SUPPLEMENTAL MATERIAL
| Condition                        | ICD-9-CM Codes | ICD-10-CM Codes | HCPCS/ CPT codes | Subgroup | Accuracy of codes (Validation study) |
|---------------------------------|----------------|----------------|------------------|----------|-------------------------------------|
| MI                              | 410.xx         | I20.xx, I21.xx  |                  | CVD      | Specificity >93%; Sensitivity >86%  |
|                                 |                |                |                  |          | [McCormick, 2014]                   |
|                                 |                |                |                  |          | PPV >94%                            |
|                                 |                |                |                  |          | [Kiyota 2004]                       |
| Cerebrovascular diseases        | 430.xx, 431.xx, 433.xx, 434.xx, 436.xx, 437.xx, 438.xx | I60.xx, I61.xx, I63.xx, I67.xx, I69.xxx |                  | CVD      | PPV 76%, sensitivity 68%            |
|                                 |                |                |                  |          | [Jones, 2014]                       |
|                                 |                |                |                  |          | Specificity >95%, Sensitivity >82%  |
|                                 |                |                |                  |          | [McCormick, 2015]                   |
| Ischemic heart diseases         | 411.xx, 414.xx | I24.xxx, I25.xxx |                  | CVD      | Specificity 96%, PPV 96%, Sensitivity 57% |
|                                 |                |                |                  |          | [Birman-Deych, 2005]                |
| Angina                          | 413.0, 413.9   | I20.0, I20.8, I20.9 |                | CVD      |                                      |
|                                 |                |                |                  |          |                                      |
| Atherosclerosis                 | 440.xx, 441.xx | I70.xx, I71.xx  |                  | CVD      |                                      |
|                                 |                |                |                  |          |                                      |
| Peripheral vascular diseases    | 443.9, 249.70, 249.71, 250.70, 250.71, 250.72, 250.73 | I739, E115.x, E105.x, E085.x, E095.x, E135.x | 27295, 27590, 27591, 27592, 27594, 27596, 27598, 27599, 27880, 27881, 27882, 27888, 27889, 28800, 28805 | CVD | Community-based sample: Specificity: 92.0 (86.1 to 95.9), Sensitivity: 38.7 (27.6 to 50.6) |
|                                 |                |                |                  |          | Vascular laboratory sample:          |
Heart failure
428.xx, 398.91, 402.x1, 402.x3, 404.x1, 404.x3
I09.9, I11.0, I50.x
CHF
Specificity: 99%, [Birman-Deych, 2005], PPV 93% [Ezekowitz, 2008], sensitivity = 80.0% (67.0 - 90.0); specificity = 97.8% (93.8 - 99.6);

Specificity: 89.3 (88.6 to 90.0), Sensitivity: 76.9 (76.2 to 77.6) [Fan et al., 2013]
Cardiomyopathy  425.xx  I42.xx, I43.xx  CHF

PPV: 93.6%
[Go, 2006]
Table S2. Distribution of drug classes by exposure drugs of interest

| Drug classes                          | Frequency | Percent |
|---------------------------------------|-----------|---------|
| **SGLT2i**                            |           |         |
| CANAGLIFLOZIN                         | 20273     | 30.58   |
| EMPAGLIFLOZIN                         | 6543      | 9.87    |
| DAPAGLIFLOZIN                         | 4588      | 6.92    |
| LINAGLIPTIN AND EMPAGLIFLOZIN         | 390       | 0.59    |
| METFORMIN AND CANAGLIFLOZIN           | 1225      | 1.85    |
| METFORMIN AND DAPAGLIFLOZIN           | 307       | 0.46    |
| METFORMIN AND EMPAGLIFLOZIN           | 182       | 0.27    |
| **GLP-1RA**                           |           |         |
| LIRAGLUTIDE                           | 18265     | 27.55   |
| DULAGLUTIDE                           | 7293      | 11.00   |
| EXENATIDE                             | 6373      | 9.61    |
| ALBIGLUTIDE                           | 680       | 1.03    |
| INSULIN DEGLUDEC AND LIRAGLUTIDE      | 31        | 0.05    |
| INSULIN GLARGINE AND LIXISENATIDE     | 126       | 0.19    |
| Multiple                              | 16        | 0.02    |
| Condition                                      | ICD-9-CM Codes | ICD-10-CM Codes | Positions          | Setting | Accuracy of codes (Validation study) |
|-----------------------------------------------|----------------|----------------|--------------------|---------|--------------------------------------|
| Myocardial infarction                         | 410.xx         | I20.xx, I21.xx  | Primary or secondary | Inpatient | Specificity >93%; Sensitivity >86% [McCormick, 2014] PPV >94% [Kiyota 2004] |
| Cerebrovascular diseases or stroke            | 430.xx, 431.xx, 433.xx, 434.xx, 436.xx | I60.xx, I61.xx, I63.xx-, I67.xx, I69.xxx | Primary or secondary | Inpatient | PPV 76%, sensitivity 68% [Jones, 2014] Specificity >95%, Sensitivity >82% [McCormick, 2015] |
| Heart failure (primary definition)            | 428.xx         | I09.9, I11.0, I50.x | Primary or secondary | Inpatient | Specificity: 99%, PPV 93% [Ezekowitz, 2008], sensitivity = 80.0% (67.0 - 90.0); specificity = 97.8% (93.8 - 99.6); PPV: 93.6% [So, 2006] |
| Heart failure (secondary definition)          | 428.xx, 398.91, 402.x1, 402.x3, 404.x1, 404.x3 | I09.9, I11.0, I50.x | Primary or secondary | Inpatient | Specificity: 99%, PPV 93% [Ezekowitz, 2008], sensitivity = 80.0% (67.0 - 90.0); specificity = 97.8% (93.8 - 99.6); PPV: 93.6% [So, 2006] |
### Table S4. Codes used to define primary outcome of heart failure hospitalization

