**Supplement Tables**

Table 1. Categories of variables included in our study of diabetic patients.

|  |  |
| --- | --- |
| **Category** | **Variables** |
| Demographic | Age  Gender  Race  Ethnicity  Insurance  Smoking Status  Diabetes Type  Duration of Diabetes |
| Vitals | Body Mass Index  Blood Pressure Systolic  Blood Pressure Diastolic  Heart Rate |
| Clinical Labs | Alanine Aminotransferase Serum  Albumin Serum  Alkaline Phosphatase Serum  Anion Gap Serum  Aspartate Aminotransferase Serum  Bilirubin Serum  Blood Glucose  Blood Hemoglobin  Blood Hemoglobin A1c  Blood Urea Nitrogen  Calcium Serum  Carbon Dioxide Total Serum  Cholesterol Serum  High Density Lipoprotein Serum  Platelet Count  Potassium Serum  Protein Total Serum  Sodium Serum  Thyroid Stimulating Hormone Serum  Triglycerides Serum  White Blood Cell Count |
| Elixhauser Comorbidity | History of AIDS/HIV  History of Alcohol abuse  History of Anemia deficiency  History of Cardiac arrhythmias  History of Chronic pulmonary disease  History of Coagulopathy  History of Congestive heart failure  History of Depression  History of Drug abuse  History of Fluid and electrolyte disorders  History of Hypertension  History of Hypothyroidism  History of Liver Disease  History of Lymphoma  History of Obesity  History of Other neurological disorders  History of Paralysis  History of Peripheral vascular disorders  History of Psychoses  History of Pulmonary circulation disorders  History of Renal failure  History of Rheumatoid arthritis  History of Tumor or Metastatic cancer  History of Valvular disease  History of Weight loss |
| Area Deprivation Index | 1-10, ranked neighborhood score |

Table 2. ICD9/10 diagnosis codes and CPT codes for DM complications and DM related complications. Categorized into microvascular and macrovascular complications.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Microvascular Complications** | | | **Macrovascular Complications** | | |
| DM-specific  Complications | DM-related Complications | CPT Complications | DM-specific  Complications | DM-related Complications | CPT Complications |
| |  |  | | --- | --- | | E10.2 | ICD10 | | E10.21 | ICD10 | | E10.22 | ICD10 | | E10.29 | ICD10 | | E11.2 | ICD10 | | E11.21 | ICD10 | | E11.22 | ICD10 | | E11.29 | ICD10 | | E13.2 | ICD10 | | E13.21 | ICD10 | | E13.22 | ICD10 | | E13.29 | ICD10 | | 250.4 | ICD9 | | 250.41 | ICD9 | | 250.42 | ICD9 | | 250.43 | ICD9 | | 249.4 | ICD9 | | 249.40 | ICD9 | | 249.41 | ICD9 | | E08.2 | ICD10 | | E08.21 | ICD10 | | E08.22 | ICD10 | | E08.29 | ICD10 | | E10.4 | ICD10 | | E10.40 | ICD10 | | E10.41 | ICD10 | | E10.42 | ICD10 | | E10.43 | ICD10 | | E10.44 | ICD10 | | E10.49 | ICD10 | | E10.61 | ICD10 | | E10.610 | ICD10 | | E10.618 | ICD10 | | E10.621 | ICD10 | | E11.4 | ICD10 | | E11.40 | ICD10 | | E11.41 | ICD10 | | E11.42 | ICD10 | | E11.43 | ICD10 | | E11.44 | ICD10 | | E11.49 | ICD10 | | E11.61 | ICD10 | | E11.610 | ICD10 | | E11.618 | ICD10 | | E11.621 | ICD10 | | E13.4 | ICD10 | | E13.40 | ICD10 | | E13.41 | ICD10 | | E13.42 | ICD10 | | E13.43 | ICD10 | | E13.44 | ICD10 | | E13.49 | ICD10 | | E13.61 | ICD10 | | E13.610 | ICD10 | | E13.618 | ICD10 | | E13.621 | ICD10 | | 250.6 | ICD9 | | 250.61 | ICD9 | | 250.62 | ICD9 | | 250.63 | ICD9 | | 249.6 | ICD9 | | 249.60 | ICD9 | | 249.61 | ICD9 | | 357.2 | ICD9 | | E08.4 | ICD10 | | E08.40 | ICD10 | | E08.41 | ICD10 | | E08.42 | ICD10 | | E08.43 | ICD10 | | E08.44 | ICD10 | | E08.49 | ICD10 | | E08.61 | ICD10 | | E08.610 | ICD10 | | E08.618 | ICD10 | | E08.621 | ICD10 | | E10.3 | ICD10 | | E10.31 | ICD10 | | E10.311 | ICD10 | | E10.319 | ICD10 | | E10.32 | ICD10 | | E10.321 | ICD10 | | E10.3211 | ICD10 | | E10.3212 | ICD10 | | E10.3213 | ICD10 | | E10.3219 | ICD10 | | E10.329 | ICD10 | | E10.3291 | ICD10 | | E10.3292 | ICD10 | | E10.3293 | ICD10 | | E10.3299 | ICD10 | | E10.33 | ICD10 | | E10.331 | ICD10 | | E10.3311 | ICD10 | | E10.3312 | ICD10 | | E10.3313 | ICD10 | | E10.3319 | ICD10 | | E10.339 | ICD10 | | E10.3391 | ICD10 | | E10.3392 | ICD10 | | E10.3393 | ICD10 | | E10.3399 | ICD10 | | E10.34 | ICD10 | | E10.341 | ICD10 | | E10.3411 | ICD10 | | E10.3412 | ICD10 | | E10.3413 | ICD10 | | E10.3419 | ICD10 | | E10.349 | ICD10 | | E10.3491 | ICD10 | | E10.3492 | ICD10 | | E10.3493 | ICD10 | | E10.3499 | ICD10 | | E10.35 | ICD10 | | E10.351 | ICD10 | | E10.3511 | ICD10 | | E10.3512 | ICD10 | | E10.3513 | ICD10 | | E10.3519 | ICD10 | | E10.352 | ICD10 | | E10.3521 | ICD10 | | E10.3522 | ICD10 | | E10.3523 | ICD10 | | E10.3529 | ICD10 | | E10.353 | ICD10 | | E10.3531 | ICD10 | | E10.3532 | ICD10 | | E10.3533 | ICD10 | | E10.3539 | ICD10 | | E10.354 | ICD10 | | E10.3541 | ICD10 | | E10.3542 | ICD10 | | E10.3543 | ICD10 | | E10.3549 | ICD10 | | E10.355 | ICD10 | | E10.3551 | ICD10 | | E10.3552 | ICD10 | | E10.3553 | ICD10 | | E10.3559 | ICD10 | | E10.359 | ICD10 | | E10.3591 | ICD10 | | E10.3592 | ICD10 | | E10.3593 | ICD10 | | E10.3599 | ICD10 | | E10.37 | ICD10 | | E10.37X1 | ICD10 | | E10.37X2 | ICD10 | | E10.37X3 | ICD10 | | E10.37X9 | ICD10 | | E10.39 | ICD10 | | E11.3 | ICD10 | | E11.31 | ICD10 | | E11.311 | ICD10 | | E11.319 | ICD10 | | E11.32 | ICD10 | | E11.321 | ICD10 | | E11.3211 | ICD10 | | E11.3212 | ICD10 | | E11.3213 | ICD10 | | E11.3219 | ICD10 | | E11.329 | ICD10 | | E11.3291 | ICD10 | | E11.3292 | ICD10 | | E11.3293 | ICD10 | | E11.3299 | ICD10 | | E11.33 | ICD10 | | E11.331 | ICD10 | | E11.3311 | ICD10 | | E11.3312 | ICD10 | | E11.3313 | ICD10 | | E11.3319 | ICD10 | | E11.339 | ICD10 | | E11.3391 | ICD10 | | E11.3392 | ICD10 | | E11.3393 | ICD10 | | E11.3399 | ICD10 | | E11.34 | ICD10 | | E11.341 | ICD10 | | E11.3411 | ICD10 | | E11.3412 | ICD10 | | E11.3413 | ICD10 | | E11.3419 | ICD10 | | E11.349 | ICD10 | | E11.3491 | ICD10 | | E11.3492 | ICD10 | | E11.3493 | ICD10 | | E11.3499 | ICD10 | | E11.35 | ICD10 | | E11.351 | ICD10 | | E11.3511 | ICD10 | | E11.3512 | ICD10 | | E11.3513 | ICD10 | | E11.3519 | ICD10 | | E11.352 | ICD10 | | E11.3521 | ICD10 | | E11.3522 | ICD10 | | E11.3523 | ICD10 | | E11.3529 | ICD10 | | E11.353 | ICD10 | | E11.3531 | ICD10 | | E11.3532 | ICD10 | | E11.3533 | ICD10 | | E11.3539 | ICD10 | | E11.354 | ICD10 | | E11.3541 | ICD10 | | E11.3542 | ICD10 | | E11.3543 | ICD10 | | E11.3549 | ICD10 | | E11.355 | ICD10 | | E11.3551 | ICD10 | | E11.3552 | ICD10 | | E11.3553 | ICD10 | | E11.3559 | ICD10 | | E11.359 | ICD10 | | E11.3591 | ICD10 | | E11.3592 | ICD10 | | E11.3593 | ICD10 | | E11.3599 | ICD10 | | E11.37 | ICD10 | | E11.37X1 | ICD10 | | E11.37X2 | ICD10 | | E11.37X3 | ICD10 | | E11.37X9 | ICD10 | | E11.39 | ICD10 | | E13.3 | ICD10 | | E13.31 | ICD10 | | E13.311 | ICD10 | | E13.319 | ICD10 | | E13.32 | ICD10 | | E13.321 | ICD10 | | E13.3211 | ICD10 | | E13.3212 | ICD10 | | E13.3213 | ICD10 | | E13.3219 | ICD10 | | E13.329 | ICD10 | | E13.3291 | ICD10 | | E13.3292 | ICD10 | | E13.3293 | ICD10 | | E13.3299 | ICD10 | | E13.33 | ICD10 | | E13.331 | ICD10 | | E13.3311 | ICD10 | | E13.3312 | ICD10 | | E13.3313 | ICD10 | | E13.3319 | ICD10 | | E13.339 | ICD10 | | E13.3391 | ICD10 | | E13.3392 | ICD10 | | E13.3393 | ICD10 | | E13.3399 | ICD10 | | E13.34 | ICD10 | | E13.341 | ICD10 | | E13.3411 | ICD10 | | E13.3412 | ICD10 | | E13.3413 | ICD10 | | E13.3419 | ICD10 | | E13.349 | ICD10 | | E13.3491 | ICD10 | | E13.3492 | ICD10 | | E13.3493 | ICD10 | | E13.3499 | ICD10 | | E13.35 | ICD10 | | E13.351 | ICD10 | | E13.3511 | ICD10 | | E13.3512 | ICD10 | | E13.3513 | ICD10 | | E13.3519 | ICD10 | | E13.352 | ICD10 | | E13.3521 | ICD10 | | E13.3522 | ICD10 | | E13.3523 | ICD10 | | E13.3529 | ICD10 | | E13.353 | ICD10 | | E13.3531 | ICD10 | | E13.3532 | ICD10 | | E13.3533 | ICD10 | | E13.3539 | ICD10 | | E13.354 | ICD10 | | E13.3541 | ICD10 | | E13.3542 | ICD10 | | E13.3543 | ICD10 | | E13.3549 | ICD10 | | E13.355 | ICD10 | | E13.3551 | ICD10 | | E13.3552 | ICD10 | | E13.3553 | ICD10 | | E13.3559 | ICD10 | | E13.359 | ICD10 | | E13.3591 | ICD10 | | E13.3592 | ICD10 | | E13.3593 | ICD10 | | E13.3599 | ICD10 | | E13.37 | ICD10 | | E13.37X1 | ICD10 | | E13.37X2 | ICD10 | | E13.37X3 | ICD10 | | E13.37X9 | ICD10 | | E13.39 | ICD10 | | 250.5 | ICD9 | | 250.51 | ICD9 | | 250.52 | ICD9 | | 250.53 | ICD9 | | 249.5 | ICD9 | | 249.50 | ICD9 | | 249.51 | ICD9 | | 362.01 | ICD9 | | 362.02 | ICD9 | | 362.03 | ICD9 | | 362.04 | ICD9 | | 362.05 | ICD9 | | 362.06 | ICD9 | | E08.3 | ICD10 | | E08.31 | ICD10 | | E08.311 | ICD10 | | E08.319 | ICD10 | | E08.32 | ICD10 | | E08.321 | ICD10 | | E08.3211 | ICD10 | | E08.3212 | ICD10 | | E08.3213 | ICD10 | | E08.3219 | ICD10 | | E08.329 | ICD10 | | E08.3291 | ICD10 | | E08.3292 | ICD10 | | E08.3293 | ICD10 | | E08.3299 | ICD10 | | E08.33 | ICD10 | | E08.331 | ICD10 | | E08.3311 | ICD10 | | E08.3312 | ICD10 | | E08.3313 | ICD10 | | E08.3319 | ICD10 | | E08.339 | ICD10 | | E08.3391 | ICD10 | | E08.3392 | ICD10 | | E08.3393 | ICD10 | | E08.3399 | ICD10 | | E08.34 | ICD10 | | E08.341 | ICD10 | | E08.3411 | ICD10 | | E08.3412 | ICD10 | | E08.3413 | ICD10 | | E08.3419 | ICD10 | | E08.349 | ICD10 | | E08.3491 | ICD10 | | E08.3492 | ICD10 | | E08.3493 | ICD10 | | E08.3499 | ICD10 | | E08.35 | ICD10 | | E08.351 | ICD10 | | E08.3511 | ICD10 | | E08.3512 | ICD10 | | E08.3513 | ICD10 | | E08.3519 | ICD10 | | E08.352 | ICD10 | | E08.3521 | ICD10 | | E08.3522 | ICD10 | | E08.3523 | ICD10 | | E08.3529 | ICD10 | | E08.353 | ICD10 | | E08.3531 | ICD10 | | E08.3532 | ICD10 | | E08.3533 | ICD10 | | E08.3539 | ICD10 | | E08.354 | ICD10 | | E08.3541 | ICD10 | | E08.3542 | ICD10 | | E08.3543 | ICD10 | | E08.3549 | ICD10 | | E08.355 | ICD10 | | E08.3551 | ICD10 | | E08.3552 | ICD10 | | E08.3553 | ICD10 | | E08.3559 | ICD10 | | E08.359 | ICD10 | | E08.3591 | ICD10 | | E08.3592 | ICD10 | | E08.3593 | ICD10 | | E08.3599 | ICD10 | | E08.37 | ICD10 | | E08.37X1 | ICD10 | | E08.37X2 | ICD10 | | E08.37X3 | ICD10 | | E08.37X9 | ICD10 | | E08.39 | ICD10 | | |  |  | | --- | --- | | 403.00 | ICD9 | | 403.01 | ICD9 | | 403.10 | ICD9 | | 403.11 | ICD9 | | 403.90 | ICD9 | | 403.91 | ICD9 | | 580.8 | ICD9 | | 580.81 | ICD9 | | 580.89 | ICD9 | | 580.9 | ICD9 | | 581.0 | ICD9 | | 581.1 | ICD9 | | 581.3 | ICD9 | | 581.81 | ICD9 | | 581.9 | ICD9 | | 582.1 | ICD9 | | 582.8 | ICD9 | | 582.89 | ICD9 | | 582.9 | ICD9 | | 583.1 | ICD9 | | 583.2 | ICD9 | | 583.8 | ICD9 | | 583.81 | ICD9 | | 583.89 | ICD9 | | 583.9 | ICD9 | | 584 | ICD9 | | 584.5 | ICD9 | | 584.8 | ICD9 | | 584.9 | ICD9 | | 585 | ICD9 | | 585.1 | ICD9 | | 585.2 | ICD9 | | 585.3 | ICD9 | | 585.4 | ICD9 | | 585.5 | ICD9 | | 585.6 | ICD9 | | 585.9 | ICD9 | | 586 | ICD9 | | 587 | ICD9 | | 588.0 | ICD9 | | 588.8 | ICD9 | | 588.81 | ICD9 | | 588.89 | ICD9 | | 588.9 | ICD9 | | 589.1 | ICD9 | | 589.9 | ICD9 | | I12.0 | ICD10 | | N00.8 | ICD10 | | N00.9 | ICD10 | | N02.2 | ICD10 | | N03.2 | ICD10 | | N03.8 | ICD10 | | N03.9 | ICD10 | | N04.0 | ICD10 | | N04.8 | ICD10 | | N04.9 | ICD10 | | N05.2 | ICD10 | | N05.5 | ICD10 | | N05.8 | ICD10 | | N05.9 | ICD10 | | N08 | ICD10 | | N17.0 | ICD10 | | N17.1 | ICD10 | | N17.2 | ICD10 | | N17.8 | ICD10 | | N17.9 | ICD10 | | N18.1 | ICD10 | | N18.2 | ICD10 | | N18.3 | ICD10 | | N18.4 | ICD10 | | N18.5 | ICD10 | | N18.6 | ICD10 | | N18.9 | ICD10 | | N19 | ICD10 | | N25.0 | ICD10 | | N25.81 | ICD10 | | N25.89 | ICD10 | | N25.9 | ICD10 | | N26.9 | ICD10 | | 707.14 | ICD9 | | 707.15 | ICD9 | | L97.409 | ICD10 | | L97.509 | ICD10 | | 361.00 | ICD9 | | 361.05 | ICD9 | | 361.06 | ICD9 | | 361.8 | ICD9 | | 361.81 | ICD9 | | 361.89 | ICD9 | | 361.9 | ICD9 | | 379.23 | ICD9 | | 379.24 | ICD9 | | H43.13 | ICD10 | | |  | | --- | | 67113 | | 67028 | | 67036 | | 14.31 | | 14.34 | | 14.35 | | 14.49 | | 14.54 | | 14.74 | | 14.75 | | 14.79 | | |  |  | | --- | --- | | E10.5 | ICD10 | | E10.51 | ICD10 | | E10.52 | ICD10 | | E10.59 | ICD10 | | E10.622 | ICD10 | | E11.5 | ICD10 | | E11.51 | ICD10 | | E11.52 | ICD10 | | E11.59 | ICD10 | | E11.622 | ICD10 | | E13.5 | ICD10 | | E13.51 | ICD10 | | E13.52 | ICD10 | | E13.59 | ICD10 | | E13.622 | ICD10 | | 250.7 | ICD9 | | 250.71 | ICD9 | | 250.72 | ICD9 | | 250.73 | ICD9 | | 249.7 | ICD9 | | 249.70 | ICD9 | | 249.71 | ICD9 | | E08.5 | ICD10 | | E08.51 | ICD10 | | E08.52 | ICD10 | | E08.59 | ICD10 | | E08.622 | ICD10 | | |  |  |  |  | | --- | --- | --- | --- | | 404.00 | ICD9 |  | Vascular | | 404.01 | ICD9 |  | Vascular | | 404.10 | ICD9 |  | Vascular | | 404.11 | ICD9 |  | Vascular | | 404.13 | ICD9 |  | Vascular | | 404.90 | ICD9 |  | Vascular | | 404.91 | ICD9 |  | Vascular | | 404.92 | ICD9 |  | Vascular | | 404.93 | ICD9 |  | Vascular | | 410 | ICD9 |  | Vascular | | 410.00 | ICD9 |  | Vascular | | 410.01 | ICD9 |  | Vascular | | 410.10 | ICD9 |  | Vascular | | 410.11 | ICD9 |  | Vascular | | 410.12 | ICD9 |  | Vascular | | 410.31 | ICD9 |  | Vascular | | 410.40 | ICD9 |  | Vascular | | 410.41 | ICD9 |  | Vascular | | 410.42 | ICD9 |  | Vascular | | 410.61 | ICD9 |  | Vascular | | 410.70 | ICD9 |  | Vascular | | 410.71 | ICD9 |  | Vascular | | 410.72 | ICD9 |  | Vascular | | 410.90 | ICD9 |  | Vascular | | 410.91 | ICD9 |  | Vascular | | 410.92 | ICD9 |  | Vascular | | 411 | ICD9 |  | Vascular | | 411.0 | ICD9 |  | Vascular | | 411.1 | ICD9 |  | Vascular | | 411.8 | ICD9 |  | Vascular | | 411.89 | ICD9 |  | Vascular | | 412 | ICD9 |  | Vascular | | 413 | ICD9 |  | Vascular | | 413.0 | ICD9 |  | Vascular | | 413.9 | ICD9 |  | Vascular | | 414 | ICD9 |  | Vascular | | 414.00 | ICD9 |  | Vascular | | 414.01 | ICD9 |  | Vascular | | 