

## Supplemental Information

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## Appendix 1

### **EFPIA companies**

- Abbvie Inc, North Chicago, Illinois, United States
- Astellas Pharma Europe BV, Leiden, Netherlands
- Bayer Pharma AG, Berlin, Germany
- Boehringer Ingelheim International GmbH, Ingelheim, Germany
- Eli Lilly And Company Limited, Basingstoke, United Kingdom
- Novo Nordisk A/S, Bagsvaerd, Denmark
- Sanofi-Aventis Deutschland GmbH, Frankfurt / Main, Germany

### **Universities, research organisations, public bodies, non-profit groups**

- Academisch Ziekenhuis Groningen, Groningen, Netherlands
- Chu Hopitaux De Bordeaux, Talence, France
- Istituto Di Ricerche Farmacologiche Mario Negri, Milano, Italy
- Itä-Suomen Yliopisto, Kuopio, Finland
- Klinikum Der Universitaet Regensburg, Regensburg, Germany
- Lunds Universitet, Lund, Sweden
- Medizinische Universitaet Wien, Vienna, Austria
- Medizinische Universitat Innsbruck, Innsbruck, Austria
- SIB Institut Suisse De Bioinformatique, CH-660-0733998-3, Genève, Switzerland
- The University Of Exeter, Exeter, United Kingdom
- Universita Degli Studi Di Bari Aldo Moro, Bari, Italy
- Universitaetsklinikum Freiburg, Freiburg, Germany
- Universitaetsklinikum Hamburg-Eppendorf, Hamburg, Germany
- Universitätsklinikum Erlangen, Erlangen, Germany
- University Of Bristol, Bristol, United Kingdom
- University Of Dundee, Dundee, United Kingdom
- University Of Hull, Hull, United Kingdom
- University Of Leeds, Leeds, United Kingdom
- University Of Michigan The Regents Of The University Of Michigan, Ann Arbor, United States
- University Of Helsinki, University Of Helsinki, Helsinki, Finland
- University Of Oxford, Oxford, United Kingdom
- University Of Turku, Turku, Finland

### **Small and medium-sized enterprises (SMEs) and mid-sized companies (<€500 m turnover)**

- Lipotype, Dresden, Germany

### **Associated partners**

- JDRF International, New York, United States

### **Third parties**

- Apuliabiotech Societa Consortile Ar L, Bari, Italy
- The Leeds Teaching Hospitals National Health Service Trust, Leeds, United Kingdom
- Varsinais-Suomen Sairaanhoidopiirin Kuntayhtymä, Turku, Finland

| Number of serum creatinine tests flagged as AKI                                      | All patients<br>(N=16700) | T2DM<br>(N=9417 ) | Control<br>(N=7283) |
|--------------------------------------------------------------------------------------|---------------------------|-------------------|---------------------|
| Old algorithm ( retrospective tests)                                                 | 28306                     | 24257             | 4049                |
| SCr $\geq 1.5 \times$ median SCr 365 to 8 days prior to index                        | 20608                     | 17671             | 2937                |
| SCr $\geq 1.5 \times$ lowest SCr in the 7 days prior to index                        | 10170                     | 8536              | 1634                |
| SCr $> 26 \mu\text{mol/L}$ higher than lowest SCr in the 48 hrs prior to index.      | 12569                     | 10856             | 1713                |
| Modified algorithm (retrospective and prospective tests)                             | 40567                     | 34469             | 6098                |
| SCr $\geq 1.5 \times$ median SCr 365 to 8 days prior to index                        | 20608                     | 17671             | 2937                |
| SCr $\geq 1.5 \times$ lowest SCr in the 7 days prior/post index                      | 21205                     | 17782             | 3423                |
| SCr $> 26 \mu\text{mol/L}$ higher than lowest SCr in the 48 hrs prior/post to index. | 24577                     | 21220             | 3357                |
| SCr $\geq 1.5 \times$ median SCr 365 to 8 days post to index                         | 16156                     | 13662             | 2494                |

Table S1: Number of AKI cases identified using the NHS England algorithm and the modified algorithm broken down by the different criteria used in the definition of the AKI case.