| Code type          | Codes   | Description                                                      |
|--------------------|---------|------------------------------------------------------------------|
| ICD-9-CM diagnosis | 428     | Heart Failure                                                    |
| ICD-9-CM diagnosis | 4280    | Congestive heart Failure not otherwise specified (NOS)           |
| ICD-9-CM diagnosis | 4281    | Left Heart Failure                                               |
| ICD-9-CM diagnosis | 42820   | Systolic Heart Failure NOS                                       |
| ICD-9-CM diagnosis | 42821   | Acute Systolic Heart Failure                                     |
| ICD-9-CM diagnosis | 42822   | Chronic Systolic Heart Failure                                   |
| ICD-9-CM diagnosis | 42823   | Acute on Chronic Systolic Heart Failure                          |
| ICD-9-CM diagnosis | 42830   | Diastolic Heart Failure NOS                                      |
| ICD-9-CM diagnosis | 42831   | Acute Diastolic Heart Failure                                    |
| ICD-9-CM diagnosis | 42832   | Chronic Diastolic Heart Failure                                  |
| ICD-9-CM diagnosis | 42833   | Acute on Chronic Diastolic Heart Failure                         |
| ICD-9-CM diagnosis | 42840   | Systolic/Diastolic Heart Failure NOS                             |
| ICD-9-CM diagnosis | 42841   | Acute Systolic/Diastolic Heart Failure                           |
| ICD-9-CM diagnosis | 42842   | Chronic Systolic/Diastolic Heart Failure                         |
| ICD-9-CM diagnosis | 42843   | Acute/Chronic Systolic/Diastolic Heart Failure                   |
| ICD-9-CM diagnosis | 4289    | Heart Failure NOS                                                |
| ICD-10-CM diagnosis| I50     | Heart Failure                                                    |
| ICD-10-CM diagnosis| I501    | Left ventricular Failure                                         |
| ICD-10-CM diagnosis| I502    | Systolic (congestive) heart Failure                              |
| ICD-10-CM diagnosis| I5020   | Unspecified Systolic (congestive) heart Failure                  |
| ICD-10-CM diagnosis| I5021   | Acute Systolic (congestive) heart Failure                        |
| ICD-10-CM diagnosis| I5022   | Chronic Systolic (congestive) heart Failure                      |
| ICD-10-CM diagnosis| I5023   | Acute on chronic Systolic (congestive) heart failure             |
| ICD-10-CM diagnosis| I503    | Diastolic (congestive) heart Failure                             |
| ICD-10-CM diagnosis| I5030   | Unspecified diastolic (congestive) heart Failure                 |
| ICD-10-CM diagnosis| I5031   | Acute diastolic (congestive) heart Failure                       |
| ICD-10-CM diagnosis | Code   | Description                                      |
|---------------------|--------|--------------------------------------------------|
| Chronic diastolic (congestive) heart failure | I5032  |                                                 |
| Acute on chronic diastolic (congestive) heart failure | I5033  |                                                 |
| Combined systolic and diastolic (congestive) heart failure | I504   |                                                 |
| Unspecific combined systolic and diastolic (congestive) | I5040  |                                                 |
| Acute combined systolic and diastolic (congestive) | I5041  |                                                 |
| Chronic combined systolic and diastolic heart failure | I5042  |                                                 |
| Acute on chronic combined systolic and diastolic heart failure | I5043  |                                                 |
| Heart failure, unspecified | I509   |                                                 |
| Code   | Code type          | Description                                                                 |
|--------|--------------------|-----------------------------------------------------------------------------|
| 41000  | ICD-9-CM diagnosis | Acute myocardial infarction (AMI) anterolateral, unspecified                 |
| 41001  | ICD-9-CM diagnosis | Acute myocardial infarction (AMI) anterolateral, initial                    |
| 41002  | ICD-9-CM diagnosis | Acute myocardial infarction (AMI) anterolateral, subsequent                 |
| 41010  | ICD-9-CM diagnosis | AMI anterior wall, unspecified                                              |
| 41011  | ICD-9-CM diagnosis | AMI anterior wall, initial                                                  |
| 41012  | ICD-9-CM diagnosis | AMI anterior wall, subsequent                                               |
| 41020  | ICD-9-CM diagnosis | AMI inferolateral, unspecified                                              |
| 41021  | ICD-9-CM diagnosis | Acute myocardial infarction (AMI) inferolateral, initial                    |
| 41022  | ICD-9-CM diagnosis | AMI inferolateral, subsequent                                               |
| 41030  | ICD-9-CM diagnosis | AMI inferoposterial, unspecified                                             |
| 41031  | ICD-9-CM diagnosis | AMI inferoposterial, initial                                                 |
| 41032  | ICD-9-CM diagnosis | AMI inferoposterial, subsequent                                              |
| 41040  | ICD-9-CM diagnosis | AMI inferior wall, unspecified                                               |
| 41041  | ICD-9-CM diagnosis | AMI inferior wall, initial                                                   |
| 41042  | ICD-9-CM diagnosis | AMI INFERIOR WALL, subsequent                                               |
| 41050  | ICD-9-CM diagnosis | AMI lateral, unspecified                                                    |
| 41051  | ICD-9-CM diagnosis | AMI lateral, initial                                                        |
| 41052  | ICD-9-CM diagnosis | AMI LATERAL NEC, subsequent                                                 |
| 41060  | ICD-9-CM diagnosis | True posterior wall infarction episode of care unspecified                   |
| 41061  | ICD-9-CM diagnosis | True posterior wall infarction; initial episode of care                      |
| 41062  | ICD-9-CM diagnosis | True posterior wall infarction; subsequent episode of care                   |
| 41070  | ICD-9-CM diagnosis | Subendocardial infarction, episode of care unspecified                      |
| 41071  | ICD-9-CM diagnosis | Subendocardial infarction, initial episode of care                          |
| 41072  | ICD-9-CM diagnosis | Subendocardial infarction, subsequent episode of care                       |
| 41080  | ICD-9-CM diagnosis | Of other specified sites, episode of care unspecified                        |
| 41081  | ICD-9-CM diagnosis | Of other specified sites, initial episode of care                            |
| 41082  | ICD-9-CM diagnosis | Of other specified sites, subsequent episode of care                         |
| Code   | ICD-9-CM diagnosis | Description                                                                 |
|--------|--------------------|-----------------------------------------------------------------------------|
| 41090  | ICD-9-CM diagnosis | Unspecified site, episode of care                                          |
| 41091  | ICD-9-CM diagnosis | Unspecified site, initial episode of care                                   |
| 41092  | ICD-9-CM diagnosis | Unspecified site, subsequent episode of care                               |
| I21    | ICD-10-CM diagnosis| STEMI & NSTEMI                                                              |
| I210   | ICD-10-CM diagnosis| ST elevation (STEMI) myocardial infarction of anterior wall                 |
| I2101  | ICD-10-CM diagnosis| STEMI involving left main coronary artery                                  |
| I2102  | ICD-10-CM diagnosis| STEMI involving left anterior descending coronary artery                    |
| I2109  | ICD-10-CM diagnosis| STEMI involving other coronary artery of anterior wall                      |
| I211   | ICD-10-CM diagnosis| ST elevation (STEMI) myocardial infarction of inferior wall                 |
| I2111  | ICD-10-CM diagnosis| STEMI involving right coronary artery                                      |
| I2119  | ICD-10-CM diagnosis| STEMI involving other coronary artery of inferior wall                      |
| I212   | ICD-10-CM diagnosis| ST elevation (STEMI) myocardial infarction of other sites                  |
| I2121  | ICD-10-CM diagnosis| STEMI involving left circumflex coronary artery                             |
| I2129  | ICD-10-CM diagnosis| STEMI involving other sites                                                 |
| I213   | ICD-10-CM diagnosis| ST elevation (NSTEMI) myocardial infarction of Unspecified site            |
| I214   | ICD-10-CM diagnosis| ST elevation (NSTEMI) myocardial infarction                                |
| I22    | ICD-10-CM diagnosis| Subsequent STEMI & NSTEMI                                                   |
| I220   | ICD-10-CM diagnosis| Subsequent STEMI of anterior wall                                           |
| I221   | ICD-10-CM diagnosis| Subsequent STEMI of inferior wall                                          |
| I222   | ICD-10-CM diagnosis| ST elevation (NSTEMI) myocardial infarction                                |
| I228   | ICD-10-CM diagnosis| Subsequent STEMI of sites                                                  |
| I229   | ICD-10-CM diagnosis| Subsequent STEMI of Unspecified site                                       |
| Codes   | Description                                           | Code type |
|---------|-------------------------------------------------------|-----------|
| 92920   | Angioplasty, single vessel                            | CPT       |
| 92921   | Angioplasty, additional branch                        | CPT       |
| 92924   | Atherectomy, single vessel                            | CPT       |
| 92925   | Atherectomy, additional branch                        | CPT       |
| 92928   | Stent, single vessel                                  | CPT       |
| 92929   | Stent, additional branch                              | CPT       |
| 92933   | Atherectomy + stent, single vessel                    | CPT       |
| 92934   | Atherectomy + stent, additional branch                | CPT       |
| 92937   | PCI of or through bypass, any method(s)               | CPT       |
| 92938   | PCI of or through bypass, additional branch           | CPT       |
| 92941   | PCI of acute MI, all interventions, single vessel      | CPT       |
| 92943   | PCI of chronic total occlusion, any method(s)          | CPT       |
| 92944   | PCI of chronic total occlusion, additional branch      | CPT       |
| 92973   | Percutaneous coronary thrombectomy, mechanical         | CPT       |
| 92975   | Thrombolysis, coronary, by intracoronary infusion      | CPT       |
| 92977   | Thrombolysis, coronary, by intravenous infusion        | CPT       |
| 33508   | Endoscopy, surgical, including video-assisted harvest of vein(s) for coronary artery bypass procedure (List separately in addition to code for primary procedure) | CPT |
| 33510   | Coronary artery bypass, vein only; single coronary venous graft | CPT |
| 33511   | Coronary artery bypass, vein only; 2 coronary venous grafts | CPT |
| 33512   | Coronary artery bypass, vein only; 3 coronary venous grafts | CPT |
| 33513   | Coronary artery bypass, vein only; 4 coronary venous grafts | CPT |
| 33514   | Coronary artery bypass, vein only; 5 coronary venous grafts | CPT |
| Code   | Description                                                                                                                                  | CPT |
|--------|----------------------------------------------------------------------------------------------------------------------------------------------|-----|
| 33516  | Coronary artery bypass, vein only; 6 or more coronary venous grafts                                                                         |     |
| 33517  | Coronary artery bypass, using venous graft(s) and arterial graft(s); single vein graft (list separately in addition to code for primary procedure) |     |
| 33518  | Coronary artery bypass, using venous graft(s) and arterial graft(s); 2 venous grafts (list separately in addition to code for primary procedure)  |     |
| 33519  | Coronary artery bypass, using venous graft(s) and arterial graft(s); 3 venous grafts (list separately in addition to code for primary procedure)  |     |
| 33520  | Coronary Artery Bypass, Nonautogenous Graft (eg, Synthetic Or Cadaver); Single Graft                                                          |     |
| 33521  | Coronary artery bypass, using venous graft(s) and arterial graft(s); 4 venous grafts (list separately in addition to code for primary procedure)  |     |
| 33522  | Coronary artery bypass, using venous graft(s) and arterial graft(s); 5 venous grafts (list separately in addition to code for primary procedure)  |     |
| 33523  | Coronary artery bypass, using venous graft(s) and arterial graft(s); 6 or more venous grafts (list separately in addition to code for primary procedure) |     |
| 33525  | Coronary Artery Bypass, Nonautogenous Graft (eg, Synthetic Or Cadaver); Two Coronary Grafts                                                   |     |
| 33528  | Coronary Artery Bypass, Nonautogenous Graft (eg, Synthetic Or Cadaver); Three Or More Coronary Grafts                                         |     |
| 33530  | Reoperation, coronary artery bypass procedure or valve procedure, more than 1 month after original operation (List                           |     |
| Code | Description                                                                 | Code Type |
|------|-----------------------------------------------------------------------------|-----------|
| 33533 | Coronary artery bypass, using arterial graft(s); single arterial graft       | CPT       |
| 33534 | Coronary artery bypass, using arterial graft(s); 2 coronary arterial grafts | CPT       |
| 33535 | Coronary artery bypass, using arterial graft(s); 3 coronary arterial grafts | CPT       |
| 33536 | Coronary artery bypass, using arterial graft(s); 4 or more coronary arterial grafts | CPT |
| 35600 | Harvest of upper extremity artery, 1 segment, for coronary artery bypass procedure (list separately in addition to code for primary procedure) | CPT |
| 33572 | Coronary endarterectomy, open, any method, of left anterior descending, circumflex, or right coronary artery performed in conjunction with coronary artery bypass graft procedure, each vessel (List separately in addition to code for primary procedure) | CPT |
| 00566 | Anesthesia for direct coronary artery bypass grafting; without pump oxygenator | CPT      |
| 00567 | Anesthesia for direct coronary artery bypass grafting; with pump oxygenator  | CPT       |
| 35500 | Harvest of upper extremity vein, 1 segment, for lower extremity or coronary artery bypass procedure (List separately in addition to code for primary procedure) | CPT      |
| 4110F | Internal mammary artery graft performed for primary, isolated coronary artery bypass graft procedure (CABG) | CPT |
| C9600 | Drug eluting stent, single vessel                                           | HCPCS     |
| C9601 | Drug eluting stent, additional branch                                        | HCPCS     |
| C9602 | Atherectomy + drug eluting stent, single vessel                             | HCPCS     |
| C9603 | Atherectomy + drug eluting stent, additional branch                         | HCPCS     |
| Code   | Description                                                                 | HCPCS  |
|--------|------------------------------------------------------------------------------|--------|
| C9604  | PCI of or through bypass, any method(s), with drug-eluting stent             |        |
| C9605  | PCI of or through bypass, any method(s), with drug-eluting stent, additional branch |        |
| C9606  | PCI of acute MI, all interventions, with drug-eluting stent, single vessel   |        |
| C9607  | PCI of chronic total occlusion, any method(s), with drug-eluting stent       |        |
| C9608  | PCI of chronic total occlusion, any method(s), with drug-eluting stent, additional branch |        |
| G8497  | All quality actions for the applicable measures in the coronary artery bypass graft (CABG) measures group have been performed for this patient |        |
| S2208  | Minimally invasive direct coronary artery bypass surgery involving mini-thoracotomy or mini-sternotomy surgery, performed under direct vision; using single arterial and venous graft(s), single venous graft |        |
| S2207  | Minimally invasive direct coronary artery bypass surgery involving mini-thoracotomy or mini-sternotomy surgery, performed under direct vision; using venous graft only, single coronary venous graft |        |
| S2209  | Minimally invasive direct coronary artery bypass surgery involving mini-thoracotomy or mini-sternotomy surgery, performed under direct vision; using two arterial grafts and single venous graft |        |
| S2205  | Minimally invasive direct coronary artery bypass surgery involving mini-thoracotomy or mini-sternotomy surgery, performed under direct vision; using arterial graft(s), single coronary arterial graft |        |
| S2206  | Minimally invasive direct coronary artery bypass surgery involving mini-thoracotomy or mini-sternotomy surgery, performed under direct vision; |        |
| Code   | Description                                                                 | Coding System       |
|--------|-----------------------------------------------------------------------------|---------------------|
| G8159  | Patient documented to have received coronary artery bypass graft without use of internal mammary artery | HCPCS               |
| G8158  | Patient documented to have received coronary artery bypass graft with use of internal mammary artery | HCPCS               |
| G8171  | Patient with isolated coronary artery bypass graft not documented to have been discharged on aspirin or clopidogrel | HCPCS               |
| G8170  | Patient with isolated coronary artery bypass graft documented to have been discharged on aspirin or clopidogrel | HCPCS               |
| G8164  | Patient with isolated coronary artery bypass graft documented to have prolonged intubation | HCPCS               |
| G8161  | Patient with isolated coronary artery bypass graft documented to have received pre-operative beta-blockade | HCPCS               |
| G8166  | Patient with isolated coronary artery bypass graft documented to have required surgical re-exploration | HCPCS               |
| G8162  | Patient with isolated coronary artery bypass graft not documented to have received preoperative beta-blockade | HCPCS               |
| G8165  | Patient with isolated coronary artery bypass graft not documented to have prolonged intubation | HCPCS               |
| G8167  | Patient with isolated coronary artery bypass graft did not require surgical re-exploration | HCPCS               |
| 36.03  | Open chest coronary artery angioplasty                                       | ICD-9-CM procedure  |
| 36.04  | Intracoronary artery thrombolytic infusion                                   | ICD-9-CM procedure  |
| 36.06  | Insertion of non-drug-eluting coronary artery stent(s)                       | ICD-9-CM procedure  |
| 36.07  | Insertion of drug-eluting coronary artery stent(s)                           | ICD-9-CM procedure  |
| 36.09  | Other coronary angioplasty - Other removal of coronary artery obstruction   | ICD-9-CM procedure  |
| Code   | Description                                                                 | Procedure Code     |
|--------|-----------------------------------------------------------------------------|--------------------|
| 36.10  | Aortocoronary bypass for heart revascularization, not otherwise specified   | ICD-9-CM procedure |
| 36.11  | (Aorto)coronary bypass of one coronary artery                               | ICD-9-CM procedure |
| 36.12  | (Aorto)coronary bypass of two coronary arteries                             | ICD-9-CM procedure |
| 36.13  | (Aorto)coronary bypass of three coronary arteries                           | ICD-9-CM procedure |
| 36.14  | (Aorto)coronary bypass of four or more coronary arteries                    | ICD-9-CM procedure |
| 36.15  | Single internal mammary-coronary artery bypass                             | ICD-9-CM procedure |
| 36.16  | Double internal mammary-coronary artery bypass                             | ICD-9-CM procedure |
| 36.17  | Abdominal - coronary artery bypass                                          | ICD-9-CM procedure |
| 36.19  | Other bypass anastomosis for heart revascularization                        | ICD-9-CM procedure |
| 36.2   | Heart revascularization by arterial implant                                 | ICD-9-CM procedure |
| 36.31  | Open chest transmyocardial revascularization                               | ICD-9-CM procedure |
| 36.32  | Other transmyocardial revascularization                                    | ICD-9-CM procedure |
| 36.33  | Endoscopic transmyocardial revascularation                                  | ICD-9-CM procedure |
| 36.34  | Percutaneous transmyocardial revascularation                               | ICD-9-CM procedure |
| 36.39  | Other heart revascularization                                              | ICD-9-CM procedure |
| 00.66  | Percutaneous transluminal coronary angioplasty [PTCA] or coronary atherectomy| ICD-9-CM procedure |
| 0210xxx| Bypass Coronary Artery, One Artery                                         | ICD-10-CM procedure |
| 0211xxx| Bypass Coronary Artery, Two Arteries                                       | ICD-10-CM procedure |
| 0212xxx| Bypass Coronary Artery, Three Arteries                                     | ICD-10-CM procedure |
| 0213xxx| Bypass Coronary Artery, Four or More Arteries                              | ICD-10-CM procedure |
Table S7. Distributions of baseline characteristics after propensity score weighting to balance covariates between cohorts in the total study population