414.02 | ICD9 |  | Vascular | | 414.04 | ICD9 |  | Vascular | | 414.05 | ICD9 |  | Vascular | | 414.06 | ICD9 |  | Vascular | | 414.07 | ICD9 |  | Vascular | | 414.10 | ICD9 |  | Vascular | | 414.11 | ICD9 |  | Vascular | | 414.12 | ICD9 |  | Vascular | | 414.2 | ICD9 |  | Vascular | | 414.3 | ICD9 |  | Vascular | | 414.4 | ICD9 |  | Vascular | | 414.8 | ICD9 |  | Vascular | | 414.9 | ICD9 |  | Vascular | | 428 | ICD9 |  | Vascular | | 428.0 | ICD9 |  | Vascular | | 428.1 | ICD9 |  | Vascular | | 428.2 | ICD9 |  | Vascular | | 428.20 | ICD9 |  | Vascular | | 428.21 | ICD9 |  | Vascular | | 428.22 | ICD9 |  | Vascular | | 428.23 | ICD9 |  | Vascular | | 428.3 | ICD9 |  | Vascular | | 428.30 | ICD9 |  | Vascular | | 428.31 | ICD9 |  | Vascular | | 428.32 | ICD9 |  | Vascular | | 428.33 | ICD9 |  | Vascular | | 428.40 | ICD9 |  | Vascular | | 428.41 | ICD9 |  | Vascular | | 428.42 | ICD9 |  | Vascular | | 428.43 | ICD9 |  | Vascular | | 428.9 | ICD9 |  | Vascular | | 430 | ICD9 |  | Vascular | | 431 | ICD9 |  | Vascular | | 432.0 | ICD9 |  | Vascular | | 432.1 | ICD9 |  | Vascular | | 432.9 | ICD9 |  | Vascular | | 433.0 | ICD9 |  | Vascular | | 433.00 | ICD9 |  | Vascular | | 433.01 | ICD9 |  | Vascular | | 433.10 | ICD9 |  | Vascular | | 433.11 | ICD9 |  | Vascular | | 433.20 | ICD9 |  | Vascular | | 433.21 | ICD9 |  | Vascular | | 433.30 | ICD9 |  | Vascular | | 433.31 | ICD9 |  | Vascular | | 433.80 | ICD9 |  | Vascular | | 433.9 | ICD9 |  | Vascular | | 433.90 | ICD9 |  | Vascular | | 434.01 | ICD9 |  | Vascular | | 434.11 | ICD9 |  | Vascular | | 434.90 | ICD9 |  | Vascular | | 434.91 | ICD9 |  | Vascular | | 435.0 | ICD9 |  | Vascular | | 435.2 | ICD9 |  | Vascular | | 435.3 | ICD9 |  | Vascular | | 435.9 | ICD9 |  | Vascular | | 436 | ICD9 |  | Vascular | | 437.0 | ICD9 |  | Vascular | | 437.1 | ICD9 |  | Vascular | | 437.2 | ICD9 |  | Vascular | | 437.3 | ICD9 |  | Vascular | | 437.8 | ICD9 |  | Vascular | | 437.9 | ICD9 |  | Vascular | | 438.0 | ICD9 |  | Vascular | | 438.10 | ICD9 |  | Vascular | | 438.11 | ICD9 |  | Vascular | | 438.12 | ICD9 |  | Vascular | | 438.13 | ICD9 |  | Vascular | | 438.19 | ICD9 |  | Vascular | | 438.20 | ICD9 |  | Vascular | | 438.21 | ICD9 |  | Vascular | | 438.22 | ICD9 |  | Vascular | | 438.30 | ICD9 |  | Vascular | | 438.40 | ICD9 |  | Vascular | | 438.53 | ICD9 |  | Vascular | | 438.6 | ICD9 |  | Vascular | | 438.7 | ICD9 |  | Vascular | | 438.81 | ICD9 |  | Vascular | | 438.82 | ICD9 |  | Vascular | | 438.83 | ICD9 |  | Vascular | | 438.84 | ICD9 |  | Vascular | | 438.85 | ICD9 |  | Vascular | | 438.89 | ICD9 |  | Vascular | | 438.9 | ICD9 |  | Vascular | | 440.0 | ICD9 |  | Vascular | | 440.1 | ICD9 |  | Vascular | | 440.20 | ICD9 |  | Vascular | | 440.21 | ICD9 |  | Vascular | | 440.22 | ICD9 |  | Vascular | | 440.23 | ICD9 |  | Vascular | | 440.24 | ICD9 |  | Vascular | | 440.29 | ICD9 |  | Vascular | | 440.30 | ICD9 |  | Vascular | | 440.31 | ICD9 |  | Vascular | | 440.4 | ICD9 |  | Vascular | | 440.8 | ICD9 |  | Vascular | | 440.9 | ICD9 |  | Vascular | | 442.1 | ICD9 |  | Vascular | | 443 | ICD9 |  | Vascular | | 443.2 | ICD9 |  | Vascular | | 443.21 | ICD9 |  | Vascular | | 443.22 | ICD9 |  | Vascular | | 443.24 | ICD9 |  | Vascular | | 443.29 | ICD9 |  | Vascular | | 443.89 | ICD9 |  | Vascular | | 443.9 | ICD9 |  | Vascular | | 707.10 | ICD9 |  | Vascular | | 707.11 | ICD9 |  | Vascular | | 707.12 | ICD9 |  | Vascular | | 707.13 | ICD9 |  | Vascular | | 707.19 | ICD9 |  | Vascular | | G45.0 | ICD10 |  | Vascular | | G45.1 | ICD10 |  | Vascular | | G45.8 | ICD10 |  | Vascular | | G45.9 | ICD10 |  | Vascular | | I13.11 | ICD10 |  | Vascular | | I13.2 | ICD10 |  | Vascular | | I20.0 | ICD10 |  | Vascular | | I20.1 | ICD10 |  | Vascular | | I20.8 | ICD10 |  | Vascular | | I20.9 | ICD10 |  | Vascular | | I21.09 | ICD10 |  | Vascular | | I21.11 | ICD10 |  | Vascular | | I21.19 | ICD10 |  | Vascular | | I21.29 | ICD10 |  | Vascular | | I21.3 | ICD10 |  | Vascular | | I21.4 | ICD10 |  | Vascular | | I21.9 | ICD10 |  | Vascular | | I21.A1 | ICD10 |  | Vascular | | I24.0 | ICD10 |  | Vascular | | I24.1 | ICD10 |  | Vascular | | I24.8 | ICD10 |  | Vascular | | I25.10 | ICD10 |  | Vascular | | I25.2 | ICD10 |  | Vascular | | I25.3 | ICD10 |  | Vascular | | I25.41 | ICD10 |  | Vascular | | I25.42 | ICD10 |  | Vascular | | I25.5 | ICD10 |  | Vascular | | I25.810 | ICD10 |  | Vascular | | I25.811 | ICD10 |  | Vascular | | I25.82 | ICD10 |  | Vascular | | I25.83 | ICD10 |  | Vascular | | I25.84 | ICD10 |  | Vascular | | I25.89 | ICD10 |  | Vascular | | I25.9 | ICD10 |  | Vascular | | I50.1 | ICD10 |  | Vascular | | I50.20 | ICD10 |  | Vascular | | I50.21 | ICD10 |  | Vascular | | I50.22 | ICD10 |  | Vascular | | I50.23 | ICD10 |  | Vascular | | I50.30 | ICD10 |  | Vascular | | I50.31 | ICD10 |  | Vascular | | I50.32 | ICD10 |  | Vascular | | I50.33 | ICD10 |  | Vascular | | I50.40 | ICD10 |  | Vascular | | I50.41 | ICD10 |  | Vascular | | I50.42 | ICD10 |  | Vascular | | I50.43 | ICD10 |  | Vascular | | I50.9 | ICD10 |  | Vascular | | I60.9 | ICD10 |  | Vascular | | I61.9 | ICD10 |  | Vascular | | I62.00 | ICD10 |  | Vascular | | I62.1 | ICD10 |  | Vascular | | I62.9 | ICD10 |  | Vascular | | I63.20 | ICD10 |  | Vascular | | I63.219 | ICD10 |  | Vascular | | I63.22 | ICD10 |  | Vascular | | I63.239 | ICD10 |  | Vascular | | I63.30 | ICD10 |  | Vascular | | I63.40 | ICD10 |  | Vascular | | I63.50 | ICD10 |  | Vascular | | I63.59 | ICD10 |  | Vascular | | I65.09 | ICD10 |  | Vascular | | I65.1 | ICD10 |  | Vascular | | I65.29 | ICD10 |  | Vascular | | I65.8 | ICD10 |  | Vascular | | I65.9 | ICD10 |  | Vascular | | I66.09 | ICD10 |  | Vascular | | I66.19 | ICD10 |  | Vascular | | I66.29 | ICD10 |  | Vascular | | I66.9 | ICD10 |  | Vascular | | I67.1 | ICD10 |  | Vascular | | I67.2 | ICD10 |  | Vascular | | I67.4 | ICD10 |  | Vascular | | I67.6 | ICD10 |  | Vascular | | I67.81 | ICD10 |  | Vascular | | I67.82 | ICD10 |  | Vascular | | I67.848 | ICD10 |  | Vascular | | I67.89 | ICD10 |  | Vascular | | I67.9 | ICD10 |  | Vascular | | I69.898 | ICD10 |  | Vascular | | I69.90 | ICD10 |  | Vascular | | I69.91 | ICD10 |  | Vascular | | I69.910 | ICD10 |  | Vascular | | I69.911 | ICD10 |  | Vascular | | I69.915 | ICD10 |  | Vascular | | I69.919 | ICD10 |  | Vascular | | I69.920 | ICD10 |  | Vascular | | I69.921 | ICD10 |  | Vascular | | I69.922 | ICD10 |  | Vascular | | I69.928 | ICD10 |  | Vascular | | I69.931 | ICD10 |  | Vascular | | I69.934 | ICD10 |  | Vascular | | I69.939 | ICD10 |  | Vascular | | I69.949 | ICD10 |  | Vascular | | I69.951 | ICD10 |  | Vascular | | I69.952 | ICD10 |  | Vascular | | I69.953 | ICD10 |  | Vascular | | I69.954 | ICD10 |  | Vascular | | I69.959 | ICD10 |  | Vascular | | I69.969 | ICD10 |  | Vascular | | I69.990 | ICD10 |  | Vascular | | I69.991 | ICD10 |  | Vascular | | I69.992 | ICD10 |  | Vascular | | I69.993 | ICD10 |  | Vascular | | I69.998 | ICD10 |  | Vascular | | I70.0 | ICD10 |  | Vascular | | I70.1 | ICD10 |  | Vascular | | I70.209 | ICD10 |  | Vascular | | I70.219 | ICD10 |  | Vascular | | I70.229 | ICD10 |  | Vascular | | I70.25 | ICD10 |  | Vascular | | I70.269 | ICD10 |  | Vascular | | I70.299 | ICD10 |  | Vascular | | I70.8 | ICD10 |  | Vascular | | I70.90 | ICD10 |  | Vascular | | I70.91 | ICD10 |  | Vascular | | I70.92 | ICD10 |  | Vascular | | I72.2 | ICD10 |  | Vascular | | I73.9 | ICD10 |  | Vascular | | I77.71 | ICD10 |  | Vascular | | I77.72 | ICD10 |  | Vascular | | I77.74 | ICD10 |  | Vascular | | I77.79 | ICD10 |  | Vascular | | L97.209 | ICD10 |  | Vascular | | L97.309 | ICD10 |  | Vascular | | L97.809 | ICD10 |  | Vascular | | L97.909 | ICD10 |  | Vascular | | |  | | --- | | 35301 | | 37205 | | 33533 | | 33518 | | 021009W | | 02100A3 | | 02100A9 | | 02100AW | | 02100Z8 | | 02100Z9 | | 02100ZC | | 021109W | | 02110Z9 | | 021209W | | 021309W | | 03CH0ZZ | | 03CJ0ZZ | | 03CK0ZZ | | 03CL0ZZ | | 03CM0ZZ | | 03CN0ZZ | | 36.06 | | 36.07 | | 36.11 | | 36.12 | | 36.13 | | 36.14 | | 36.15 | | 38.12 | |

Table 3. Sensitivity Analysis Results: Transition Intensity Matrix.

|  |  |  |  |
| --- | --- | --- | --- |
| **Transition** | **Original Population** | **All Micro** | **All Macro** |
| *Diabetes 🡪 Micro* | .1334 [.1284,.1386] | .1345 [.1298,.1401] | .1342 [.1292,.1394] |
| *Diabetes 🡪 Macro* | .0508 [.0479,.0540] | .0511 [.0481,.0543] | .0520 [.0490,.0552] |
| *Diabetes 🡪 Death* | .0001 [.0001,.0007 | .0001 [.0000,.0006] | .0001 [.0000,.0007] |
| *Micro 🡪 Both* | .0395 [.0355,.0439] | .0415 [.0374,.0460] | .0386 [.0345,.0430] |
| *Micro 🡪 Death* | .0014 [.0001,.0036] | .0014 [.0005,.0035] | .0021 [.0012,.0038] |
| *Macro 🡪 Both* | .0784 [.0679,.0905] | .0775 [.0671,.0895] | .0835 [.0727,.0960] |
| *Macro 🡪 Death* | .0134 [.0083,.0216] | .0026 [.0009,.0076] | .0032 [.0013,.0077] |
| *Both 🡪 Death* | .0023 [.0006,.0079] | .0131 [.0082,.0211] | .0109 [.0067,.0178] |

Transition intensity [95% CI].

Table 4. Sensitivity Analysis Results: Estimated 1-Year, 3-Year , and 5-Year State-to-State Transition Probabilities Among Diabetes Patients

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Year 1 and Iteration** | **Maximum Likelihood Estimate** (95% CI) | | | | |
| Diabetes | Microvascular | Macrovascular | Both | Death |
| Original |  |  |  |  |  |
| Diabetes | 0.832 (0.827,0.836) | 0.119 (0.115,0.124) | 0.044 (0.042,0.047) | 0.004 (0.003,0.005) | 0.000 (0.000,0.001) |
| Microvascular | - | 0.960 (0.955,0.964) | - | 0.038 (0.035,0.042) | 0.002 (0.001,0.004) |
| Macrovascular | - | - | 0.923 (0.910,0.933) | 0.075 (0.065,0.086) | 0.003 (0.001,0.008) |
| Both | - | - | - | 0.987 (0.978,0.992) | 0.013 (0.008,0.022) |
| Death | - | - | - | - | 1.0000 |
| All Micro |  |  |  |  |  |
| Diabetes | 0.830 (0.825,0.835) | 0.120 (0.116,0.125) | 0.0448 (0.042,0.047) | 0.004 (0.004,0.005) | 0.000 (0.000,0.001) |
| Microvascular | - | 0.958 (0.953,0.962) | - | 0.040 (0.036,0.045) | 0.002 (0.001,0.004) |
| Macrovascular | - | - | 0.923 (0.911,0.932) | 0.074 (0.064,0.086) | 0.003 (0.001,0.008) |