|                                            | All patients (N=16700)<br>IRR (95% CI) | No CKD (N=11090) <sup>a</sup><br>IRR (95%CI) | CKD (N=5610) <sup>b</sup><br>IRR (95%) |
|--------------------------------------------|----------------------------------------|----------------------------------------------|----------------------------------------|
| T2DM vs Control                            | 3.54 (3.30-3.80)                       | 3.85 (3.44-4.32)                             | 2.01 (1.82-2.22)                       |
| Sex: Female vs Male                        | 0.98 (0.92-1.05)                       | 0.96 (0.87-1.07)                             | 0.92 (0.86-0.99)                       |
| Age at recruitment: (per 20 year increase) | 1.71(1.66-1.76)                        | 1.76 (1.67-1.84)                             | 1.21 (1.16-1.26)                       |
| Comorbidities at recruitment               |                                        |                                              |                                        |
| Coronary Artery Disease (CAD)              | 1.34 (1.24-1.45)                       | 1.28 (1.11-1.47)                             | 1.26 (1.16-1.38)                       |
| Congestive Heart Failure (CHF)             | 2.07 (1.80-2.39)                       | 2.24 (1.60-3.14)                             | 1.85 (1.61-2.13)                       |
| Peripheral Vascular Disease (PVD)          | 1.88 (1.63-2.17)                       | 2.37 (1.73-3.23)                             | 1.50 (1.30-1.72)                       |
| Cerebrovascular Disease (CD)               | 1.63 (1.43-1.85)                       | 1.76 (1.35-2.29)                             | 1.44 (1.26-1.64)                       |
| Hypertension:                              | 1.45 (1.34-1.56)                       | 1.41 (1.26-1.58)                             | 1.01 (0.91-1.12)                       |
| Liver Disease (CD)                         | 3.41 (2.60-4.49)                       | 4.58 (2.87-7.31)                             | 2.17 (1.59-2.96)                       |

<sup>a</sup> No CKD at recruitment or during follow-up

<sup>b</sup> CKD at recruitment or during follow-up

Table S2. AKI episode incidence rate ratios adjusted for sex, age and comorbidities at recruitment depending on CKD status.

| Patients' groups                | AKI patients<br>N (%) | Number of<br>AKI<br>episodes | AKI episodes per 1000 person-years |                       |                          |                        |
|---------------------------------|-----------------------|------------------------------|------------------------------------|-----------------------|--------------------------|------------------------|
|                                 |                       |                              | Un-adjusted                        |                       | Adjusted for age and sex |                        |
|                                 |                       |                              | Mean rate<br>(95%CI)               | Rate ratio<br>(95%CI) | Mean rate<br>(95% CI)    | Rate ratio<br>(95% CI) |
| All patients (N=16700)          | 2404 (14.4)           | 3295                         | 27.7 (26.3-29.2)                   | -                     | 25.5 (24.1-26.9)         | -                      |
| Control (N=7282)                | 436 (6.0)             | 543                          | 8.3 (7.6-9.2)                      | 1.0                   | 9.1 (8.2-10.0)           | 1.0                    |
| Type 2 diabetes (N=9417)        | 1968 (20.9)           | 2752                         | 43.5 (41.0-46.0)                   | 5.2 (4.7-5.8)         | 39.5 (37.1-42.0)         | 4.4 (3.9-4.9)          |
| No CKD (N=11090)                | 854 (7.7)             | 1083                         | 13.8 (12.6-15.2)                   | -                     | 16.3 (14.4-18.5)         | -                      |
| Control (N=6032)                | 195 (3.2)             | 228                          | 4.1 (3.6-4.8)                      | 1.0                   | 5.5 (4.7-6.5)            | 1.0                    |
| Type 2 diabetes (N=5058)        | 659 (13.0)            | 855                          | 26.2 (23.6-29.2)                   | 6.4 (5.3-7.6)         | 30.6 (26.7-35.0)         | 5.5 (4.6-6.6)          |
| CKD (N=5610)                    | 1550 (27.6)           | 2212                         | 55.7 (52.4-59.1)                   | -                     | 56.2 (51.8-61.0)         | -                      |
| Control (N=1251)                | 241 (19.3)            | 315                          | 32.1 (27.9-36.8)                   | 1.0                   | 29.7 (25.5-34.6)         | 1.0                    |
| Type 2 diabetes (N=4359)        | 1309 (30.0)           | 1897                         | 62.7 (58.7-66.9)                   | 2.0 (1.7-2.3)         | 62.8 (57.8-68.2)         | 2.1 (1.8-2.5)          |
| Prior to CKD diagnosis (N=2442) | 187 (7.7)             | 233                          | 22.6 (19.3-26.5)                   | -                     | 24.2 (19.7-29.7)         | -                      |
| Control (N=587)                 | 23 (3.9)              | 24                           | 8.8 (5.7-13.7)                     | 1.0                   | 9.6 (6.1-15.2)           | 1.0                    |
| Type 2 diabetes (N=1855)        | 164 (8.8)             | 209                          | 27.3 (23.1-32.3)                   | 3.1 (1.9-4.9)         | 29.6 (23.9-36.6)         | 3.1 (1.9-4.9)          |
| Post CKD diagnosis (N=5610)     | 1415 (25.2)           | 1979                         | 68.1 (63.9-72.7)                   | -                     | 69.9 (61.4-79.7)         | -                      |
| Control (N=1251)                | 224 (17.9)            | 291                          | 41.3 (35.6-47.8)                   | 1.0                   | 38.9 (32.2-47.1)         | 1.0                    |
| Type 2 diabetes (N=4359)        | 1201 (27.6)           | 1688                         | 75.9 (70.7-81.4)                   | 1.8 (1.6-2.2)         | 76.5 (67.2-87.2)         | 2.0 (1.7-2.3)          |