| Characteristic                                      | SGLT2i N=24,747 (%) | GLP-1RA N=22,596 (%) | Total N=47,343 | Absolute Standardized Mean Differences |
|-----------------------------------------------------|----------------------|-----------------------|----------------|----------------------------------------|
| **Demographic characteristics**                     |                      |                       |                |                                        |
| Age, mean (SD)                                      | 73.4(5.70)           | 72.7(5.43)            | 73.1(5.58)     | 0.127                                  |
| Race                                                |                      |                       |                |                                        |
| Whites                                              | 19,753 (79.8%)       | 18,644 (82.5%)        | 38,397 (81.1%) | 0.068                                  |
| African Americans                                   | 1,865 (7.5%)         | 2,105 (9.3%)          | 3,970 (8.4%)   | 0.064                                  |
| Others                                              | 3,129 (12.6%)        | 1,851 (8.2%)          | 4,980 (10.5%)  | 0.146                                  |
| Sex, Males                                          | 12,601 (50.9%)       | 9,938 (44.0%)         | 22,539 (47.6%) | 0.139                                  |
| Low-income subsidy, mean (SD)                       | 187.7(414.74)        | 216.4(456.26)         | 201.4(435.28)  | 0.066                                  |
| **Measures of DM severity/complications**           |                      |                       |                |                                        |
| Diabetes retinopathy                                | 3,623 (14.6%)        | 3,622 (16.0%)         | 7,245 (15.3%)  | 0.038                                  |
| Diabetes nephropathy                                | 2,835 (11.5%)        | 4,204 (18.6%)         | 7,039 (14.9%)  | 0.201                                  |
| Diabetes neuropathy                                 | 6,985 (28.2%)        | 7,599 (33.6%)         | 14,584 (30.8%) | 0.117                                  |
| Other diabetes complications                         | 11,158 (45.1%)       | 10,814 (47.8%)        | 21,972 (46.4%) | 0.055                                  |
| Number of antihyperglycemic drugs                   |                      |                       |                |                                        |
| 0                                                   | 2,139 (8.6%)         | 4,036 (17.9%)         | 6,175 (13.0%)  | 0.274                                  |
| 1                                                   | 6,799 (27.5%)        | 7,109 (31.5%)         | 13,908 (29.4%) | 0.087                                  |
| 2                                                   | 9,167 (37.0%)        | 7,145 (31.6%)         | 16,312 (34.5%) | 0.115                                  |
| 3                                                   | 5,698 (23.0%)        | 3,709 (16.4%)         | 9,407 (19.9%)  | 0.167                                  |
| 4+                                                  | 944 (3.8%)           | 601 (2.7%)            | 1,545 (3.3%)   | 0.065                                  |
| Number of hyperglycemia diagnoses                   |                      |                       |                |                                        |
| 0                                                   | 10,991 (44.4%)       | 8,858 (39.2%)         | 19,849 (41.9%) | 0.106                                  |
| Characteristic | SGLT2i N=24,747 (%) | GLP-IRA N=22,596 (%) | Total N=47,343 | Absolute Standardized Mean Differences |
|----------------|---------------------|----------------------|----------------|----------------------------------------|
| 1              | 3,195 (12.9%)       | 2,857 (12.6%)        | 6,052 (12.8%)  | 0.008                                  |
| 2              | 1,957 (7.9%)        | 1,894 (8.4%)         | 3,851 (8.1%)   | 0.017                                  |
| 3              | 2,887 (11.7%)       | 2,721 (12.0%)        | 5,608 (11.8%)  | 0.012                                  |
| 4+             | 5,717 (23.1%)       | 6,270 (27.7%)        | 11,987 (25.3%) | 0.107                                  |
| Hypoglycemia   | 565 (2.3%)          | 710 (3.1%)           | 1,275 (2.7%)   | 0.053                                  |
| Foot ulcers    | 733 (3.0%)          | 894 (4.0%)           | 1,627 (3.4%)   | 0.054                                  |
| **Cardiovascular disorders** |
| Angina         | 1,309 (5.3%)        | 1,222 (5.4%)         | 2,531 (5.3%)   | 0.005                                  |
| MI             | 1,574 (6.4%)        | 1,629 (7.2%)         | 3,203 (6.8%)   | 0.034                                  |
| Cardiac revascularization or bypass | 472 (1.9%) | 476 (2.1%) | 948 (2.0%) | 0.014 |
| Atherosclerosis| 3,148 (12.7%)       | 2,946 (13.0%)        | 6,094 (12.9%)  | 0.009                                  |
| Ischemic heart diseases | 8,246 (33.3%) | 7,900 (35.0%) | 16,146 (34.1%) | 0.034 |
| Cerebrovascular diseases | 3,763 (15.2%) | 3,523 (15.6%) | 7,286 (15.4%) | 0.011 |
| Cardiomyopathy | 982 (4.0%)          | 1,024 (4.5%)         | 2,006 (4.2%)   | 0.028                                  |
| Congestive heart failure | 3,123 (12.6%) | 3,884 (17.2%) | 7,007 (14.8%) | 0.128 |
| Peripheral vascular diseases | 4,345 (17.6%) | 4,427 (19.6%) | 8,772 (18.5%) | 0.052 |
| Atrial fibrillation | 2,947 (11.9%) | 2,940 (13.0%) | 5,887 (12.4%) | 0.033 |
| Arrhythmia disorders | 3,468 (14.0%) | 3,617 (16.0%) | 7,085 (15.0%) | 0.056 |
| Cardiac arrest | 37 (0.1%)           | 38 (0.2%)            | 75 (0.2%)      | 0.005                                  |
| Defibrillator  | 364 (1.5%)          | 435 (1.9%)           | 799 (1.7%)     | 0.035                                  |
| **Comorbid conditions** |
| Combined comorbidity score, mean (SD) | 1.9(2.32) | 2.5(2.58) | 2.2(2.46) | 0.224 |
| Anemia         | 6,364 (25.7%)       | 6,245 (27.6%)        | 12,609 (26.6%) | 0.043 |
| Alcohol disorders | 205 (0.8%) | 174 (0.8%) | 379 (0.8%) | 0.007 |
| Asthma         | 2,389 (9.7%)        | 2,807 (12.4%)        | 5,196 (11.0%)  | 0.088                                  |
| Brain injury   | 631 (2.5%)          | 720 (3.2%)           | 1,351 (2.9%)   | 0.038                                  |
| Characteristic                              | SGLT2i N=24,747 (%) | GLP-IRA N=22,596 (%) | Total N=47,343 (%) | Absolute Standardized Mean Differences |
|--------------------------------------------|---------------------|----------------------|--------------------|----------------------------------------|
| Cancer (except for non-melanoma skin)      | 3,129 (12.6%)       | 2,721 (12.0%)        | 5,850 (12.4%)      | 0.018                                  |
| Chronic lung disorders                     | 5,835 (23.6%)       | 6,386 (28.3%)        | 12,221 (25.8%)     | 0.107                                  |
| CKD (stage 1-3)                            | 3,590 (14.5%)       | 5,853 (25.9%)        | 9,443 (19.9%)      | 0.287                                  |
| Coagulopathy                              | 816 (3.3%)          | 874 (3.9%)           | 1,690 (3.6%)       | 0.031                                  |
| Connective tissue disorders                | 878 (3.5%)          | 1,018 (4.5%)         | 1,896 (4.0%)       | 0.049                                  |
| Dementia                                  | 588 (2.4%)          | 598 (2.6%)           | 1,186 (2.5%)       | 0.017                                  |
| Deficiency anemia                         | 5,927 (24.0%)       | 5,717 (25.3%)        | 11,644 (24.6%)     | 0.031                                  |
| Depression                                | 3,788 (15.3%)       | 4,778 (21.1%)        | 8,566 (18.1%)      | 0.152                                  |
| Difficulty walking                        | 3,473 (14.0%)       | 3,841 (17.0%)        | 7,314 (15.4%)      | 0.082                                  |
| Dyslipidemia                              | 21,932 (88.6%)      | 19,654 (87.0%)       | 41,586 (87.8%)     | 0.051                                  |
| Endocrine disorders                       | 9,833 (39.7%)       | 9,789 (43.3%)        | 19,622 (41.4%)     | 0.073                                  |
| Edema                                     | 2,749 (11.1%)       | 3,414 (15.1%)        | 6,163 (13.0%)      | 0.119                                  |
| Electrolytes disorders                    | 2,969 (12.0%)       | 3,504 (15.5%)        | 6,473 (13.7%)      | 0.102                                  |
| HIV                                       | 47 (0.2%)           | 47 (0.2%)            | 94 (0.2%)          | 0.004                                  |
| Hematological disorders                   | 7,362 (29.7%)       | 7,285 (32.2%)        | 14,647 (30.9%)     | 0.054                                  |
| Hypertension                              | 14,167 (57.2%)      | 12,437 (55.0%)       | 26,604 (56.2%)     | 0.045                                  |
| Hypotension                               | 801 (3.2%)          | 900 (4.0%)           | 1,701 (3.6%)       | 0.040                                  |
| Immune disorders                          | 365 (1.5%)          | 417 (1.8%)           | 782 (1.7%)         | 0.029                                  |
| Metabolic disorders                       | 22,084 (89.2%)      | 20,008 (88.5%)       | 42,092 (88.9%)     | 0.023                                  |
| Metastatic cancers                        | 265 (1.1%)          | 210 (0.9%)           | 475 (1.0%)         | 0.014                                  |
| Mild liver disorders                      | 1,208 (4.9%)        | 1,149 (5.1%)         | 2,357 (5.0%)       | 0.009                                  |
| Moderate liver disorders                  | 142 (0.6%)          | 128 (0.6%)           | 270 (0.6%)         | 0.001                                  |
| Nutritional disorders                     | 7,584 (30.6%)       | 7,203 (31.9%)        | 14,787 (31.2%)     | 0.026                                  |
| Nervous system disorders                  | 11,445 (46.2%)      | 12,356 (54.7%)       | 23,801 (50.3%)     | 0.169                                  |
| Paraplegia                                | 226 (0.9%)          | 268 (1.2%)           | 494 (1.0%)         | 0.027                                  |
| Parkinsonism                              | 250 (1.0%)          | 276 (1.2%)           | 526 (1.1%)         | 0.020                                  |
| Pneumonia                                 | 1,162 (4.7%)        | 1,390 (6.2%)         | 2,552 (5.4%)       | 0.064                                  |
| Characteristic                        | SGLT2i N=24,747 (%) | GLP-1RA N=22,596 (%) | Total N=47,343 (%) | Absolute Standardized Mean Differences |
|--------------------------------------|---------------------|----------------------|--------------------|----------------------------------------|
| Psychosis                            | 1,129 (4.6%)        | 1,287 (5.7%)         | 2,416 (5.1%)       | 0.051                                  |
| Pulmonary circulation disorders      | 623 (2.5%)          | 845 (3.7%)           | 1,468 (3.1%)       | 0.070                                  |
| Rehabilitation                       | 1,184 (4.8%)        | 1,326 (5.9%)         | 2,510 (5.3%)       | 0.048                                  |
| Renal disorders                      | 3,650 (14.7%)       | 5,927 (26.2%)        | 9,577 (20.2%)      | 0.287                                  |
| Rheumatic disorders                  | 845 (3.4%)          | 824 (3.6%)           | 1,669 (3.5%)       | 0.013                                  |
| Smoking and smoking cessation        | 1,309 (5.3%)        | 1,204 (5.3%)         | 2,513 (5.3%)       | 0.002                                  |
| Thromboembolism                      | 167 (0.7%)          | 151 (0.7%)           | 318 (0.7%)         | 0.001                                  |
| Vulvular disorders                   | 3,061 (12.4%)       | 2,932 (13.0%)        | 5,993 (12.7%)      | 0.018                                  |
| Weight loss                          | 185 (0.7%)          | 190 (0.8%)           | 375 (0.8%)         | 0.010                                  |
| **Durable medical equipment claims** |                     |                      |                    |                                        |
| Ambulance                            | 2,519 (10.2%)       | 2,853 (12.6%)        | 5,372 (11.3%)      | 0.077                                  |
| Hospital beds                        | 132 (0.5%)          | 174 (0.8%)           | 306 (0.6%)         | 0.029                                  |
| Home oxygen                          | 955 (3.9%)          | 1,419 (6.3%)         | 2,374 (5.0%)       | 0.110                                  |
| Wheelchairs                          | 275 (1.1%)          | 348 (1.5%)           | 623 (1.3%)         | 0.037                                  |
| **History of medications use**       |                     |                      |                    |                                        |
| Metformin                            | 19,134 (77.3%)      | 14,828 (65.6%)       | 33,962 (71.7%)     | 0.261                                  |
| Short acting insulin                 | 2,835 (11.5%)       | 4,924 (21.8%)        | 7,759 (16.4%)      | 0.280                                  |
| Long acting insulin                  | 6,450 (26.1%)       | 9,869 (43.7%)        | 16,319 (34.5%)     | 0.376                                  |
| TZD                                  | 2,810 (11.4%)       | 2,219 (9.8%)         | 5,029 (10.6%)      | 0.050                                  |
| Meglitinide                           | 728 (2.9%)          | 656 (2.9%)           | 1,384 (2.9%)       | 0.002                                  |
| SU                                   | 12,133 (49.0%)      | 9,725 (43.0%)        | 21,858 (46.2%)     | 0.121                                  |
| DPP-4i                               | 10,971 (44.3%)      | 7,338 (32.5%)        | 18,309 (38.7%)     | 0.246                                  |
| Immunosuppressive drugs              | 174 (0.7%)          | 217 (1.0%)           | 391 (0.8%)         | 0.028                                  |
| Steroids                             | 4,084 (16.5%)       | 4,060 (18.0%)        | 8,144 (17.2%)      | 0.039                                  |
| ACEI                                 | 10,964 (44.3%)      | 10,090 (44.6%)       | 21,054 (44.5%)     | 0.007                                  |
| ARB                                  | 9,094 (36.7%)       | 8,341 (36.9%)        | 17,435 (36.8%)     | 0.003                                  |
| Characteristic          | SGLT2i N=24,747 (%) | GLP-IRA N=22,596 (%) | Total N=47,343 | Absolute Standardized Mean Differences |
|------------------------|---------------------|----------------------|----------------|---------------------------------------|
| CCB                    | 8,274 (33.4%)       | 7,866 (34.8%)        | 16,140 (34.1%) | 0.029                                 |
| BB                     | 13,125 (53.0%)      | 12,514 (55.4%)       | 25,639 (54.2%) | 0.047                                 |
| NSAIDS                 | 7,169 (29.0%)       | 6,437 (28.5%)        | 13,606 (28.7%) | 0.011                                 |
| Aspirin                | 1,134 (4.6%)        | 1,366 (6.0%)         | 2,500 (5.3%)  | 0.065                                 |
| Oral contraceptives    | 475 (1.9%)          | 589 (2.6%)           | 1,064 (2.2%)  | 0.046                                 |
| Estrogen               | 1,338 (5.4%)        | 1,411 (6.2%)         | 2,749 (5.8%)  | 0.036                                 |
| Loop diuretics         | 4,582 (18.5%)       | 6,153 (27.2%)        | 10,735 (22.7%) | 0.209                                 |
| Other diuretics        | 9,313 (37.6%)       | 9,241 (40.9%)        | 18,554 (39.2%) | 0.067                                 |
| Statin                 | 19,098 (77.2%)      | 17,363 (76.8%)       | 36,461 (77.0%) | 0.008                                 |

**Measures of healthcare utilization**

**HbA1C tests**

|          | SGLT2i   | GLP-IRA | Total   | Absolute Standardized Mean Differences |
|----------|----------|---------|---------|---------------------------------------|
| 0        | 1,313 (5.3%) | 1,690 (7.5%) | 3,003 (6.3%) | 0.089                                 |
| 1        | 3,028 (12.2%) | 2,731 (12.1%) | 5,759 (12.2%) | 0.005                                 |
| 2        | 5,723 (23.1%) | 4,703 (20.8%) | 10,426 (22.0%) | 0.056                                 |
| 3        | 6,956 (28.1%) | 5,923 (26.2%) | 12,879 (27.2%) | 0.043                                 |
| 4        | 4,955 (20.0%) | 4,573 (20.2%) | 9,528 (20.1%)  | 0.005                                 |
| 5+       | 2,772 (11.2%) | 2,980 (13.2%) | 5,752 (12.1%)  | 0.061                                 |

**Flu shots**

|          | SGLT2i   | GLP-IRA | Total   | Absolute Standardized Mean Differences |
|----------|----------|---------|---------|---------------------------------------|
| 0        | 9,441 (38.2%) | 8,673 (38.4%) | 18,114 (38.3%) | 0.005                                 |
| 1        | 12,361 (49.9%) | 11,163 (49.4%) | 23,524 (49.7%) | 0.011                                 |
| 2        | 2,056 (8.3%)  | 1,901 (8.4%)  | 3,957 (8.4%)  | 0.004                                 |
| 3+       | 889 (3.6%)  | 863 (3.8%)  | 1,752 (3.7%)  | 0.012                                 |

