**Supplemental table 1: Baseline characteristics according to eGFR category at time of cohort entry (T0).**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | **eGFR≥60** **ml/min/1.73 m2**  n=1,051,439 (78.62%) | **60>eGFR≥45 ml/min/1.73 m2**  n=199,071 (14.88%) | **45>eGFR≥30 ml/min/1.73 m2**  n=71,023 (5.31%) | **30>eGFR≥15 ml/min/1.73 m2**  n=14,752 (1.10%) | **eGFR<15 ml/min/1.73 m2**a  n=1,167 (0.09%) |
| Age (SD) | | | 62.90 (12.72) | 74.93 (10.26) | 79.21 (9.01) | 79.12 (10.16) | 73.63 (13.01) |
| Race (%) | | White | 847,924 (80.64) | 174,615 (87.71) | 63,121 (88.87) | 12,580 (85.28) | 839 (71.89) |
| Black | 15,575 (14.80) | 17,958 (9.02) | 5,713 (8.04) | 1,613 (10.93) | 274 (23.48) |
| Other | 47,940 (4.56) | 6,498 (3.26) | 2,189 (3.08) | 559 (3.79) | 54 (4.63) |
| Gender (%) | | Male | 992,506 (94.40) | 188,380 (94.63) | 68,119 (95.91) | 14,195 (96.22) | 1,125 (96.40) |
| Female | 58,933 (5.60) | 10,691 (5.37) | 2,904 (4.09) | 557 (3.78) | 42 (3.60) |
| T0 eGFR in mL/min/1.73m2 (SD) | | | 83.11 (14.62) | 53.02 (4.26) | 38.54 (4.09) | 24.23 (3.91) | 11.17 (2.63) |
| T0 BUN in mg/dL (SD) | | | 15.00 (4.95) | 20.49 (6.07) | 27.26 (8.52) | 39.74 (14.51) | 63.54 (25.69) |
| T0 BUN in quintile (%) | | 1  (≤12 mg/dL) | 334,857 (31.85) | 13,956 (7.01) | 976 (1.37) | 184 (1.25) | 9 (0.77) |
| 2  (12.1-14 mg/dL) | 178,152 (16.94) | 15,070 (7.57) | 1,354 (1.91) | 34 (0.23) | 3 (0.26) |
| 3  (14.1-17 mg/dL) | 243,489 (23.16) | 35,926 (18.05) | 4,275 (1.51) | 129 (0.87) | 9 (0.77) |
| 4  (17.1-21 mg/dL) | 193,936 (18.44) | 55,895 (28.08) | 10,996 (15.48) | 419 (2.84) | 4 (0.34) |
| 5  (>21 mg/dL) | 101,005 (9.61) | 78,224 (39.29) | 53,422 (75.22) | 13,986 (94.81) | 1,142 (97.86) |
| T0 serum carbon dioxide in MEQ/L (SD) | | | 27.32 (2.98) | 27.18 (3.05) | 26.42 (3.26) | 24.65 (4.26) | 22.38 (4.23) |
| Chronic lung disease (%) | | | 256,858 (24.43) | 53,056 (26.65) | 21,138 (29.76) | 4,664 (31.62) | 372 (31.88) |
| Peripheral artery disease (%) | | | 32,445 (3.09) | 10,936 (5.49) | 5,807 (8.18) | 1,657 (11.23) | 134 (11.48) |
| Cardiovascular disease (%) | | | 275,624 (26.21) | 88,905 (44.66) | 39,686 (55.88) | 8,971 (60.81) | 602 (51.59) |
| Cerebrovascular disease (%) | | | 4,919 (0.47) | 1,926 (0.97) | 1,028 (1.45) | 280 (1.90) | 17 (1.46) |
| Dementia (%) | | | 55,320 (5.26) | 16,916 (8.50) | 7,907 (11.13) | 1,726 (11.70) | 136 (11.65) |
| Hyperlipidemia (%) | | | 700,881 (66.66) | 153,367 (77.04) | 55,465 (78.09) | 11,226 (76.10) | 799 (68.47) |
| Hepatitis C (%) | | | 72,590 (6.90) | 5,107 (2.57) | 1,657 (2.33) | 521 (3.53) | 96 (8.23) |
| HIV (%) | | | 3,947 (0.38) | 333 (0.17) | 120 (0.17) | 30 (0.20) | 7 (0.60) |
| Cancer (%) | | | 166,404 (15.83) | 47,748 (23.99) | 20,168 (28.40) | 4,456 (30.21) | 388 (33.25) |
| Albuminuria (%) | | | 46,964 (4.47) | 14,843 (7.46) | 9,511 (13.39) | 4,113 (27.88) | 611 (52.36) |
| Frequency of Outpatient encounters (%) | Low  (≤ 4.0 times/ year) | | 266,166 (25.31) | 51,419 (25.83) | 16,773 (23.62) | 2,921 (19.80) | 172 (14.74) |
| Med-Low  (4.0 – 7.2 times/ year) | | 262,808 (25.00) | 52,471 (26.36) | 18,002 (25.35) | 3,295 (22.34) | 219 (18.77) |
| Med-High  (7.2-13.2 times/ year) | | 262,417 (24.96) | 48,690 (24.46) | 17,665 (24.87) | 3,799 (25.75) | 284 (24.34) |