Table S3. Incidence rates of stage 2 and 3 AKI episode and rate ratios in the diabetic and non-diabetic groups depending on the CKD status.

| Patients' groups                | AKI patients<br>N (%) | Number of<br>AKI<br>episodes | AKI episodes per 1000 person-years |                       |                          |                        |
|---------------------------------|-----------------------|------------------------------|------------------------------------|-----------------------|--------------------------|------------------------|
|                                 |                       |                              | Un-adjusted                        |                       | Adjusted for age and sex |                        |
|                                 |                       |                              | Mean rate<br>(95%CI)               | Rate ratio<br>(95%CI) | Mean rate<br>(95% CI)    | Rate ratio<br>(95% CI) |
| All patients (N=16700)          | 3550                  | 6384                         | 58.4 (55.8-61.2)                   | -                     | 49.3 (46.9-51.7)         | -                      |
| Control (N=7283)                | 660                   | 974                          | 15.6 (14.5-16.9)                   | 1.0                   | 15.9 (14.6-17.2)         | 1.0                    |
| Type 2 diabetes (N=9417)        | 2890                  | 5410                         | 92.3 (87.6-97.2)                   | 5.9 (5.4-6.5)         | 77.9 (73.8-82.2)         | 4.9 (4.5-5.4)          |
| No CKD (N=11090)                | 1091                  | 1572                         | 21.5 (19.7-23.4)                   | -                     | 24.4 (21.8-27.3)         | -                      |
| Control (N=6032)                | 273                   | 350                          | 6.5 (5.7-7.4)                      | 1.0                   | 8.7 (7.5-10.0)           | 1.0                    |
| Type 2 diabetes (N=5058)        | 818                   | 1222                         | 40.7 (36.8-45.1)                   | 6.3 (5.4-7.4)         | 45.9 (40.5-52.1)         | 5.3 (4.5-5.4)          |
| CKD (N=5610)                    | 2459                  | 4812                         | 129.6 (123.3-136.1)                | -                     | 125.8 (117.3-134.9)      | -                      |
| Control (N=1251)                | 387                   | 1026                         | 67.5 (60.3-75.5)                   | 1.0                   | 59.2 (52.2-67.2)         | 1.0                    |
| Type 2 diabetes (N=4359)        | 2072                  | 3780                         | 147.5 (139.8-155.6)                | 2.2 (1.9-2.5)         | 141.8 (132.1-152.2)      | 2.4 (2.1-2.7)          |
| Prior to CKD diagnosis (N=2442) | 304                   | 422                          | 42.0 (36.9-47.8)                   | -                     | 41.9 (34.8-50.4)         | -                      |
| Control (N=587)                 | 40                    | 52                           | 19.9 (14.5-27.4)                   | 1.0                   | 20.8 (14.8-29.3)         | 1.0                    |
| Type 2 diabetes (N=1855)        | 264                   | 370                          | 49.4 (43.0-56.7)                   | 2.5 (1.8-3.5)         | 49.7 (41.0-60.4)         | 2.4 (1.7-3.4)          |
| Post CKD diagnosis (N=5610)     | 2296                  | 4390                         | 160.1 (152.0-168.6)                | -                     | 169.8 (152.9-188.6)      | -                      |
| Control (N=1251)                | 361                   | 974                          | 85.2 (75.6-96.1)                   | 1.0                   | 83.2 (71.4-97.1)         | 1.0                    |
| Type 2 diabetes (N=4359)        | 1935                  | 3410                         | 181.2 (171.2-191.7)                | 2.1 (1.9-2.4)         | 187.4 (168.8-207.9)      | 2.3 (2.0-2.6)          |