**Lipid tests**

|          | SGLT2i   | GLP-IRA | Total   | Absolute Standardized Mean Differences |
|----------|----------|---------|---------|---------------------------------------|
| 0        | 2,964 (12.0%) | 3,505 (15.5%) | 6,469 (13.7%) | 0.103                                 |
| 1        | 7,262 (29.3%) | 6,839 (30.3%) | 14,101 (29.8%) | 0.020                                 |
| 2        | 6,928 (28.0%) | 5,888 (26.1%) | 12,816 (27.1%) | 0.044                                 |
| 3        | 4,325 (17.5%) | 3,546 (15.7%) | 7,871 (16.6%)  | 0.048                                 |
| 4+       | 3,268 (13.2%) | 2,822 (12.5%) | 6,090 (12.9%)  | 0.021                                 |
| Characteristic                      | SGLT2i N=24,747 (%) | GLP-IRA N=22,596 (%) | Total N=47,343 | Absolute Standardized Mean Differences |
|------------------------------------|---------------------|----------------------|----------------|----------------------------------------|
| Number of hospital admissions      |                     |                      |                |                                        |
| 0                                  | 21,249 (85.9%)      | 18,533 (82.0%)       | 39,782 (84.0%) | 0.105                                  |
| 1                                  | 2,486 (10.0%)       | 2,774 (12.3%)        | 5,260 (11.1%)  | 0.071                                  |
| 2+                                 | 1,012 (4.1%)        | 1,293 (5.7%)         | 2,305 (4.9%)   | 0.076                                  |
| Number of days of hospitalization  |                     |                      |                |                                        |
| 0                                  | 21,249 (85.9%)      | 18,533 (82.0%)       | 39,782 (84.0%) | 0.105                                  |
| 1                                  | 1,583 (6.4%)        | 1,760 (7.8%)         | 3,343 (7.1%)   | 0.054                                  |
| 2+                                 | 1,915 (7.7%)        | 2,307 (10.2%)        | 4,222 (8.9%)   | 0.086                                  |
| Number of emergency visits         |                     |                      |                |                                        |
| 0                                  | 17,646 (71.3%)      | 15,036 (66.5%)       | 32,682 (69.0%) | 0.103                                  |
| 1                                  | 3,903 (15.8%)       | 3,831 (17.0%)        | 7,734 (16.3%)  | 0.032                                  |
| 2                                  | 1,619 (6.5%)        | 1,794 (7.9%)         | 3,413 (7.2%)   | 0.054                                  |
| 3+                                 | 1,579 (6.4%)        | 1,939 (8.6%)         | 3,518 (7.4%)   | 0.084                                  |
| Number of emergency visits due to DM|                     |                      |                |                                        |
| 0                                  | 24,395 (98.6%)      | 22,198 (98.2%)       | 46,593 (98.4%) | 0.028                                  |
| 1                                  | 296 (1.2%)          | 335 (1.5%)           | 631 (1.3%)     | 0.025                                  |
| 2+                                 | 56 (0.2%)           | 67 (0.3%)            | 123 (0.3%)     | 0.014                                  |
| Number of outpatient visits        |                     |                      |                |                                        |
| 0                                  | 1,047 (4.2%)        | 1,277 (5.7%)         | 2,324 (4.9%)   | 0.066                                  |
| 1                                  | 4,446 (18.0%)       | 3,565 (15.8%)        | 8,011 (16.9%)  | 0.059                                  |
| 2                                  | 6,491 (26.2%)       | 5,147 (22.8%)        | 11,638 (24.6%) | 0.080                                  |
| 3                                  | 5,063 (20.5%)       | 4,401 (19.5%)        | 9,464 (20.0%)  | 0.025                                  |
| 4                                  | 3,223 (13.0%)       | 3,156 (14.0%)        | 6,379 (13.5%)  | 0.028                                  |
| 5+                                 | 4,477 (18.1%)       | 5,054 (22.4%)        | 9,531 (20.1%)  | 0.106                                  |
| Number of outpatient visits due to DM|                     |                      |                |                                        |
| 11,172 (45.1%)                     | 10,111 (44.7%)      | 21,283 (45.0%)       | 0.008          |
| Characteristic | SGLT2i N=24,747 (%) | GLP-1RA N=22,596 (%) | Total N=47,343 (%) | Absolute Standardized Mean Differences |
|----------------|----------------------|-----------------------|--------------------|----------------------------------------|
| Number of days between first and second scripts, mean (SD) | 47.5(29.47) | 47.4(27.76) | 47.4(28.66) | 0.002 |

**Markers of diabetes and cardiovascular disease severity**

| Characteristic | SGLT2i | GLP-1RA | Total | Absolute Standardized Mean Differences |
|----------------|--------|---------|-------|----------------------------------------|
| HbA1C <7%      | 945 (3.8%) | 868 (3.8%) | 1,813 (3.8%) | 0.001 |
| HbA1C 7-9%     | 1,982 (8.0%) | 1,762 (7.8%) | 3,744 (7.9%) | 0.008 |
| HbA1C >9%      | 1,075 (4.3%) | 1,176 (5.2%) | 2,251 (4.8%) | 0.040 |
| LDL <100 mg/dl | 861 (3.5%) | 879 (3.9%) | 1,740 (3.7%) | 0.022 |
| LDL 100-129 mg/dl | 202 (0.8%) | 202 (0.9%) | 404 (0.9%) | 0.008 |
| LDL >130 mg/dl | 93 (0.4%) | 115 (0.5%) | 208 (0.4%) | 0.020 |
| SBP <130       | 167 (0.7%) | 209 (0.9%) | 376 (0.8%) | 0.028 |
| SBP 130-139    | 115 (0.5%) | 125 (0.6%) | 240 (0.5%) | 0.012 |
| SBP >=140      | 118 (0.5%) | 139 (0.6%) | 257 (0.5%) | 0.019 |
| DBP <80        | 214 (0.9%) | 275 (1.2%) | 489 (1.0%) | 0.035 |
| DBP 80-89      | 118 (0.5%) | 116 (0.5%) | 234 (0.5%) | 0.005 |
| DBP >=90       | 25 (0.1%) | 31 (0.1%) | 56 (0.1%) | 0.010 |
Table S8. Distribution of baseline characteristics after inverse probability of treatment and censoring weighting among patients with no evidence of atherosclerotic CVDs or heart failure

| Characteristic                          | SGLT-2i N=13,017 | GLP-1RA N=10,777 | Total N=23,794 | Standardized Absolute Mean Differences |
|-----------------------------------------|------------------|------------------|----------------|---------------------------------------|
| Demographic characteristics            |                  |                  |                |                                       |
| Age, mean (SD)                          | 72.0(4.92)       | 71.9(4.90)       | 71.9(4.91)     | 0.009                                 |
| Race                                    |                  |                  |                |                                       |
| Whites                                  | 10,604 (81.5%)   | 8,802 (81.7%)    | 19,405 (81.6%) | 0.006                                 |
| African Americans                       | 1,216 (9.3%)     | 999 (9.3%)       | 2,216 (9.3%)   | 0.003                                 |
| Others                                  | 1,197 (9.2%)     | 976 (9.1%)       | 2,172 (9.1%)   | 0.005                                 |
| Sex, Males                              | 5,258 (40.4%)    | 4,399 (40.8%)    | 9,657 (40.6%)  | 0.009                                 |
| Low-income subsidy, mean (SD)           | 134.5(358.10)    | 132.6(340.48)    | 133.6(350.22)  | 0.006                                 |
| Measures of DM severity                 |                  |                  |                |                                       |
| Diabetes retinopathy                    | 1,587 (12.2%)    | 1,280 (11.9%)    | 2,867 (12.0%)  | 0.010                                 |
| Diabetes nephropathy                    | 1,300 (10.0%)    | 1,081 (10.0%)    | 2,381 (10.0%)  | 0.001                                 |
| Diabetes neuropathy                     | 2,730 (21.0%)    | 2,240 (20.8%)    | 4,971 (20.9%)  | 0.005                                 |
| Other diabetes complications            | 3,723 (28.6%)    | 3,095 (28.7%)    | 6,818 (28.7%)  | 0.002                                 |
| Number of antihyperglycemic drugs       |                  |                  |                |                                       |
| 0                                       | 1,719 (13.2%)    | 1,352 (12.5%)    | 3,071 (12.9%)  | 0.020                                 |
| 1                                       | 3,766 (28.9%)    | 3,111 (28.9%)    | 6,877 (28.9%)  | 0.001                                 |
| 2                                       | 4,528 (34.8%)    | 3,806 (35.3%)    | 8,333 (35.0%)  | 0.011                                 |
| 3                                       | 2,608 (20.0%)    | 2,166 (20.1%)    | 4,774 (20.1%)  | 0.002                                 |
| 4+                                      | 396 (3.0%)       | 342 (3.2%)       | 738 (3.1%)     | 0.007                                 |
| Number of hyperglycemia diagnoses       |                  |                  |                |                                       |
| 0                                       | 5,989 (46.0%)    | 4,980 (46.2%)    | 10,969 (46.1%) | 0.004                                 |
| 1                                       | 1,616 (12.4%)    | 1,387 (12.9%)    | 3,003 (12.6%)  | 0.014                                 |
| 2                                       | 1,020 (7.8%)     | 858 (8.0%)       | 1,879 (7.9%)   | 0.005                                 |
| 3                                       | 1,487 (11.4%)    | 1,248 (11.6%)    | 2,735 (11.5%)  | 0.005                                 |
| 4+                                      | 2,904 (22.3%)    | 2,303 (21.4%)    | 5,207 (21.9%)  | 0.023                                 |
| Hypoglycemia                            | 207 (1.6%)       | 160 (1.5%)       | 366 (1.5%)     | 0.009                                 |
| Foot ulcers                             | 227 (1.7%)       | 165 (1.5%)       | 392 (1.6%)     | 0.017                                 |
| Characteristic                          | SGLT-2i N=13,017 | GLP-1RA N=10,777 | Total N=23,794 | Standardized Absolute Mean Differences |
|----------------------------------------|------------------|------------------|----------------|---------------------------------------|
| **Cardiovascular disorders**           |                  |                  |                |                                       |
| Atrial fibrillation                    | 626 (4.8%)       | 511 (4.7%)       | 1,137 (4.8%)  | 0.003                                 |
| Arrhythmia disorders                   | 858 (6.6%)       | 696 (6.5%)       | 1,554 (6.5%)  | 0.005                                 |
| Cardiac arrest                         | NTSR             | NTSR             | NTSR          | 0.004                                 |
| **Comorbid conditions**                |                  |                  |                |                                       |
| Combined comorbidity score, mean (SD)  | 1.2(1.58)        | 1.2(1.58)        | 1.2(1.58)     | 0.009                                 |
| Alcohol disorders                      | 58 (0.4%)        | 56 (0.5%)        | 114 (0.5%)    | 0.010                                 |
| Asthma                                 | 1,079 (8.3%)     | 894 (8.3%)       | 1,972 (8.3%)  | 0.000                                 |
| Brain injury                           | 113 (0.9%)       | 91 (0.8%)        | 204 (0.9%)    | 0.003                                 |
| Cancer (except for non-melanoma skin)  | 1,409 (10.8%)    | 1,167 (10.8%)    | 2,576 (10.8%) | 0.000                                 |
| Chronic lung disorders                 | 2,232 (17.1%)    | 1,847 (17.1%)    | 4,079 (17.1%) | 0.000                                 |
| CKD (stage 1-3)                        | 1,651 (12.7%)    | 1,386 (12.9%)    | 3,037 (12.8%) | 0.005                                 |
| Coagulopathy                           | 279 (2.1%)       | 224 (2.1%)       | 503 (2.1%)    | 0.005                                 |
| Connective tissue disorders            | 417 (3.2%)       | 321 (3.0%)       | 737 (3.1%)    | 0.013                                 |
| Dementia                               | 129 (1.0%)       | 96 (0.9%)        | 225 (0.9%)    | 0.011                                 |
| Deficiency anemia                      | 2,178 (16.7%)    | 1,783 (16.5%)    | 3,960 (16.6%) | 0.005                                 |
| Depression                             | 1,860 (14.3%)    | 1,499 (13.9%)    | 3,359 (14.1%) | 0.011                                 |
| Difficulty walking                     | 1,045 (8.0%)     | 831 (7.7%)       | 1,876 (7.9%)  | 0.012                                 |
| Dyslipidemia                           | 10,804 (83.0%)   | 8,936 (82.9%)    | 19,740 (83.0%)| 0.002                                 |
| Endocrine disorders                    | 4,740 (36.4%)    | 3,835 (35.6%)    | 8,575 (36.0%) | 0.017                                 |
| Edema                                  | 1,108 (8.5%)     | 879 (8.2%)       | 1,987 (8.4%)  | 0.013                                 |
| Electrolytes disorders                 | 987 (7.6%)       | 779 (7.2%)       | 1,766 (7.4%)  | 0.013                                 |
| HIV                                    | 20 (0.2%)        | 17 (0.2%)        | 37 (0.2%)     | 0.001                                 |
| Hematological disorders                | 2,797 (21.5%)    | 2,292 (21.3%)    | 5,088 (21.4%) | 0.005                                 |
| Hypertension                           | 5,083 (39.0%)    | 4,236 (39.3%)    | 9,319 (39.2%) | 0.005                                 |
| Immune disorders                       | 162 (1.2%)       | 129 (1.2%)       | 291 (1.2%)    | 0.004                                 |
| Metabolic disorders                    | 10,903 (83.8%)   | 9,011 (83.6%)    | 19,914 (83.7%)| 0.004                                 |
| Metastatic cancers                     | 138 (1.1%)       | 108 (1.0%)       | 245 (1.0%)    | 0.006                                 |
| Mild liver disorders                   | 591 (4.5%)       | 495 (4.6%)       | 1,087 (4.6%)  | 0.003                                 |
| Moderate liver disorders               | 58 (0.4%)        | 45 (0.4%)        | 103 (0.4%)    | 0.005                                 |
| Nutritional disorders                  | 3,524 (27.1%)    | 2,893 (26.8%)    | 6,417 (27.0%) | 0.005                                 |
| Characteristic                              | SGLT-2i N=13,017 | GLP-1RA N=10,777 | Total N=23,794 | Standardized Absolute Mean Differences |
|--------------------------------------------|------------------|------------------|----------------|-----------------------------------------|
| Nervous system disorders                   | 4,913 (37.7%)    | 4,025 (37.3%)    | 8,938 (37.6%)  | 0.008                                   |
| Paraplegia                                 | 34 (0.3%)        | 22 (0.2%)        | 56 (0.2%)      | 0.013                                   |
| Parkinsonism                               | 89 (0.7%)        | 69 (0.6%)        | 158 (0.7%)     | 0.006                                   |
| Pneumonia                                  | 338 (2.6%)       | 269 (2.5%)       | 607 (2.5%)     | 0.007                                   |
| Psychosis                                  | 524 (4.0%)       | 421 (3.9%)       | 945 (4.0%)     | 0.006                                   |
| Pulmonary circulation disorders            | 96 (0.7%)        | 89 (0.8%)        | 185 (0.8%)     | 0.010                                   |
| Rehabilitation                             | 519 (4.0%)       | 426 (4.0%)       | 946 (4.0%)     | 0.002                                   |
| Renal disorders                            | 1,670 (12.8%)    | 1,401 (13.0%)    | 3,071 (12.9%)  | 0.005                                   |
| Rheumatic disorders                        | 113 (0.9%)       | 92 (0.9%)        | 205 (0.9%)     | 0.002                                   |
| Smoking and smoking cessation              | 517 (4.0%)       | 422 (3.9%)       | 939 (3.9%)     | 0.003                                   |
| Thromboembolism                            | NTSR             | NTSR             | 14 (0.1%)      | 0.002                                   |
| Vulvular disorders                         | 543 (4.2%)       | 422 (3.9%)       | 964 (4.1%)     | 0.013                                   |
| Weight loss                                | 37 (0.3%)        | 26 (0.2%)        | 63 (0.3%)      | 0.009                                   |
| **Durable medical equipment claims**       |                  |                  |                |                                         |
| Ambulance                                  | 553 (4.2%)       | 452 (4.2%)       | 1,005 (4.2%)   | 0.003                                   |
| Hospital beds                              | 25 (0.2%)        | 21 (0.2%)        | 46 (0.2%)      | 0.000                                   |
| Home oxygen                                | 339 (2.6%)       | 278 (2.6%)       | 617 (2.6%)     | 0.002                                   |
| Wheelchairs                                | 64 (0.5%)        | 52 (0.5%)        | 116 (0.5%)     | 0.001                                   |
| **History of medications use**             |                  |                  |                |                                         |
| Metformin                                  | 9,538 (73.3%)    | 7,990 (74.1%)    | 17,528 (73.7%) | 0.020                                   |
| Short acting insulin                       | 1,536 (11.8%)    | 1,166 (10.8%)    | 2,702 (11.4%)  | 0.031                                   |
| Long acting insulin                        | 3,991 (30.7%)    | 3,116 (28.9%)    | 7,107 (29.9%)  | 0.038                                   |
| TZD                                        | 1,476 (11.3%)    | 1,219 (11.3%)    | 2,695 (11.3%)  | 0.001                                   |
| Meglitinide                                | 313 (2.4%)       | 246 (2.3%)       | 560 (2.4%)     | 0.008                                   |
| SU                                         | 6,111 (47.0%)    | 5,127 (47.6%)    | 11,238 (47.2%) | 0.013                                   |
| DPP-4i                                     | 4,700 (36.1%)    | 3,936 (36.5%)    | 8,636 (36.3%)  | 0.009                                   |
| Immunosuppressive drugs                    | 99 (0.8%)        | 78 (0.7%)        | 177 (0.7%)     | 0.005                                   |
| Steroids                                   | 1,806 (13.9%)    | 1,487 (13.8%)    | 3,293 (13.8%)  | 0.002                                   |
| ACEI                                       | 5,868 (45.1%)    | 4,895 (45.4%)    | 10,763 (45.2%) | 0.007                                   |
| ARB                                        | 4,456 (34.2%)    | 3,659 (34.0%)    | 8,115 (34.1%)  | 0.006                                   |
| CCB                                        | 3,942 (30.3%)    | 3,340 (31.0%)    | 7,282 (30.6%)  | 0.015                                   |
| Characteristic                  | SGLT-2i N=13,017 | GLP-1RA N=10,777 | Total N=23,794 | Standardized Absolute Mean Differences |
|--------------------------------|------------------|-------------------|----------------|----------------------------------------|
| BB                             | 4,982 (38.3%)    | 4,052 (37.6%)    | 9,034 (38.0%)  | 0.014                                  |
| NSAIDS                         | 3,579 (27.5%)    | 2,933 (27.2%)    | 6,512 (27.4%)  | 0.006                                  |
| Aspirin                        | 535 (4.1%)       | 430 (4.0%)       | 965 (4.1%)     | 0.006                                  |
| Oral contraceptives            | 360 (2.8%)       | 289 (2.7%)       | 649 (2.7%)     | 0.005                                  |
| Estrogen                       | 799 (6.1%)       | 656 (6.1%)       | 1,455 (6.1%)   | 0.002                                  |
| Loop diuretics                 | 1,529 (11.7%)    | 1,251 (11.6%)    | 2,780 (11.7%)  | 0.004                                  |
| Other diuretics                | 5,219 (40.1%)    | 4,317 (40.1%)    | 9,536 (40.1%)  | 0.001                                  |
| Statin                         | 9,078 (69.7%)    | 7,475 (69.4%)    | 16,553 (69.6%) | 0.008                                  |

