter for adequacy testing for peritoneal dialysis

V56.8: Encounter for other dialysis

**2. Coding for the study outcome of acute renal failure. ICD-9-CM codes were obtained from validation studies as described in the text of the manuscript [3-4]**

584.0 (acute renal failure (ARF), unspecified)

584.5 (acute tubular necrosis)

584.6 (cortical ARF)

584.7 (medullary ARF)

584.8 (ARF with other specified pathologic lesion)

584.9 (ARF not otherwise specified).

### 3. Coding used for covariate formation

**Cancer** (*Coding obtained from the Charlson Comorbidity Score [5-6]*)

- 140: Malignant neoplasm of lip
- 141: Malignant neoplasm of tongue
- 142: Malignant neoplasm of major salivary glands
- 143: Malignant neoplasm of gum
- 144: Malignant neoplasm of floor of mouth
- 145: Malignant neoplasm of other and unspecified parts of mouth
- 146: Malignant neoplasm of oropharynx
- 147: Malignant neoplasm of nasopharynx
- 148: Malignant neoplasm of hypopharynx
- 149: Malignant neoplasm of other and ill-defined sites within the lip oral cavity and pharynx
- 150: Malignant neoplasm of esophagus
- 151: Malignant neoplasm of stomach
- 152: Malignant neoplasm of small intestine including duodenum
- 153: Malignant neoplasm of colon
- 154: Malignant neoplasm of rectum rectosigmoid junction and anus
- 155: Malignant neoplasm of liver and intrahepatic bile ducts
- 156: Malignant neoplasm of gallbladder and extrahepatic bile ducts
- 157: Malignant neoplasm of pancreas
- 158: Malignant neoplasm of retroperitoneum and peritoneum
- 159: Malignant neoplasm of other and ill-defined sites within the digestive organs and peritoneum
- 160: Malignant neoplasm of nasal cavities middle ear and accessory sinuses
- 161: Malignant neoplasm of larynx
- 162: Malignant neoplasm of trachea bronchus and lung
- 163: Malignant neoplasm of pleura
- 164: Malignant neoplasm of thymus heart and mediastinum
- 165: Malignant neoplasm of other and ill-defined sites within the respiratory system and intrathoracic organs
- 170: Malignant neoplasm of bone and articular cartilage
- 171: Malignant neoplasm of connective and other soft tissue
- 172: Malignant melanoma of skin
- 175: Malignant neoplasm of male breast
- 176: Kaposi's sarcoma
- 179: Malignant neoplasm of uterus, part unspecified
- 180: Malignant neoplasm of cervix uteri
- 181: Malignant neoplasm of placenta
- 182: Malignant neoplasm of body of uterus
- 183: Malignant neoplasm of ovary and other uterine adnexa
- 185: Malignant neoplasm of prostate
- 186: Malignant neoplasm of testis
- 187: Malignant neoplasm of penis and other male genital organs

- 188: Malignant neoplasm of bladder
- 189: Malignant neoplasm of kidney and other and unspecified urinary organs
- 190: Malignant neoplasm of eye
- 191: Malignant neoplasm of brain
- 192: Malignant neoplasm of other and unspecified parts of nervous system
- 193: Malignant neoplasm of thyroid gland
- 194: Malignant neoplasm of other endocrine glands and related structures
- 195: Malignant neoplasm of other and ill-defined sites
- 200: Lymphosarcoma and reticulosarcoma and other specified malignant tumors of lymphatic tissue
- 201: Hodgkin's disease 201
- 203: Multiple myeloma and immunoproliferative neoplasms
- 205: Myeloid leukemia
- 206: Monocytic leukemia
- 207: Other specified leukemia
- 208: Leukemia of unspecified cell type

**Congestive Heart Failure** (*Coding obtained from the Charlson Comorbidity Score [5-6]*)

- 428: Heart Failure

**Diabetes Mellitus** (*Coding obtained from the Charlson Comorbidity Score [5-6]*)

- 250: Diabetes mellitus

**Human Immunodeficiency Virus** (*Coding obtained from the Charlson Comorbidity Score [5-6]*)

- 042: Human Immunodeficiency Virus [HIV] disease

**Hypertension**

- 401: Essential Hypertension

**Genitourinary Infection**

*\*\*broad ICD-9-CM coding for a specific organ class was used in combination with a fluroquinolone prescription to best identify the indication for prescribing*

- 590: Infections of kidney
- 595: Cystitis
- 599: Other disorders of urethra and urinary tract

**Respiratory Infection**

*\*\*broad ICD-9-CM coding for a specific organ class was used in combination with a fluroquinolone prescription to best identify the indication for prescribing*