Table S4. AKI episode incidence rates and rate ratios for AKIs lasting more than 48hrs in the diabetic and non-diabetic groups depending on the CKD status.

| Patients' groups                | AKI patients<br>N (%) | Number of<br>AKI episodes | AKI episodes per 1000 person-years |                       |                          |                        |
|---------------------------------|-----------------------|---------------------------|------------------------------------|-----------------------|--------------------------|------------------------|
|                                 |                       |                           | Un-adjusted                        |                       | Adjusted for age and sex |                        |
|                                 |                       |                           | Mean rate<br>(95%CI)               | Rate ratio<br>(95%CI) | Mean rate<br>(95% CI)    | Rate ratio<br>(95% CI) |
| All patients (N=16700)          | 4620 (27.7)           | 4800                      | 32.6 (31.7-33.5)                   | -                     | 31.2 (30.2-32.3)         | -                      |
| Non diabetic (N=7283)           | 952 (13.1)            | 977                       | 13.9 (13.1-14.8)                   | 1.0                   | 15.9 (15.0-17.0)         | 1.0                    |
| Type II diabetes (N=9417)       | 3668 (39.0)           | 3823                      | 49.6 (48.0-51.2)                   | 3.6 (3.3-3.9)         | 44.5 (42.8-46.3)         | 2.8 (2.6-3.0)          |
| No CKD (N=11090)                | 1736 (15.7)           | 1782                      | 17.5 (16.7-18.3)                   | -                     | 22.0 (20.8-23.3)         | -                      |
| Non diabetic (N=6032)           | 481 (8.0)             | 495                       | 8.3 (7.6-9.1)                      | 1.0                   | 11.7 (10.7-12.8)         | 1.0                    |
| Type II diabetes (N=5058)       | 1255 (24.8)           | 1287                      | 30.4 (28.8-32.1)                   | 3.7 (3.3-4.0)         | 35.6 (33.3-38.1)         | 3.0 (2.7-3.4)          |
| CKD (N=5610)                    | 2884 (51.4)           | 3018                      | 66.2 (63.9-68.6)                   | -                     | 60.5 (57.2-64.1)         | -                      |
| Non diabetic (N=1251)           | 471 (37.6)            | 482                       | 44.5 (40.7-48.7)                   | 1.0                   | 36.6 (33.0-40.5)         | 1.0                    |
| Type II diabetes (N=4359)       | 2413 (55.4)           | 2536                      | 73.0 (70.2-75.8)                   | 1.6 (1.5-1.8)         | 67.0 (63.2-71.1)         | 1.8 (1.7-2.0)          |
| Prior to CKD diagnosis (N=2442) | 156 (6.4)             | 163                       | 15.1 (12.9-17.6)                   | -                     | 12.6 (9.5-16.7)          | -                      |
| Non diabetic (N=587)            | 25 (4.3)              | 26                        | 9.5 (6.4-13.9)                     | 1.0                   | 8.2 (5.2-12.8)           | 1.0                    |
| Type II diabetes (N=1855)       | 131 (7.1)             | 137                       | 17.0 (14.4-20.1)                   | 1.8 (1.2-2.7)         | 14.4 (10.7-19.4)         | 1.8 (1.1-2.7)          |
| Post CKD diagnosis (N=5610)     | 2744 (48.9)           | 2855                      | 88.2 (79.1-105.1)                  | -                     | 77.5 (71.5-84.1)         | -                      |
| Non diabetic (N=1251)           | 448 (35.8)            | 356                       | 56.4 (51.5-61.9)                   | 1.0                   | 48.6 (43.1-54.8)         | 1.0                    |
| Type II diabetes (N=4359)       | 2296 (53.7)           | 2399                      | 89.8 (86.3-93.5)                   | 1.6 (1.4-1.8)         | 84.5 (77.8-91.7)         | 1.7 (1.6-1.9)          |