**Measures of healthcare utilization**

**HbA1C tests**

|        | SGLT-2i N=13,017 | GLP-1RA N=10,777 | Total N=23,794 | Standardized Absolute Mean Differences |
|--------|------------------|-------------------|----------------|----------------------------------------|
| 0      | 1,123 (8.6%)     | 940 (8.7%)       | 2,063 (8.7%)   | 0.003                                  |
| 1      | 1,708 (13.1%)    | 1,467 (13.6%)    | 3,175 (13.3%)  | 0.014                                  |
| 2      | 3,022 (23.2%)    | 2,491 (23.1%)    | 5,513 (23.2%)  | 0.003                                  |
| 3      | 3,482 (26.7%)    | 2,897 (26.9%)    | 6,378 (26.8%)  | 0.003                                  |
| 4      | 2,474 (19.0%)    | 2,005 (18.6%)    | 4,478 (18.8%)  | 0.010                                  |
| 5+     | 1,208 (9.3%)     | 978 (9.1%)       | 2,186 (9.2%)   | 0.007                                  |

**Flu shots**

|        | SGLT-2i N=13,017 | GLP-1RA N=10,777 | Total N=23,794 | Standardized Absolute Mean Differences |
|--------|------------------|-------------------|----------------|----------------------------------------|
| 0      | 5,215 (40.1%)    | 4,348 (40.3%)    | 9,563 (40.2%)  | 0.006                                  |
| 1      | 6,420 (49.3%)    | 5,315 (49.3%)    | 11,735 (49.3%) | 0.000                                  |
| 2      | 984 (7.6%)       | 796 (7.4%)       | 1,780 (7.5%)   | 0.007                                  |
| 3+     | 398 (3.1%)       | 317 (2.9%)       | 715 (3.0%)     | 0.007                                  |

**Lipid tests**

|        | SGLT-2i N=13,017 | GLP-1RA N=10,777 | Total N=23,794 | Standardized Absolute Mean Differences |
|--------|------------------|-------------------|----------------|----------------------------------------|
| 0      | 2,062 (15.8%)    | 1,698 (15.8%)    | 3,760 (15.8%)  | 0.002                                  |
| 1      | 4,243 (32.6%)    | 3,550 (32.9%)    | 7,793 (32.8%)  | 0.007                                  |
| 2      | 3,481 (26.7%)    | 2,863 (26.6%)    | 6,344 (26.7%)  | 0.004                                  |
| 3      | 1,944 (14.9%)    | 1,614 (15.0%)    | 3,558 (15.0%)  | 0.001                                  |
| 4+     | 1,286 (9.9%)     | 1,052 (9.8%)     | 2,339 (9.8%)   | 0.004                                  |

**Number of hospital admissions**

|        | SGLT-2i N=13,017 | GLP-1RA N=10,777 | Total N=23,794 | Standardized Absolute Mean Differences |
|--------|------------------|-------------------|----------------|----------------------------------------|
| 0      | 12,207 (93.8%)   | 10,103 (93.7%)   | 22,310 (93.8%) | 0.001                                  |
| 1      | 695 (5.3%)       | 587 (5.4%)       | 1,283 (5.4%)   | 0.005                                  |
| 2+     | 115 (0.9%)       | 87 (0.8%)        | 201 (0.8%)     | 0.008                                  |
| Characteristic                              | SGLT-2i N=13,017 | GLP-1RA N=10,777 | Total N=23,794 | Standardized Absolute Mean Differences |
|--------------------------------------------|------------------|------------------|----------------|----------------------------------------|
| Number of days of hospitalization          |                  |                  |                |                                        |
| 0                                          | 12,207 (93.8%)   | 10,103 (93.7%)   | 22,310 (93.8%) | 0.001                                  |
| 1                                          | 471 (3.6%)       | 414 (3.8%)       | 885 (3.7%)     | 0.012                                  |
| 2+                                         | 339 (2.6%)       | 260 (2.4%)       | 599 (2.5%)     | 0.012                                  |
| Number of emergency visits                 |                  |                  |                |                                        |
| 0                                          | 10,427 (80.1%)   | 8,607 (79.9%)    | 19,034 (80.0%) | 0.006                                  |
| 1                                          | 1,686 (13.0%)    | 1,425 (13.2%)    | 3,111 (13.1%)  | 0.008                                  |
| 2                                          | 548 (4.2%)       | 460 (4.3%)       | 1,008 (4.2%)   | 0.003                                  |
| 3+                                         | 355 (2.7%)       | 285 (2.6%)       | 640 (2.7%)     | 0.005                                  |
| Number of emergency visits due to DM       |                  |                  |                |                                        |
| 0                                          | 12,876 (98.9%)   | 10,656 (98.9%)   | 23,532 (98.9%) | 0.004                                  |
| 1                                          | 127 (1.0%)       | 108 (1.0%)       | 236 (1.0%)     | 0.003                                  |
| 2+                                         | 13 (0.1%)        | 13 (0.1%)        | 26 (0.1%)      | 0.005                                  |
| Number of outpatient visits                |                  |                  |                |                                        |
| 0                                          | 918 (7.1%)       | 765 (7.1%)       | 1,683 (7.1%)   | 0.002                                  |
| 1                                          | 2,967 (22.8%)    | 2,497 (23.2%)    | 5,463 (23.0%)  | 0.009                                  |
| 2                                          | 3,779 (29.0%)    | 3,141 (29.2%)    | 6,921 (29.1%)  | 0.003                                  |
| 3                                          | 2,595 (19.9%)    | 2,160 (20.0%)    | 4,755 (20.0%)  | 0.003                                  |
| 4                                          | 1,369 (10.5%)    | 1,102 (10.2%)    | 2,471 (10.4%)  | 0.010                                  |
| 5+                                         | 1,388 (10.7%)    | 1,111 (10.3%)    | 2,500 (10.5%)  | 0.012                                  |
| Number of outpatient visits due to DM      |                  |                  |                |                                        |
| 0                                          | 6,544 (50.3%)    | 5,436 (50.4%)    | 11,980 (50.4%) | 0.003                                  |

SGLT2i – sodium glucose cotransporter 2 inhibitors; GLP-1RA – glucagon like peptide-1 receptor agonist; SD – standard deviations; DM – diabetes mellitus; ACEI – angiotensin converting enzyme inhibitors; ARB – angiotensin receptor blockers; BB – beta blockers; CCB – calcium channel blockers; NSAIDs - nonsteroidal anti-inflammatory drugs; DPP-4i – dipeptidyl peptidase-4 inhibitors; SU – sulphonylureas; TZD - thiazolidinediones
### Table S9. Distribution of baseline characteristics after inverse probability of treatment and censoring weighting among patients with no evidence of atherosclerotic CVDs but heart failure

| Characteristic                      | SGLT-2i N=744 | GLP-1RA N=865 | Total N=1,609 | Standardized Absolute Mean Differences |
|------------------------------------|---------------|---------------|---------------|----------------------------------------|
| **Demographic characteristics**    |               |               |               |                                        |
| Age, mean (SD)                     | 73.1(6.02)    | 73.3(5.92)    | 73.2(5.97)    | 0.044                                  |
| Race                               |               |               |               |                                        |
| Whites                             | 612 (82.3%)   | 707 (81.8%)   | 1,320 (82.0%) | 0.013                                  |
| African Americans                  | 75 (10.1%)    | 95 (11.0%)    | 170 (10.6%)   | 0.027                                  |
| Others                             | 56 (7.6%)     | 63 (7.3%)     | 119 (7.4%)    | 0.012                                  |
| Sex, Males                         | 275 (37.0%)   | 334 (38.5%)   | 609 (37.8%)   | 0.032                                  |
| Low-income subsidy, mean (SD)      | 223.6(395.14) | 234.6(428.80) | 229.5(413.49) | 0.027                                  |
| **Measures of DM severity**        |               |               |               |                                        |
| Diabetes retinopathy               | 80 (10.7%)    | 96 (11.0%)    | 175 (10.9%)   | 0.011                                  |
| Diabetes nephropathy               | 91 (12.3%)    | 131 (15.1%)   | 222 (13.8%)   | 0.083                                  |
| Diabetes neuropathy                | 211 (28.4%)   | 265 (30.6%)   | 476 (29.6%)   | 0.049                                  |
| Other diabetes complications       | 259 (34.8%)   | 326 (37.7%)   | 585 (36.4%)   | 0.061                                  |
| Number of antihyperglycemic drugs  | 178 (23.9%)   | 169 (19.6%)   | 347 (21.6%)   | 0.104                                  |
| 0                                  |               |               |               |                                        |
| 1                                  | 221 (29.8%)   | 275 (31.8%)   | 497 (30.9%)   | 0.044                                  |
| 2                                  | 212 (28.5%)   | 252 (29.1%)   | 464 (28.8%)   | 0.015                                  |
| 3                                  | 115 (15.4%)   | 142 (16.4%)   | 257 (16.0%)   | 0.027                                  |
| 4+                                 | 18 (2.5%)     | 27 (3.1%)     | 45 (2.8%)     | 0.038                                  |
| Number of hyperglycemia diagnoses  | 260 (34.9%)   | 298 (34.4%)   | 557 (34.6%)   | 0.010                                  |
| 0                                  |               |               |               |                                        |
| 1                                  | 95 (12.8%)    | 126 (14.6%)   | 221 (13.8%)   | 0.053                                  |
| 2                                  | 77 (10.3%)    | 80 (9.3%)     | 157 (9.8%)    | 0.036                                  |
| 3                                  | 94 (12.6%)    | 112 (12.9%)   | 205 (12.8%)   | 0.009                                  |
| 4+                                 | 219 (29.4%)   | 249 (28.8%)   | 468 (29.1%)   | 0.012                                  |
| Hypoglycemia                       | 25 (3.4%)     | 27 (3.2%)     | 53 (3.3%)     | 0.013                                  |
| Foot ulcers                        | 16 (2.1%)     | 26 (3.0%)     | 42 (2.6%)     | 0.057                                  |
| Characteristic                              | SGLT-2i N=744 | GLP-1RA N=865 | Total N=1,609 | Standardized Absolute Mean Differences |
|--------------------------------------------|---------------|---------------|---------------|----------------------------------------|
| **Cardiovascular disorders**               |               |               |               |                                        |
| Cardiomyopathy                             | 189 (25.4%)   | 220 (25.4%)   | 409 (25.4%)   | 0.001                                  |
| Congestive heart failure                   | 637 (85.5%)   | 748 (86.4%)   | 1,384 (86.0%) | 0.026                                  |
| Peripheral vascular diseases               | 744 (100%)    | 865 (100%)    | 1,609 (100%)  |                                        |
| Atrial fibrillation                        | 204 (27.4%)   | 239 (27.7%)   | 444 (27.6%)   | 0.005                                  |
| Arrhythmia disorders                       | 181 (24.3%)   | 187 (21.6%)   | 367 (22.8%)   | 0.064                                  |
| Cardiac arrest                             | 744 (100%)    | 865 (100%)    | 1,609 (100%)  |                                        |
| **Comorbid conditions**                    |               |               |               |                                        |
| Combined comorbidity score, mean (SD)      | 4.2(2.30)     | 4.2(2.36)     | 4.2(2.33)     | 0.010                                  |
| Alcohol disorders                          | NTSR          | 12 (1.4%)     | 19 (1.2%)     | 0.057                                  |
| Asthma                                     | 141 (19.0%)   | 145 (16.8%)   | 286 (17.8%)   | 0.058                                  |
| Brain injury                               | 31 (4.1%)     | 40 (4.6%)     | 71 (4.4%)     | 0.025                                  |
| Cancer (except for non-melanoma skin)      | 74 (10.0%)    | 91 (10.6%)    | 166 (10.3%)   | 0.019                                  |
| Chronic lung disorders                     | 308 (41.4%)   | 357 (41.2%)   | 665 (41.3%)   | 0.003                                  |
| CKD (stage 1-3)                            | 211 (28.3%)   | 243 (28.1%)   | 454 (28.2%)   | 0.005                                  |
| Coagulopathy                               | 39 (5.2%)     | 58 (6.7%)     | 97 (6.0%)     | 0.063                                  |
| Connective tissue disorders                | 41 (5.5%)     | 44 (5.1%)     | 85 (5.3%)     | 0.017                                  |
| Dementia                                   | 27 (3.6%)     | 24 (2.8%)     | 51 (3.2%)     | 0.049                                  |
| Deficiency anemia                          | 245 (32.9%)   | 276 (31.9%)   | 521 (32.4%)   | 0.020                                  |
| Depression                                 | 221 (29.7%)   | 223 (25.7%)   | 444 (27.6%)   | 0.089                                  |
| Difficulty walking                         | 154 (20.7%)   | 186 (21.4%)   | 340 (21.1%)   | 0.017                                  |
| Dyslipidemia                               | 632 (85.0%)   | 727 (84.1%)   | 1,359 (84.5%) | 0.025                                  |
| Endocrine disorders                        | 315 (42.3%)   | 409 (47.3%)   | 724 (45.0%)   | 0.100                                  |
| Edema                                      | 189 (25.4%)   | 227 (26.2%)   | 416 (25.8%)   | 0.020                                  |
| Electrolytes disorders                     | 175 (23.5%)   | 183 (21.2%)   | 358 (22.2%)   | 0.055                                  |
| HIV                                        | NTSR          | NTSR          | NTSR          | 0.012                                  |
| Hematological disorders                    | 317 (42.6%)   | 349 (40.3%)   | 666 (41.4%)   | 0.046                                  |
| Hypertension                               | 329 (44.2%)   | 429 (49.6%)   | 758 (47.1%)   | 0.108                                  |
| Immune disorders                           | 15 (1.9%)     | 27 (3.1%)     | 41 (2.6%)     | 0.072                                  |
| Metabolic disorders                        | 662 (89.0%)   | 767 (88.6%)   | 1,429 (88.8%) | 0.013                                  |
| Metastatic cancers                         | NTSR          | NTSR          | 12 (0.8%)     | 0.053                                  |
| Characteristic                                | SGLT-2i N=744 | GLP-1RA N=865 | Total N=1,609 | Standardized Absolute Mean Differences |
|----------------------------------------------|---------------|---------------|---------------|----------------------------------------|
| Mild liver disorders                         | 35 (4.6%)     | 66 (7.6%)     | 100 (6.2%)    | 0.124                                  |
| Moderate liver disorders                     | NTSR          | NTSR          | 18 (1.1%)     | 0.019                                  |
| Nutritional disorders                        | 223 (30.0%)   | 258 (29.8%)   | 481 (29.9%)   | 0.003                                  |
| Nervous system disorders                     | 416 (55.8%)   | 556 (64.3%)   | 972 (60.4%)   | 0.173                                  |
| Paraplegia                                   | NTSR          | NTSR          | 18 (1.1%)     | 0.002                                  |
| Parkinsonism                                 | NTSR          | 13 (1.5%)     | 24 (1.5%)     | 0.007                                  |
| Pneumonia                                    | 121 (16.3%)   | 97 (11.2%)    | 218 (13.5%)   | 0.148                                  |
| Psychosis                                    | 114 (15.3%)   | 89 (10.2%)    | 202 (12.6%)   | 0.151                                  |
| Pulmonary circulation disorders              | 54 (7.2%)     | 81 (9.3%)     | 135 (8.4%)    | 0.077                                  |
| Rehabilitation                               | 85 (11.5%)    | 90 (10.4%)    | 175 (10.9%)   | 0.035                                  |
| Renal disorders                              | 212 (28.5%)   | 248 (28.7%)   | 460 (28.6%)   | 0.004                                  |
| Rheumatic disorders                          | 45 (6.0%)     | 54 (6.2%)     | 99 (6.2%)     | 0.008                                  |
| Smoking and smoking cessation                | 65 (8.7%)     | 33 (3.8%)     | 98 (6.1%)     | 0.206                                  |
| Thromboembolism                              | NTSR          | NTSR          | NTSR          | 0.042                                  |
| Vulvar disorders                             | 149 (20.1%)   | 177 (20.5%)   | 327 (20.3%)   | 0.011                                  |
| Weight loss                                  | NTSR          | NTSR          | NTSR          | 0.018                                  |