| Both | - | - | - | 0.987 (0.979,0.992) | 0.013 (0.008,0.022) |
| Death | - | - | - | - | 1.0000 |
| All Macro |  |  |  |  |  |
| Diabetes | 0.830 (0.825,0.835) | 0.120 (0.116,0.124) | 0.045 (0.043,0.048) | 0.004 (0.004,0.005) | 0.000 (0.000,0.001) |
| Microvascular | - | 0.960 (0.956,0.964) | - | 0.038 (0.034,0.042) | 0.002 (0.001,0.004) |
| Macrovascular | - | - | 0.917 (0.905,0.926) | 0.079 (0.071,0.090) | 0.003 (0.002,0.008) |
| Both | - | - | - | 0.989 (0.983,0.993) | 0.011 (0.007,0.017) |
| Death | - | - | - | - | 1.0000 |
| **Year 3 and Iteration** | |  | | | | |
|  |  |  |  |  |
| Original | |  |  |  |  |  |
| Diabetes | | 0.575 (0.565,0.585) | 0.288 (0.278,0.296) | 0.103 (0.097,0.109) | 0.032 (0.030,0.035) | 0.002 (0.001,0.003) |
| Microvascular | | - | 0.885 (0.872,0.896) | - | 0.109 (0.099,0.121) | 0.006 (0.004,0.012) |
| Macrovascular | | - | - | 0.785 (0.754,0.810) | 0.205 (0.179,0.233) | 0.10 (0.006,0.024) |
| Both | | - | - | - | 0.961 (0.938,0.976) | 0.039 (0.024,0.062) |
| Death | | - | - | - | - | 1.0000 |
| All Micro | |  |  |  |  |  |
| Diabetes | | 0.572 (0.561,0.582) | 0.290 (0.280,0.298) | 0.103 (0.097,0.109) | 0.033 (0.031,0.036) | 0.002 (0.001,0.003) |
| Microvascular | | - | 0.879 (0.867,0.891) | - | 0.115 (0.103,0.125) | 0.006 (0.004,0.011) |
| Macrovascular | | - | - | 0.786 (0.757,0.811) | 0.203 (0.179,0.230) | 0.010 (0.006,0.023) |
| Both | | - | - | - | 0.961 (0.941,0.975) | 0.039 (0.025,0.059) |
| Death | | - | - | - | - | 1.0000 |
| All Macro | |  |  |  |  |  |
| Diabetes | | 0.572 (0.561,0.582) | 0.289 (0.279,0.298) | 0.104 (0.098,0.110) | 0.033 (0.031,0.036) | 0.002 (0.002,0.004) |
| Microvascular | | - | 0.885 (0.873,0.896) | - | 0.107 (0.097,0.119) | 0.008 (0.005,0.012) |
| Macrovascular | | - | - | 0.771 (0.743,0.796) | 0.217 (0.192,0.242) | 0.012 (0.007,0.024) |
| Both | | - | - | - | 0.968 (0.949,0.980) | 0.032 (0.020,0.051) |
| Death | | - | - | - | - | 1.0000 |
| **Year 5 and Iteration** | | |  | | | | |
|  |  |  |  |  |
| Original | | |  |  |  |  |  |
| Diabetes | | | 0.398 (0.387,0.410) | 0.388 (0.377,0.399) | 0.133 (0.124,0.140) | 0.077 (0.071,0.083) | 0.005 (0.004,0.008) |
| Microvascular | | | - | 0.815 (0.796,0.830) | - | 0.172 (0.157,0.190) | 0.012 (0.008,0.021) |
| Macrovascular | | | - | - | 0.668 (0.623,0.701) | 0.311 (0.277,0.348) | 0.021 (0.013,0.043) |
| Both | | | - | - | - | 0.935 (0.896,0.959) | 0.065 (0.041,0.104) |
| Death | | | - | - | - | - | 1.0000 |
| All Micro | | |  |  |  |  |  |
| Diabetes | | | 0.394 (0.383,0.406) | 0.388 (0.377,0.399) | 0.133 (0.124,0.140) | 0.079 (0.073,0.086) | 0.005 (0.004,0.008) |
| Microvascular | | | - | 0.807 (0.789,0.824) | - | 0.181 (0.164,0.197) | 0.012 (0.008,0.021) |
| Macrovascular | | | - | - | 0.670 (0.628,0.706) | 0.308 (0.272,0.347) | 0.021 (0.013,0.043) |
| Both | | | - | - | - | 0.936 (0.900,0.960) | 0.064 (0.039,0.100) |
| Death | | | - | - | - | - | 1.0000 |
| All Macro | | |  |  |  |  |  |
| Diabetes | | | 0.394 (0.382,0.405) | 0.389 (0.377,0.401) | 0.133 (0.124,0.141) | 0.079 (0.072,0.085) | 0.006 (0.005,0.008) |
| Microvascular | | | - | 0.816 (0.798,0.832) | - | 0.170 (0.153,0.186) | 0.014 (0.010,0.021) |
| Macrovascular | | | - | - | 0.648 (0.607,0.684) | 0.329 (0.293,0.366) | 0.023 (0.014,0.040) |
| Both | | | - | - | - | 0.947 (0.914,0.968) | 0.053 (0.032,0.086) |
| Death | | | - | - | - | - | 1.0000 |