Table S5. AKI episode incidence rates and rate ratios for AKIs during a hospital admission in the diabetic and non-diabetic groups depending on the CKD status.

| Model variable (Fixed Effects)          | No CKD at recruitment (N=9460; No Scr =222564) |         |                                    |         |                        |         |
|-----------------------------------------|------------------------------------------------|---------|------------------------------------|---------|------------------------|---------|
|                                         | T2D (N=4618; No SCr=147698)                    |         | No diabetes (N=4842; No SCr=74866) |         | Difference             |         |
|                                         | Estimate                                       | P-value | Estimate                           | P-value | Estimate               | P-value |
| Reference group*: intercept             | 103.69 (102.65 to 104.72)                      | <0.001  | 98.38 (97.66 to 99.10)             | <0.001  | 5.30 (4.04 to 6.56)    | <0.001  |
| Time: slope per 1year                   | -0.20 (-0.33 to -0.07)                         | <0.001  | -0.33 (-0.42 to -0.23)             | <0.001  | 0.13 (-0.03 to 0.29)   | 0.123   |
| AKI intercept: pre AKI vs no AKI        | -1.03 (-1.73 to -0.32)                         | 0.004   | -1.98 (-3.08 to -0.88)             | <0.001  | 0.95 (-0.35 to 2.26)   | 0.152   |
| post AKI vs pre AKI                     | 2.68 (0.81 to 4.55)                            | 0.005   | 5.20 (1.86 to 8.54)                | 0.002   | -2.52 (-6.35 to 1.31)  | 0.197   |
| AKI slope : pre AKI vs no AKI           | -1.14 (-1.24 to -1.03)                         | <0.001  | -0.29 (-0.46 to -0.11)             | 0.001   | -0.85 (-1.05 to -0.65) | <0.001  |
| post AKI vs pre AKI                     | -0.29 (-0.59 to 0.01)                          | 0.056   | -0.55 (-1.08 to -0.03)             | 0.038   | 0.26 (-0.34 to 0.86)   | 0.396   |
| Sex intercept only: M vs F              | 1.32 (0.7 to 1.94)                             | <0.001  | -1.04 (-1.65 to -0.42)             | 0.001   | 2.36 (1.48 to 3.24)    | <0.001  |
| Age intercept: 50 to 64 vs 49 and under | -12.85 (-13.87 to -11.84)                      | <0.001  | -9.5 (-10.33 to -8.66)             | <0.001  | -3.36 (-4.68 to -2.04) | <0.001  |
| 65 to 79 vs 49 and under                | -23.71 (-24.74 to -22.68)                      | <0.001  | -18.73 (-19.67 to -17.8)           | <0.001  | -4.98 (-6.38 to -3.59) | <0.001  |
| 80 and above vs 49 and under            | -29.09 (-30.97 to -27.21)                      | <0.001  | -25.80 (-27.5 to -24.11)           | <0.001  | -3.29 (-5.82 to -0.76) | 0.011   |
| Age slope: 50 to 64 vs 49 and under     | -0.32 (-0.46 to -0.18)                         | <0.001  | 0.05 (-0.06 to 0.17)               | 0.362   | -0.38 (-0.56 to -0.2)  | <0.001  |
| 65 to 79 vs 49 and under                | -0.37 (-0.51 to -0.23)                         | <0.001  | -0.04 (-0.17 to 0.09)              | 0.549   | -0.33 (-0.52 to -0.14) | <0.001  |
| 80 and above vs 49 and under            | 0.01 (-0.28 to 0.3)                            | 0.925   | -0.17 (-0.42 to 0.07)              | 0.162   | 0.19 (-0.19 to 0.56)   | 0.331   |
| Coronary Artery Disease: intercept      | -1.02 (-1.83 to -0.21)                         | 0.013   | -0.29 (-1.37 to 0.8)               | 0.607   | -0.73 (-2.09 to 0.62)  | 0.288   |
| Congestive Heart Failure: intercept     | -2.05 (-4.23 to 0.13)                          | 0.066   | 0.78 (-3.3 to 4.85)                | 0.71    | -2.83 (-7.45 to 1.8)   | 0.231   |
| Peripheral Vascular Disease: intercept  | -0.07 (-2.15 to 2.01)                          | 0.948   | -2.04 (-5.44 to 1.36)              | 0.24    | 1.97 (-2.02 to 5.96)   | 0.332   |
| Peripheral Vascular Disease: slope      | -0.73 (-1.03 to -0.42)                         | <0.001  | -0.13 (-0.61 to 0.34)              | 0.584   | -0.59 (-1.16 to -0.03) | 0.04    |
| Cerebrovascular Disease: intercept      | -2.34 (-3.96 to -0.72)                         | 0.005   | 0.12 (-2.78 to 3.01)               | 0.937   | -2.45 (-5.77 to 0.86)  | 0.147   |
| Hypertension: intercept                 | -1.64 (-2.35 to -0.93)                         | <0.001  | -1.05 (-1.77 to -0.33)             | 0.004   | -0.59 (-1.6 to 0.42)   | 0.251   |
| Hypertension: slope                     | -0.19 (-0.29 to -0.09)                         | <0.001  | 0.01 (-0.08 to 0.11)               | 0.786   | -0.21 (-0.34 to -0.07) | 0.004   |