**Durable medical equipment claims**

|                                | SGLT-2i N=744 | GLP-1RA N=865 | Total N=1,609 | Standardized Absolute Mean Differences |
|--------------------------------|---------------|---------------|---------------|----------------------------------------|
| Ambulance                      | 138 (18.5%)   | 170 (19.7%)   | 308 (19.1%)   | 0.029                                  |
| Hospital beds                  | NTSR          | NTSR          | 16 (1.0%)     | 0.004                                  |
| Home oxygen                    | 91 (12.2%)    | 124 (14.4%)   | 215 (13.4%)   | 0.065                                  |
| Wheelchairs                    | NTSR          | 21 (2.4%)     | 30 (1.9%)     | 0.090                                  |

**History of medications use**

|                                | SGLT-2i N=744 | GLP-1RA N=865 | Total N=1,609 | Standardized Absolute Mean Differences |
|--------------------------------|---------------|---------------|---------------|----------------------------------------|
| Metformin                      | 425 (57.2%)   | 538 (62.2%)   | 963 (59.9%)   | 0.102                                  |
| Short acting insulin           | 182 (24.5%)   | 210 (24.3%)   | 392 (24.4%)   | 0.006                                  |
| Long acting insulin            | 321 (43.2%)   | 354 (40.9%)   | 675 (42.0%)   | 0.046                                  |
| TZD                            | 70 (9.4%)     | 89 (10.3%)    | 158 (9.8%)    | 0.031                                  |
| Meglitinide                    | NTSR          | 16 (1.8%)     | 23 (1.4%)     | 0.079                                  |
| SU                             | 315 (42.4%)   | 370 (42.8%)   | 685 (42.6%)   | 0.009                                  |
| DPP-4i                         | 233 (31.3%)   | 300 (34.6%)   | 533 (33.1%)   | 0.071                                  |
| Immunosuppressive drugs        | NTSR          | NTSR          | 17 (1.1%)     | 0.035                                  |
| Steroids                       | 188 (25.2%)   | 196 (22.7%)   | 384 (23.8%)   | 0.060                                  |
| Characteristic            | SGLT-2i N=744 | GLP-1RA N=865 | Total N=1,609 | Standardized Absolute Mean Differences |
|--------------------------|---------------|---------------|---------------|----------------------------------------|
| ACEI                     | 338 (45.4%)   | 392 (45.4%)   | 730 (45.4%)   | 0.001                                  |
| ARB                      | 292 (39.2%)   | 349 (40.3%)   | 641 (39.8%)   | 0.023                                  |
| CCB                      | 288 (38.7%)   | 348 (40.2%)   | 636 (39.5%)   | 0.031                                  |
| BB                       | 478 (64.2%)   | 595 (68.8%)   | 1,073 (66.7%) | 0.097                                  |
| NSAIDS                   | 219 (29.4%)   | 251 (29.0%)   | 470 (29.2%)   | 0.010                                  |
| Aspirin                  | 68 (9.2%)     | 53 (6.1%)     | 121 (7.5%)    | 0.118                                  |
| Oral contraceptives      | 22 (2.9%)     | 25 (2.9%)     | 47 (2.9%)     | 0.000                                  |
| Estrogen                 | 36 (4.8%)     | 44 (5.1%)     | 79 (4.9%)     | 0.013                                  |
| Loop diuretics           | 404 (54.4%)   | 484 (56.0%)   | 888 (55.2%)   | 0.033                                  |
| Other diuretics          | 302 (40.5%)   | 362 (41.8%)   | 663 (41.2%)   | 0.026                                  |
| Statin                   | 490 (65.8%)   | 605 (70.0%)   | 1,095 (68.1%) | 0.089                                  |
| **Measures of healthcare utilization** |            |               |               |                                        |
| HbA1C tests              |               |               |               |                                        |
| 0                        | 60 (8.1%)     | 48 (5.5%)     | 108 (6.7%)    | 0.101                                  |
| 1                        | 91 (12.2%)    | 114 (13.2%)   | 205 (12.7%)   | 0.027                                  |
| 2                        | 138 (18.6%)   | 155 (17.9%)   | 293 (18.2%)   | 0.016                                  |
| 3                        | 194 (26.1%)   | 241 (27.8%)   | 435 (27.0%)   | 0.039                                  |
| 4                        | 166 (22.3%)   | 193 (22.3%)   | 359 (22.3%)   | 0.000                                  |
| 5+                       | 95 (12.7%)    | 115 (13.2%)   | 209 (13.0%)   | 0.016                                  |
| Flu shots                |               |               |               |                                        |
| 0                        | 338 (45.4%)   | 319 (36.8%)   | 656 (40.8%)   | 0.174                                  |
| 1                        | 309 (41.5%)   | 423 (48.9%)   | 732 (45.5%)   | 0.148                                  |
| 2                        | 58 (7.8%)     | 77 (8.9%)     | 134 (8.4%)    | 0.040                                  |
| 3+                       | 40 (5.4%)     | 47 (5.5%)     | 87 (5.4%)     | 0.004                                  |
| Lipid tests              |               |               |               |                                        |
| 0                        | 166 (22.3%)   | 146 (16.8%)   | 312 (19.4%)   | 0.138                                  |
| 1                        | 211 (28.4%)   | 241 (27.9%)   | 453 (28.1%)   | 0.011                                  |
| 2                        | 142 (19.0%)   | 225 (26.0%)   | 367 (22.8%)   | 0.166                                  |
| 3                        | 139 (18.7%)   | 157 (18.2%)   | 296 (18.4%)   | 0.013                                  |
| 4+                       | 86 (11.6%)    | 96 (11.1%)    | 183 (11.3%)   | 0.015                                  |
| Number of hospital admissions |               |               |               |                                        |
### Characteristics

| Characteristic                        | SGLT-2i N=744 | GLP-1RA N=865 | Total N=1,609 | Standardized Absolute Mean Differences |
|---------------------------------------|---------------|---------------|---------------|----------------------------------------|
| **Number of days of hospitalization** |               |               |               |                                        |
| 0                                     | 544 (73.2%)   | 659 (76.1%)   | 1,203 (74.8%) | 0.068                                  |
| 1                                     | 157 (21.2%)   | 146 (16.9%)   | 303 (18.8%)   | 0.110                                  |
| 2+                                    | 42 (5.7%)     | 61 (7.0%)     | 103 (6.4%)    | 0.054                                  |
| **Number of emergency visits**        |               |               |               |                                        |
| 0                                     | 399 (53.6%)   | 482 (55.7%)   | 880 (54.7%)   | 0.042                                  |
| 1                                     | 162 (21.8%)   | 168 (19.4%)   | 330 (20.5%)   | 0.059                                  |
| 2                                     | 77 (10.3%)    | 101 (11.6%)   | 177 (11.0%)   | 0.041                                  |
| 3+                                    | 107 (14.3%)   | 115 (13.3%)   | 222 (13.8%)   | 0.029                                  |
| **Number of emergency visits due to DM** |             |               |               |                                        |
| 0                                     | 717 (96.3%)   | 849 (98.1%)   | 1,565 (97.3%) | 0.106                                  |
| 1                                     | 27 (3.6%)     | 13 (1.5%)     | 39 (2.4%)     | 0.134                                  |
| 2+                                    | NTSR          | NTSR          | NTSR          | 0.066                                  |
| **Number of outpatient visits**       |               |               |               |                                        |
| 0                                     | 55 (7.4%)     | 37 (4.2%)     | 92 (5.7%)     | 0.136                                  |
| 1                                     | 104 (14.0%)   | 123 (14.2%)   | 227 (14.1%)   | 0.007                                  |
| 2                                     | 174 (23.3%)   | 214 (24.7%)   | 388 (24.1%)   | 0.032                                  |
| 3                                     | 129 (17.3%)   | 158 (18.3%)   | 287 (17.8%)   | 0.025                                  |
| 4                                     | 110 (14.8%)   | 136 (15.7%)   | 246 (15.3%)   | 0.025                                  |
| 5+                                    | 173 (23.2%)   | 198 (22.9%)   | 371 (23.1%)   | 0.007                                  |
| **Number of outpatient visits due to DM** |             |               |               |                                        |
| 0                                     | 349 (46.9%)   | 427 (49.3%)   | 776 (48.2%)   | 0.048                                  |

*SGLT2i – sodium glucose cotransporter 2 inhibitors; GLP-1RA – glucagon like peptide-1 receptor agonist; SD – standard deviations; DM – diabetes mellitus; ACEI – angiotensin converting enzyme inhibitors; ARB – angiotensin receptor blockers; BB – beta blockers; CCB – calcium channel blockers; NSAIDs - nonsteroidal anti-inflammatory drugs; DPP-4i – dipeptidyl peptidase-4 inhibitors; SU – sulphonylureas; TZD - thiazolidinediones*
Table S10. Distribution of baseline characteristics after inverse probability of treatment and censoring weighting among patients with history of atherosclerotic CVDs but no heart failure