| High  (>13.2 times/ year) | | 260,048 (24.73) | 46,491 (23.35) | 18,583 (26.16) | 4,737 (32.11) | 492 (42.16) |
| Frequency of Hospitalizations (%) | Never | | 839,206 (79.81) | 162,457 (81.61) | 55,218 (77.75) | 10,335 (70.06) | 629 (53.90) |
| Low  (1 time) | | 117,864 (11.21) | 20,186 (10.14) | 7,744 (10.90) | 1,962 (13.30) | 193 (16.54) |
| Medium  (2 times) | | 43,586 (4.15) | 7,928 (3.98) | 3,617 (5.09) | 972 (6.59) | 129 (11.05) |
| High  (> 2 times) | | 50,783 (4.83) | 8,500 (4.27) | 4,444 (6.26) | 1,483 (10.05) | 216 (18.51) |
| Body Mass Index (%) | Underweight | | 16,268 (1.55) | 2,370 (1.19) | 1,190 (328) | 328 (2.22) | 41 (3.51) |
| Normal | | 257,871 (24.53) | 51,080 (25.66) | 21,798 (30.69) | 5,296 (35.90) | 466 (39.93) |
| Overweight | | 424,990 (40.42) | 88,031 (44.22) | 30,730 (43.27) | 5,966 (40.44) | 419 (35.90) |
| Obesity | | 352,310 (33.51) | 57,590 (28.93) | 17,305 (24.37) | 3,162 (21.43) | 241 (20.65) |
| Use of Medication that increase risk of diabetes mellitus (%)a | Never use | | 875,405 (83.26) | 164,792 (82.78) | 57,930 (81.57) | 11,689 (79.24) | 910 (77.98) |
| Past use | | 143,820 (13.68) | 27,298 (13.71) | 10,545 (14.85) | 2,516 (17.06) | 225 (19.28) |
| Using <90 days | | 11,873 (1.13) | 2,265 (1.14) | 840 (1.18) | 199 (1.35) | 12 (1.03) |
| Using ≥90 days | | 20,341 (1.93) | 4,716 (2.37) | 1,708 (2.40) | 348 (2.36) | 20 (1.71) |
| Years of follow up (IQR) | | | 4.93 (4.93, 4.93) | 4.93 (4.79, 4.93) | 4.93 (2.92, 4.93) | 4.13 (1.77, 4.93) | 3.74 (1.28, 4.93) |
| Years till incident diabetes (IQR)b | | | 2.21 (1.05, 3.43) | 2.09 (0.98, 3.32) | 1.86 (0.86, 3.16) | 1.60 (0.71, 2.90) | 1.07 (0.46, 2.18) |
| Number of outpatient serum creatinine measurement during follow up (IQR) | | | 7 (4, 10) | 7 (3, 10) | 6 (3, 11) | 6 (2, 12) | 6 (2, 16) |
| Number of outpatient BUN measurement during follow up (IQR) | | | 7 (4, 10) | 7 (4, 11) | 6 (3, 11) | 6 (2, 12) | 6 (2, 17) |
| Number of albuminuria measurement during follow up (IQR) | | | 3 (1, 5) | 2 (1, 5) | 2 (1, 5) | 2 (1, 5) | 2 (1, 5) |
| Number of HbA1C measurement during follow up (IQR) | | | 2 (1, 3) | 1 (0, 3) | 1 (0, 2) | 1 (0, 2) | 1 (0, 2) |
| Incident diabetes mellitus (%) | | | 138,680 (13.19) | 24,738 (12.43) | 8,035 (11.31) | 1,390 (9.42) | 70 (6.00) |
| Competing risk (%)c | | | 126,081 (11.99) | 47,091 (23.66) | 27,314 (38.46) | 8,840 (59.92) | 952 (81.58) |
| Weighted incident diabetes mellitus (%)d | | | 158,681.59 (15.09) | 33,291.66 (16.68) | 14,395.36 (19.75) | 4,845.18 (28.24) | 1,054.68 (37.10) |
| BUN, blood urea nitrogen; CKD, chronic kidney disease; eGFR, estimated glomerular filtration rate; IQR, interquartile range; SD, standard deviation.   1. Grouped into four levels as never use: did not use before T0; Past use: not using at T0 but used before T0; Using < 90 days: using and the newest prescription starts within 90 days before T0; Using ≥90 days: using and the newest prescription starts more than 90 days before T0. 2. Within participants who experienced incident diabetes. 3. Competing risk included death, kidney transplant and dialysis 4. Based on pseudo cohort by inverse probability weighting. Pseudo cohort with weighted participants 1051629.92, 199551.89, 72881.06, 17157.10 and 2842.70 across eGFR categories. | | | | | | | |