\*Reference group includes: No AKI during follow-up, female, 49 and below, no cardiovascular disease

Table S6: Parameter estimates of the longitudinal eGFR data analysis for people with and without T2D and no CKD at recruitment.

| Model variable (Fixed Effects)           | CKD at recruitment (N=1432; No Scr =56827) |         |                                   |         |                        |         |
|------------------------------------------|--------------------------------------------|---------|-----------------------------------|---------|------------------------|---------|
|                                          | T2D (N=1047; No SCr=44299)                 |         | No diabetes (N=385; No SCr=12528) |         | Difference             |         |
|                                          | Estimate                                   | P-value | Estimate                          | P-value | Estimate               | P-value |
| Reference group <sup>a</sup> : intercept | 59.63 (56.53 to 62.74)                     | <0.001  | 63.99 (58.63 to 69.35)            | <0.001  | -4.35 (-10.55 to 1.84) | 0.168   |
| Time: slope per 1year                    | -0.71 (-1.12 to -0.30)                     | <0.001  | 0.01 (-0.81 to 0.82)              | 0.99    | -0.71 (-0.20 to 1.63)  | 0.125   |
| AKI intercept: pre AKI vs no AKI         | -3.85 (-5.27 to -2.43)                     | <0.001  | -0.99 (-3.45 to -1.46)            | 0.427   | -2.85 (-5.59 to -0.02) | 0.049   |
| post AKI vs pre AKI                      | 2.29 (-0.15 to 4.74)                       | 0.066   | 9.08 (4.35 to 13.8)               | <0.001  | -6.78 (-12.1 to -1.46) | 0.013   |
| AKI slope : pre AKI vs no AKI            | -0.79 (-1.05 to -0.52)                     | <0.001  | -0.4 (-0.85 to 0.05)              | 0.079   | -0.38 (-0.90 to 0.14)  | 0.148   |
| post AKI vs pre AKI                      | 0.23 (-0.24 to 0.71)                       | 0.329   | -0.84 (-1.73 to 0.06)             | 0.066   | 1.07 (0.06 to 2.08)    | 0.038   |
| Sex intercept only: M vs F               | -0.64 (-2.06 to 0.79)                      | 0.381   | -2.13 (-4.49 to 0.23)             | 0.076   | 1.5 (-1.26 to 4.25)    | 0.287   |
| Age intercept: 49 and under vs 50 to 64  | -9.11 (-19.6 to 1.38)                      | 0.089   | -                                 | -       | -                      | -       |
| 65 to 79 vs 50 to 64                     | -4.91 (-7.33 to -2.49)                     | <0.001  | -4.78 (-9.85 to 0.3)              | 0.065   | -0.13 (-5.75 to 5.49)  | 0.963   |
| 80 and above vs 50 to 64                 | -8.17 (-10.82 to -5.52)                    | <0.001  | -9.04 (-14.29 to -3.79)           | <0.001  | 0.87 (-5.02 to 6.75)   | 0.772   |