| Characteristic                        | SGLT-2i N=10,475 | GLP-1RA N=8,827 | Total N=19,302 | Standardized Absolute Mean Differences |
|---------------------------------------|-------------------|------------------|----------------|----------------------------------------|
| Demographic characteristics           |                   |                  |                |                                        |
| Age, mean (SD)                        | 73.5(5.53)        | 73.6(5.56)       | 73.5(5.54)     | 0.004                                  |
| Race                                  |                   |                  |                |                                        |
| Whites                                | 8,553 (81.7%)     | 7,152 (81.0%)    | 15,705 (81.4%) | 0.016                                  |
| African Americans                     | 802 (7.7%)        | 695 (7.9%)       | 1,497 (7.8%)   | 0.008                                  |
| Others                                | 1,120 (10.7%)     | 980 (11.1%)      | 2,100 (10.9%)  | 0.013                                  |
| Sex, Males                            | 4,989 (47.6%)     | 4,235 (48.0%)    | 9,225 (47.8%)  | 0.007                                  |
| Low-income subsidy, mean (SD)         | 191.4(420.46)     | 192.2(412.03)    | 191.8(416.61)  | 0.002                                  |
| Measures of DM severity               |                   |                  |                |                                        |
| Diabetes retinopathy                  | 1,801 (17.2%)     | 1,513 (17.1%)    | 3,314 (17.2%)  | 0.001                                  |
| Diabetes nephropathy                  | 1,493 (14.3%)     | 1,263 (14.3%)    | 2,756 (14.3%)  | 0.001                                  |
| Diabetes neuropathy                   | 3,882 (37.1%)     | 3,233 (36.6%)    | 7,114 (36.9%)  | 0.009                                  |
| Other diabetes complications          | 5,114 (48.8%)     | 4,315 (48.9%)    | 9,429 (48.8%)  | 0.001                                  |
| Number of antihyperglycemic drugs     |                   |                  |                |                                        |
| 0                                     | 1,237 (11.8%)     | 1,018 (11.5%)    | 2,256 (11.7%)  | 0.009                                  |
| 1                                     | 2,978 (28.4%)     | 2,512 (28.5%)    | 5,490 (28.4%)  | 0.001                                  |
| 2                                     | 3,633 (34.7%)     | 3,098 (35.1%)    | 6,732 (34.9%)  | 0.009                                  |
| 3                                     | 2,258 (21.6%)     | 1,879 (21.3%)    | 4,138 (21.4%)  | 0.007                                  |
| 4+                                    | 368 (3.5%)        | 320 (3.6%)       | 687 (3.6%)     | 0.006                                  |
| Number of hyperglycemia diagnoses     |                   |                  |                |                                        |
| 0                                     | 3,885 (37.1%)     | 3,307 (37.5%)    | 7,192 (37.3%)  | 0.008                                  |
| 1                                     | 1,321 (12.6%)     | 1,096 (12.4%)    | 2,417 (12.5%)  | 0.006                                  |
| 2                                     | 876 (8.4%)        | 751 (8.5%)       | 1,627 (8.4%)   | 0.005                                  |
| 3                                     | 1,333 (12.7%)     | 1,126 (12.8%)    | 2,458 (12.7%)  | 0.001                                  |
| 4+                                    | 3,060 (29.2%)     | 2,548 (28.9%)    | 5,608 (29.1%)  | 0.008                                  |
| Hypoglycemia                          | 374 (3.6%)        | 300 (3.4%)       | 674 (3.5%)     | 0.009                                  |
| Foot ulcers                           | 568 (5.4%)        | 448 (5.1%)       | 1,016 (5.3%)   | 0.015                                  |
| Characteristic                        | SGLT-2i N=10,475 | GLP-1RA N=8,827 | Total N=19,302 | Standardized Absolute Mean Differences |
|--------------------------------------|------------------|-----------------|----------------|----------------------------------------|
| **Cardiovascular disorders**         |                  |                 |                |                                        |
| Angina                               | 992 (9.5%)       | 861 (9.8%)      | 1,854 (9.6%)   | 0.010                                  |
| MI                                   | 1,006 (9.6%)     | 855 (9.7%)      | 1,861 (9.6%)   | 0.003                                  |
| Cardiac revascularization or bypass  | 301 (2.9%)       | 249 (2.8%)      | 550 (2.8%)     | 0.003                                  |
| Atherosclerosis                      | 2,457 (23.5%)    | 2,083 (23.6%)   | 4,541 (23.5%)  | 0.003                                  |
| Ischemic heart diseases              | 6,462 (61.7%)    | 5,478 (62.1%)   | 11,940 (61.9%) | 0.007                                  |
| Cerebrovascular diseases             | 3,148 (30.1%)    | 2,636 (29.9%)   | 5,784 (30.0%)  | 0.004                                  |
| Peripheral vascular diseases         | 3,844 (36.7%)    | 3,155 (35.7%)   | 6,999 (36.3%)  | 0.020                                  |
| Atrial fibrillation                  | 1,197 (11.4%)    | 996 (11.3%)     | 2,193 (11.4%)  | 0.005                                  |
| Arrhythmia disorders                 | 1,758 (16.8%)    | 1,491 (16.9%)   | 3,249 (16.8%)  | 0.003                                  |
| Cardiac arrest                       | 13 (0.1%)        | 11 (0.1%)       | 25 (0.1%)      | 0.001                                  |
| **Comorbid conditions**              |                  |                 |                |                                        |
| Combined comorbidity score, mean (SD)| 2.4(2.05)        | 2.3(2.00)       | 2.3(2.03)      | 0.007                                  |
| Alcohol disorders                    | 86 (0.8%)        | 78 (0.9%)       | 165 (0.9%)     | 0.007                                  |
| Asthma                               | 1,169 (11.2%)    | 996 (11.3%)     | 2,164 (11.2%)  | 0.004                                  |
| Brain injury                         | 384 (3.7%)       | 333 (3.8%)      | 717 (3.7%)     | 0.005                                  |
| Cancer (except for non-melanoma skin)| 1,425 (13.6%)    | 1,173 (13.3%)   | 2,599 (13.5%)  | 0.009                                  |
| Chronic lung disorders               | 2,839 (27.1%)    | 2,403 (27.2%)   | 5,241 (27.2%)  | 0.003                                  |
| CKD (stage 1-3)                      | 2,172 (20.7%)    | 1,844 (20.9%)   | 4,017 (20.8%)  | 0.004                                  |
| Coagulopathy                         | 410 (3.9%)       | 334 (3.8%)      | 743 (3.9%)     | 0.007                                  |
| Connective tissue disorders          | 497 (4.7%)       | 415 (4.7%)      | 912 (4.7%)     | 0.002                                  |
| Dementia                             | 305 (2.9%)       | 263 (3.0%)      | 568 (2.9%)     | 0.004                                  |
| Deficiency anemia                    | 2,812 (26.8%)    | 2,362 (26.8%)   | 5,174 (26.8%)  | 0.002                                  |
| Depression                           | 1,969 (18.8%)    | 1,676 (19.0%)   | 3,644 (18.9%)  | 0.005                                  |
| Difficulty walking                   | 1,922 (18.3%)    | 1,649 (18.7%)   | 3,570 (18.5%)  | 0.008                                  |
| Dyslipidemia                         | 9,774 (93.3%)    | 8,242 (93.4%)   | 18,017 (93.3%) | 0.003                                  |
| Endocrine disorders                  | 4,588 (43.8%)    | 3,859 (43.7%)   | 8,447 (43.8%)  | 0.002                                  |
| Edema                                | 1,642 (15.7%)    | 1,371 (15.5%)   | 3,013 (15.6%)  | 0.004                                  |
| Electrolytes disorders               | 1,481 (14.1%)    | 1,269 (14.4%)   | 2,750 (14.2%)  | 0.007                                  |
| HIV                                  | 24 (0.2%)        | 23 (0.3%)       | 46 (0.2%)      | 0.006                                  |
| Hematological disorders              | 3,537 (33.8%)    | 2,980 (33.8%)   | 6,516 (33.8%)  | 0.000                                  |
| Characteristic                          | SGLT-2i N=10,475 | GLP-1RA N=8,827 | Total N=19,302 | Standardized Absolute Mean Differences |
|----------------------------------------|------------------|-----------------|----------------|----------------------------------------|
| Hypertension                           | 4,762 (45.5%)    | 4,051 (45.9%)   | 8,813 (45.7%)  | 0.009                                  |
| Immune disorders                       | 176 (1.7%)       | 145 (1.6%)      | 321 (1.7%)     | 0.003                                  |
| Metabolic disorders                    | 9,886 (94.4%)    | 8,334 (94.4%)   | 18,219 (94.4%) | 0.002                                  |
| Metastatic cancers                     | 107 (1.0%)       | 86 (1.0%)       | 192 (1.0%)     | 0.005                                  |
| Mild liver disorders                   | 665 (6.3%)       | 572 (6.5%)      | 1,237 (6.4%)   | 0.005                                  |
| Moderate liver disorders               | 66 (0.6%)        | 54 (0.6%)       | 120 (0.6%)     | 0.002                                  |
| Nutritional disorders                  | 3,610 (34.5%)    | 3,050 (34.6%)   | 6,660 (34.5%)  | 0.002                                  |
| Nervous system disorders               | 5,891 (56.2%)    | 4,946 (56.0%)   | 10,837 (56.1%) | 0.004                                  |
| Paraplegia                             | 163 (1.6%)       | 132 (1.5%)      | 295 (1.5%)     | 0.005                                  |
| Parkinsonism                           | 141 (1.3%)       | 120 (1.4%)      | 261 (1.4%)     | 0.001                                  |
| Pneumonia                              | 510 (4.9%)       | 431 (4.9%)      | 941 (4.9%)     | 0.001                                  |
| Psychosis                              | 614 (5.9%)       | 540 (6.1%)      | 1,155 (6.0%)   | 0.011                                  |
| Pulmonary circulation disorders        | 227 (2.2%)       | 185 (2.1%)      | 412 (2.1%)     | 0.005                                  |
| Rehabilitation                         | 818 (7.8%)       | 685 (7.8%)      | 1,504 (7.8%)   | 0.002                                  |
| Renal disorders                        | 2,200 (21.0%)    | 1,868 (21.2%)   | 4,068 (21.1%)  | 0.004                                  |
| Rheumatic disorders                    | 447 (4.3%)       | 357 (4.0%)      | 804 (4.2%)     | 0.011                                  |
| Smoking and smoking cessation          | 691 (6.6%)       | 575 (6.5%)      | 1,267 (6.6%)   | 0.003                                  |
| Thromboembolism                        | 103 (1.0%)       | 85 (1.0%)       | 189 (1.0%)     | 0.002                                  |
| Vulvular disorders                     | 1,607 (15.3%)    | 1,355 (15.3%)   | 2,962 (15.3%)  | 0.000                                  |
| Weight loss                            | 91 (0.9%)        | 78 (0.9%)       | 168 (0.9%)     | 0.002                                  |

**Durable medical equipment claims**

| Ambulance                              | 1,261 (12.0%)    | 1,065 (12.1%)   | 2,325 (12.0%)  | 0.001                                  |
| Hospital beds                          | 60 (0.6%)        | 52 (0.6%)       | 112 (0.6%)     | 0.002                                  |
| Home oxygen                            | 426 (4.1%)       | 342 (3.9%)      | 768 (4.0%)     | 0.010                                  |
| Wheelchairs                            | 161 (1.5%)       | 129 (1.5%)      | 290 (1.5%)     | 0.006                                  |

**History of medications use**

| Metformin                              | 7,578 (72.3%)    | 6,420 (72.7%)   | 13,998 (72.5%) | 0.009                                  |
| Short acting insulin                   | 1,927 (18.4%)    | 1,572 (17.8%)   | 3,499 (18.1%)  | 0.015                                  |
| Long acting insulin                    | 4,123 (39.4%)    | 3,368 (38.2%)   | 7,491 (38.8%)  | 0.025                                  |
| TZD                                    | 1,096 (10.5%)    | 958 (10.9%)     | 2,054 (10.6%)  | 0.013                                  |
| Meglitinide                            | 354 (3.4%)       | 308 (3.5%)      | 662 (3.4%)     | 0.006                                  |
| Characteristic                  | SGLT-2i N=10,475 | GLP-1RA N=8,827 | Total N=19,302 | Standardized Absolute Mean Differences |
|--------------------------------|------------------|------------------|----------------|----------------------------------------|
| SU                            | 5,163 (49.3%)    | 4,343 (49.2%)    | 9,506 (49.2%)  | 0.002                                  |
| DPP-4i                         | 4,196 (40.1%)    | 3,514 (39.8%)    | 7,710 (39.9%)  | 0.005                                  |
| Immunosuppressive drugs        | 95 (0.9%)        | 74 (0.8%)        | 169 (0.9%)     | 0.007                                  |
| Steroids                       | 1,914 (18.3%)    | 1,633 (18.5%)    | 3,547 (18.4%)  | 0.006                                  |
| ACEI                           | 4,764 (45.5%)    | 4,069 (46.1%)    | 8,833 (45.8%)  | 0.012                                  |
| ARB                            | 4,036 (38.5%)    | 3,380 (38.3%)    | 7,416 (38.4%)  | 0.005                                  |
| CCB                            | 3,825 (36.5%)    | 3,252 (36.8%)    | 7,077 (36.7%)  | 0.007                                  |
| BB                             | 6,429 (61.4%)    | 5,427 (61.5%)    | 11,856 (61.4%) | 0.002                                  |
| NSAIDS                         | 3,270 (31.2%)    | 2,761 (31.3%)    | 6,031 (31.2%)  | 0.001                                  |
| Aspirin                        | 622 (5.9%)       | 530 (6.0%)       | 1,152 (6.0%)   | 0.003                                  |
| Oral contraceptives            | 201 (1.9%)       | 170 (1.9%)       | 370 (1.9%)     | 0.001                                  |
| Estrogen                       | 598 (5.7%)       | 509 (5.8%)       | 1,107 (5.7%)   | 0.002                                  |
| Loop diuretics                 | 2,091 (20.0%)    | 1,729 (19.6%)    | 3,820 (19.8%)  | 0.009                                  |
| Other diuretics                | 4,046 (38.6%)    | 3,400 (38.5%)    | 7,445 (38.6%)  | 0.002                                  |
| Statin                         | 8,340 (79.6%)    | 7,056 (79.9%)    | 15,396 (79.8%) | 0.008                                  |

**Measures of healthcare utilization**

**HbA1C tests**

|        | SGLT-2i N=10,475 | GLP-1RA N=8,827 | Total N=19,302 | Standardized Absolute Mean Differences |
|--------|------------------|------------------|----------------|----------------------------------------|
| 0      | 346 (3.3%)       | 303 (3.4%)       | 648 (3.4%)    | 0.007                                  |
| 1      | 1,161 (11.1%)    | 968 (11.0%)      | 2,128 (11.0%) | 0.004                                  |
| 2      | 2,273 (21.7%)    | 1,918 (21.7%)    | 4,191 (21.7%) | 0.001                                  |
| 3      | 2,912 (27.8%)    | 2,418 (27.4%)    | 5,330 (27.6%) | 0.009                                  |
| 4      | 2,226 (21.3%)    | 1,891 (21.4%)    | 4,117 (21.3%) | 0.004                                  |
| 5+     | 1,558 (14.9%)    | 1,330 (15.1%)    | 2,888 (15.0%) | 0.006                                  |

**Flu shots**

|        | SGLT-2i N=10,475 | GLP-1RA N=8,827 | Total N=19,302 | Standardized Absolute Mean Differences |
|--------|------------------|------------------|----------------|----------------------------------------|
| 0      | 3,657 (34.9%)    | 3,115 (35.3%)    | 6,773 (35.1%)  | 0.008                                  |
| 1      | 5,478 (52.3%)    | 4,585 (51.9%)    | 10,063 (52.1%) | 0.007                                  |
| 2      | 897 (8.6%)       | 749 (8.5%)       | 1,646 (8.5%)   | 0.003                                  |
| 3+     | 443 (4.2%)       | 378 (4.3%)       | 821 (4.3%)     | 0.003                                  |