- 017: Tuberculosis of skin and subcutaneous cellular tissue, unspecified
- 031: Diseases due to mycobacteria
- 034: Streptococcal sore throat and scarlet fever
- 135: Sarcoidosis
- 460: Acute nasopharyngitis
- 461: Acute sinusitis
- 462: Acute pharyngitis
- 463: Acute tonsillitis
- 464: Acute laryngitis and tracheitis
- 465: Acute upper respiratory infections of multiple or unspecified sites
- 466: Acute bronchitis and bronchiolitis
- 471: Nasal polyps
- 472: Chronic pharyngitis and nasopharyngitis
- 473: Chronic sinusitis
- 474: Chronic disease of tonsils and adenoids
- 475: Peritonsillar abscess
- 476: Chronic laryngitis and laryngotracheitis
- 478: Other diseases of upper respiratory tract
- 481: Pneumococcal pneumonia
- 482: Other bacterial pneumonia
- 483: Pneumonia due to other specified organism
- 484: Pneumonia in infectious diseases classified elsewhere
- 485: Bronchopneumonia, organism unspecified
- 486: Pneumonia, organism unspecified
- 490: Bronchitis, not specified as acute or chronic
- 491: Chronic bronchitis
- 507: Pneumonitis due to solids and liquids
- 511: Pleurisy
- 513: Abscess of lung and mediastinum
- 514: Pulmonary congestion and hypostasis
- 515: Postinflammatory pulmonary fibrosis
- 516: Other alveolar and parietoalveolar pneumonopathy
- 517: Lung involvement in conditions classified elsewhere
- 518: Other diseases of lung
- 519: Other diseases of respiratory system

### **Gastrointestinal Infection**

*\*\*broad ICD-9-CM coding for a specific organ class was used in combination with a fluroquinolone prescription to best identify the indication for prescribing*

- 003: Other salmonella infections
- 005: Other food poisoning (bacterial)
- 008: Intestinal infections due to other organisms

- 009: Ill-defined intestinal infections
- 085: Leishmaniasis
- 041: Bacterial infection in conditions classified elsewhere and of unspecified site
- 531: Gastric ulcer
- 532: Duodenal ulcer
- 533: Peptic ulcer site unspecified
- 535: Gastritis and duodenitis
- 536: Disorders of function of stomach
- 537: Other disorders of stomach and duodenum
- 538: Gastrointestinal mucositis (ulcerative)
- 555: Regional enteritis
- 556: Ulcerative enterocolitis
- 562: Diverticula of intestine
- 564: Functional digestive disorders not elsewhere classified
- 567: Peritonitis and retroperitoneal infections
- 568: Other disorders of peritoneum
- 569: Other disorders of intestine

**Skin and Soft Tissue Infection**

*\*\*broad ICD-9-CM coding for a specific organ class was used in combination with a fluroquinolone prescription to best identify the indication for prescribing*

- 035: Erysipelas
- 680: Carbuncle and furuncle
- 681: Cellulitis and abscess of finger and toe
- 682: Other cellulitis and abscess
- 684: Impetigo
- 686: Other local infection of skin and subcutaneous tissue
- 691: Atopic dermatitis and related conditions
- 692: Contact dermatitis and other eczema
- 694: Bullous dermatoses
- 695: Erythematous conditions
- 696: Other psoriasis
- 698: Pruritus and related conditions
- 700: Corns and callosities
- 701: Other hypertrophic and atrophic conditions of the skin
- 702: Other dermatoses
- 707: Chronic ulcer of skin
- 528: Diseases of the oral soft tissues excluding lesions specific for gingiva and tongue
- 893: Open wound of toe(s)

**Joint or Bone Infection**

*\*\*broad ICD-9-CM coding for a specific organ class was used in combination with a fluroquinolone prescription to best identify the indication for prescribing*

- 730: Osteomyelitis periostitis and other infections involving bone
- 731: Osteitis derormans and osteopathies associated with other disorders classified elsewhere



## References

- [1] Grams ME, Plantinga LC, Hedgeman E, et al. Validation of CKD and related conditions in existing data sets: a systematic review. *Am J Kidney Dis* 2011;57:44-54.
- [2] Vlasschaert ME, Bejaimal SA, Hackam DG, et al. Validity of administrative database coding for kidney disease: a systematic review. *Am J Kidney Dis* 2011;57:29-43.
- [3] Waikar SS, Wald R, Chertow GM, et al. Validity of international classification of diseases, ninth revision, clinical modification codes for acute renal failure. *J Am Soc Nephrol* 2006;17(6):1688-94.
- [4] Liangos O, Wald R, O'Bell JW, Price L, Pereira BJ, Jaber BL. Epidemiology and outcomes of AKI in hospitalized patients: a national survey. *Clin J Am Soc Nephrol* 2006;1(1):43-51.
- [5] Deyo RA, Cherkin DC, Ciol MA. Adapting a clinical comorbidity index for use with ICD-9-CM administrative databases. *J Clin Epidemiol* 1992;45:613-9.
- [6] Quan H, Sundararajan V, Halfon P, et al. Coding algorithms for defining Comorbidities in ICD-9-CM and ICD-10 administrative data. *Med Care* 2005;43(11):1130-9.