| Age slope: 49 and under vs 50 to 64      | 1 (-0.88 to 2.88)                          | 0.297   | -                                 | -       | -                      | -       |
| 65 to 79 vs 50 to 64                     | 0.37 (-0.05 to 0.79)                       | 0.085   | -0.09 (-0.95 to 0.76)             | 0.831   | 0.46 (-0.49 to 1.42)   | 0.339   |
| 80 and above vs 50 to 64                 | 0.58 (0.11 to 1.05)                        | 0.017   | 0.06 (-0.83 to 0.95)              | 0.892   | 0.51 (-0.49 to 1.52)   | 0.316   |
| Coronary Artery Disease: intercept       | 0.04 (-1.64 to 1.72)                       | 0.962   | 1.42 (-1.56 to 4.39)              | 0.35    | -1.38 (-4.79 to 2.04)  | 0.429   |
| Congestive Heart Failure: intercept      | 1.48 (-2.02 to 4.99)                       | 0.407   | -5.5 (-14.56 to 3.57)             | 0.235   | 6.98 (-2.74 to 16.7)   | 0.159   |
| Congestive Heart Failure: slope          | -0.86 (-1.49 to -0.22)                     | 0.008   | 0.01 (-1.62 to 1.63)              | 0.996   | -0.86 (-2.61 to 0.88)  | 0.332   |
| Peripheral Vascular Disease: intercept   | -3.83 (-7.37 to -0.29)                     | 0.034   | -0.62 (-7.57 to 6.33)             | 0.863   | -3.21 (-11.01 to 4.59) | 0.419   |
| Peripheral Vascular Disease: slope       | 0.14 (-0.55 to 0.83)                       | 0.697   | 0.64 (-0.58 to 1.87)              | 0.304   | -0.5 (-1.91 to 0.9)    | 0.481   |
| Cerebrovascular Disease: intercept       | -0.78 (-3.4 to 1.83)                       | 0.556   | -0.28 (-5.09 to 4.54)             | 0.911   | -0.51 (-5.99 to 4.97)  | 0.855   |
| Cerebrovascular Disease: slope           | -0.12 (-0.6 to 0.36)                       | 0.62    | -0.7 (-1.6 to 0.2)                | 0.128   | 0.58 (-0.44 to 1.59)   | 0.266   |
| Hypertension: intercept                  | 0.99 (-1.2 to 3.18)                        | 0.377   | -4.61 (-7.86 to -1.35)            | 0.006   | 5.59 (1.67 to 9.52)    | 0.005   |

\*Reference group includes: No AKI during follow-up, female, 50 to 64, no cardiovascular disease

Table S7: Parameter estimates of the longitudinal eGFR data analysis for people with and without T2D and no CKD at recruitment.

**Figure S1:** Identifying AKI episodes (red circles) from longitudinal serum creatinine test (a1-d1). The different trajectories of AKI episodes (red) during the course of the disease (a2-d2) ranging from rapid recovery within seven days (a2) to longer recovery more than seven days and/or multiple AKI insults leading to AKD (b2-c2), or irreversible AKI leading to AKD and CKD (d2). Cleaning of the eGFR longitudinal data to ascertain CKD status (a3-d3): first AKI flagged eGFR values are removed (red circles), then median eGFR is calculated based on the remaining eGFR values (black line), which is used to determine the date of CKD onset.