**Lipid tests**

|        | SGLT-2i N=10,475 | GLP-1RA N=8,827 | Total N=19,302 | Standardized Absolute Mean Differences |
|--------|------------------|------------------|----------------|----------------------------------------|
| 0      | 1,052 (10.0%)    | 890 (10.1%)      | 1,942 (10.1%)  | 0.001                                  |
| 1      | 2,823 (27.0%)    | 2,336 (26.5%)    | 5,159 (26.7%)  | 0.011                                  |
| Characteristic                  | SGLT-2i N=10,475 | GLP-1RA N=8,827 | Total N=19,302 | Standardized Absolute Mean Differences |
|--------------------------------|------------------|-----------------|----------------|----------------------------------------|
|                                |                  |                 |                |                                        |
| 2                              | 2,924 (27.9%)    | 2,481 (28.1%)   | 5,404 (28.0%)  | 0.004                                  |
| 3                              | 1,953 (18.6%)    | 1,649 (18.7%)   | 3,602 (18.7%)  | 0.001                                  |
| 4+                             | 1,723 (16.5%)    | 1,471 (16.7%)   | 3,195 (16.6%)  | 0.006                                  |
| Number of hospital admissions  |                  |                 |                |                                        |
| 0                              | 8,604 (82.1%)    | 7,232 (81.9%)   | 15,836 (82.0%) | 0.006                                  |
| 1                              | 1,360 (13.0%)    | 1,174 (13.3%)   | 2,534 (13.1%)  | 0.009                                  |
| 2+                             | 511 (4.9%)       | 422 (4.8%)      | 933 (4.8%)     | 0.005                                  |
| Number of days of hospitalization |                |                 |                |                                        |
| 0                              | 8,604 (82.1%)    | 7,232 (81.9%)   | 15,836 (82.0%) | 0.006                                  |
| 1                              | 937 (8.9%)       | 809 (9.2%)      | 1,747 (9.0%)   | 0.008                                  |
| 2+                             | 934 (8.9%)       | 786 (8.9%)      | 1,720 (8.9%)   | 0.000                                  |
| Number of emergency visits     |                  |                 |                |                                        |
| 0                              | 6,765 (64.6%)    | 5,683 (64.4%)   | 12,448 (64.5%) | 0.004                                  |
| 1                              | 1,982 (18.9%)    | 1,677 (19.0%)   | 3,659 (19.0%)  | 0.002                                  |
| 2                              | 906 (8.7%)       | 746 (8.5%)      | 1,652 (8.6%)   | 0.007                                  |
| 3+                             | 822 (7.8%)       | 720 (8.2%)      | 1,542 (8.0%)   | 0.012                                  |
| Number of emergency visits due to DM |                |                 |                |                                        |
| 0                              | 10,253 (97.9%)   | 8,640 (97.9%)   | 18,894 (97.9%) | 0.000                                  |
| 1                              | 186 (1.8%)       | 151 (1.7%)      | 337 (1.7%)     | 0.005                                  |
| 2+                             | 36 (0.3%)        | 36 (0.4%)       | 71 (0.4%)      | 0.011                                  |
| Number of outpatient visits    |                  |                 |                |                                        |
| 0                              | 182 (1.7%)       | 141 (1.6%)      | 323 (1.7%)     | 0.011                                  |
| 1                              | 1,088 (10.4%)    | 932 (10.6%)     | 2,020 (10.5%)  | 0.006                                  |
| 2                              | 2,255 (21.5%)    | 1,918 (21.7%)   | 4,173 (21.6%)  | 0.005                                  |
| 3                              | 2,377 (22.7%)    | 1,986 (22.5%)   | 4,363 (22.6%)  | 0.005                                  |
| 4                              | 1,755 (16.8%)    | 1,503 (17.0%)   | 3,258 (16.9%)  | 0.007                                  |
| 5+                             | 2,818 (26.9%)    | 2,347 (26.6%)   | 5,166 (26.8%)  | 0.007                                  |
| Number of outpatient visits due to DM |                |                 |                |                                        |
| 0                              | 5,962 (56.9%)    | 4,998 (56.6%)   | 10,960 (56.8%) | 0.006                                  |

SGLT2i – sodium glucose cotransporter 2 inhibitors; GLP-1RA – glucagon like peptide-1 receptor agonist; SD – standard deviations; DM – diabetes mellitus; ACEI – angiotensin converting enzyme inhibitors; ARB
– angiotensin receptor blockers; BB – beta blockers; CCB – calcium channel blockers; NSAIDs - nonsteroidal
anti-inflammatory drugs; DPP-4i – dipeptidyl peptidase-4 inhibitors; SU – sulphonylureas; TZD -
thiazolidinediones
Table S11. Distribution of baseline characteristics after inverse probability of treatment and censoring weighting among patients with history of atherosclerotic CVDs but no heart failure

| Characteristic                              | SGLT-2i N=3,226 | GLP-1RA N=3,809 | Total N=7,036 | Standardized Absolute Mean Differences |
|---------------------------------------------|-----------------|-----------------|---------------|---------------------------------------|
| **Demographic characteristics**             |                 |                 |               |                                       |
| Age, mean (SD)                              | 74.7(6.23)      | 74.7(6.16)      | 74.7(6.20)    | 0.006                                 |
| Race                                        |                 |                 |               |                                       |
| Whites                                      | 2,624 (81.3%)   | 3,080 (80.9%)   | 5,704 (81.1%) | 0.012                                 |
| African Americans                           | 328 (10.2%)     | 386 (10.1%)     | 713 (10.1%)   | 0.001                                 |
| Others                                      | 275 (8.5%)      | 344 (9.0%)      | 619 (8.8%)    | 0.018                                 |
| Sex, Males                                  | 1,609 (49.9%)   | 1,917 (50.3%)   | 3,526 (50.1%) | 0.009                                 |
| Low-income subsidy, mean (SD)               | 273.8(484.49)   | 273.8(481.90)   | 273.8(483.05) | 0.000                                 |
| **Measures of DM severity**                 |                 |                 |               |                                       |
| Diabetes retinopathy                        | 670 (20.8%)     | 762 (20.0%)     | 1,432 (20.4%) | 0.019                                 |
| Diabetes nephropathy                        | 663 (20.5%)     | 799 (21.0%)     | 1,462 (20.8%) | 0.011                                 |
| Diabetes neuropathy                         | 1,471 (45.6%)   | 1,743 (45.8%)   | 3,214 (45.7%) | 0.003                                 |
| Other diabetes complications                | 1,731 (53.7%)   | 2,058 (54.0%)   | 3,789 (53.9%) | 0.007                                 |
| Number of antihyperglycemic drugs           |                 |                 |               |                                       |
| 0                                           | 567 (17.6%)     | 637 (16.7%)     | 1,204 (17.1%) | 0.023                                 |
| 1                                           | 967 (30.0%)     | 1,151 (30.2%)   | 2,118 (30.1%) | 0.005                                 |
| 2                                           | 1,024 (31.7%)   | 1,227 (32.2%)   | 2,251 (32.0%) | 0.010                                 |
| 3                                           | 566 (17.5%)     | 678 (17.8%)     | 1,244 (17.7%) | 0.007                                 |
| 4+                                          | 102 (3.2%)      | 117 (3.1%)      | 219 (3.1%)    | 0.006                                 |
| Number of hyperglycemia diagnoses           |                 |                 |               |                                       |
| 0                                           | 941 (29.2%)     | 1,116 (29.3%)   | 2,057 (29.2%) | 0.003                                 |
| 1                                           | 413 (12.8%)     | 493 (13.0%)     | 906 (12.9%)   | 0.005                                 |
| 2                                           | 273 (8.5%)      | 322 (8.5%)      | 595 (8.5%)    | 0.000                                 |
| 3                                           | 433 (13.4%)     | 517 (13.6%)     | 949 (13.5%)   | 0.004                                 |
| 4+                                          | 1,167 (36.2%)   | 1,361 (35.7%)   | 2,528 (35.9%) | 0.009                                 |
| Hypoglycemia                                | 184 (5.7%)      | 226 (5.9%)      | 410 (5.8%)    | 0.011                                 |
| Foot ulcers                                 | 334 (10.3%)     | 384 (10.1%)     | 718 (10.2%)   | 0.008                                 |
| Characteristic                          | SGLT-2i N=3,226 | GLP-1RA N=3,809 | Total N=7,036 | Standardized Absolute Mean Differences |
|----------------------------------------|-----------------|-----------------|---------------|----------------------------------------|
| **Cardiovascular disorders**           |                 |                 |               |                                        |
| Angina                                 | 503 (15.6%)     | 604 (15.9%)     | 1,107 (15.7%) | 0.008                                  |
| MI                                     | 717 (22.2%)     | 844 (22.2%)     | 1,562 (22.2%) | 0.002                                  |
| Cardiac revascularization or bypass    | 224 (6.9%)      | 258 (6.8%)      | 482 (6.8%)    | 0.006                                  |
| Atherosclerosis                        | 924 (28.6%)     | 1,100 (28.9%)   | 2,024 (28.8%) | 0.005                                  |
| Ischemic heart diseases                | 2,625 (81.4%)   | 3,097 (81.3%)   | 5,721 (81.3%) | 0.002                                  |
| Cerebrovascular diseases               | 1,059 (32.8%)   | 1,263 (33.2%)   | 2,323 (33.0%) | 0.007                                  |
| Cardiomyopathy                         | 822 (25.5%)     | 955 (25.1%)     | 1,777 (25.3%) | 0.009                                  |
| Congestive heart failure               | 2,911 (90.2%)   | 3,438 (90.3%)   | 6,349 (90.2%) | 0.001                                  |
| Peripheral vascular diseases           | 1,334 (41.4%)   | 1,541 (40.4%)   | 2,875 (40.9%) | 0.019                                  |
| Atrial fibrillation                    | 1,067 (33.1%)   | 1,212 (31.8%)   | 2,279 (32.4%) | 0.027                                  |
| Arrhythmia disorders                   | 1,308 (40.5%)   | 1,548 (40.6%)   | 2,856 (40.6%) | 0.002                                  |
| Cardiac arrest                         | 18 (0.6%)       | 22 (0.6%)       | 40 (0.6%)     | 0.000                                  |
| **Comorbid conditions**                |                 |                 |               |                                        |
| Combined comorbidity score, mean (SD)  | 5.6(2.70)       | 5.6(2.63)       | 5.6(2.66)     | 0.001                                  |
| Alcohol disorders                      | 46 (1.4%)       | 48 (1.3%)       | 94 (1.3%)     | 0.016                                  |
| Asthma                                 | 573 (17.7%)     | 692 (18.2%)     | 1,264 (18.0%) | 0.011                                  |
| Brain injury                           | 205 (6.4%)      | 252 (6.6%)      | 457 (6.5%)    | 0.010                                  |
| Cancer (except for non-melanoma skin)  | 469 (14.5%)     | 555 (14.6%)     | 1,024 (14.6%) | 0.000                                  |
| Chronic lung disorders                 | 1,652 (51.2%)   | 1,913 (50.2%)   | 3,565 (50.7%) | 0.020                                  |
| CKD (stage 1-3)                        | 1,159 (35.9%)   | 1,376 (36.1%)   | 2,535 (36.0%) | 0.004                                  |
| Coagulopathy                           | 246 (7.6%)      | 304 (8.0%)      | 550 (7.8%)    | 0.013                                  |
| Connective tissue disorders            | 255 (7.9%)      | 309 (8.1%)      | 565 (8.0%)    | 0.008                                  |
| Dementia                               | 192 (5.9%)      | 226 (5.9%)      | 417 (5.9%)    | 0.001                                  |
| Deficiency anemia                      | 1,394 (43.2%)   | 1,663 (43.7%)   | 3,057 (43.5%) | 0.009                                  |
| Depression                             | 849 (26.3%)     | 1,046 (27.4%)   | 1,895 (26.9%) | 0.025                                  |
| Difficulty walking                     | 974 (30.2%)     | 1,148 (30.1%)   | 2,122 (30.2%) | 0.001                                  |
| Dyslipidemia                           | 3,057 (94.8%)   | 3,616 (94.9%)   | 6,673 (94.8%) | 0.007                                  |
| Endocrine disorders                    | 1,705 (52.8%)   | 2,025 (53.2%)   | 3,730 (53.0%) | 0.006                                  |
| Edema                                  | 998 (30.9%)     | 1,160 (30.4%)   | 2,158 (30.7%) | 0.011                                  |
| Electrolytes disorders                 | 1,011 (31.3%)   | 1,197 (31.4%)   | 2,207 (31.4%) | 0.002                                  |
| Characteristic                      | SGLT-2i N=3,226 | GLP-1RA N=3,809 | Total N=7,036 | Standardized Absolute Mean Differences |
|------------------------------------|-----------------|-----------------|---------------|----------------------------------------|
| HIV                                | NTSR            | NTSR            | 14 (0.2%)     | 0.014                                  |
| Hematological disorders            | 1,703 (52.8%)   | 2,050 (53.8%)   | 3,753 (53.3%) | 0.020                                  |
| Hypertension                       | 1,708 (52.9%)   | 2,068 (54.3%)   | 3,776 (53.7%) | 0.027                                  |
| Immune disorders                   | 98 (3.0%)       | 99 (2.6%)       | 197 (2.8%)    | 0.027                                  |
| Metabolic disorders                | 3,126 (96.9%)   | 3,690 (96.9%)   | 6,816 (96.9%) | 0.001                                  |
| Metastatic cancers                 | 42 (1.3%)       | 51 (1.3%)       | 93 (1.3%)     | 0.005                                  |
| Mild liver disorders               | 254 (7.9%)      | 299 (7.8%)      | 553 (7.8%)    | 0.001                                  |
| Moderate liver disorders           | 34 (1.1%)       | 42 (1.1%)       | 76 (1.1%)     | 0.003                                  |
| Nutritional disorders              | 1,305 (40.4%)   | 1,533 (40.2%)   | 2,838 (40.3%) | 0.004                                  |
| Nervous system disorders           | 2,257 (70.0%)   | 2,672 (70.1%)   | 4,929 (70.1%) | 0.004                                  |
| Paraplegia                         | 79 (2.5%)       | 97 (2.6%)       | 176 (2.5%)    | 0.006                                  |
| Parkinsonism                       | 50 (1.5%)       | 74 (1.9%)       | 124 (1.8%)    | 0.031                                  |
| Pneumonia                          | 460 (14.2%)     | 554 (14.5%)     | 1,014 (14.4%) | 0.009                                  |
| Psychosis                          | 306 (9.5%)      | 352 (9.3%)      | 658 (9.4%)    | 0.008                                  |
| Pulmonary circulation disorders    | 355 (11.0%)     | 448 (11.8%)     | 803 (11.4%)   | 0.024                                  |
| Rehabilitation                     | 402 (12.5%)     | 462 (12.1%)     | 864 (12.3%)   | 0.010                                  |
| Renal disorders                    | 1,169 (36.2%)   | 1,390 (36.5%)   | 2,559 (36.4%) | 0.006                                  |
| Rheumatic disorders                | 347 (10.8%)     | 408 (10.7%)     | 755 (10.7%)   | 0.002                                  |
| Smoking and smoking cessation      | 266 (8.3%)      | 298 (7.8%)      | 564 (8.0%)    | 0.016                                  |
| Thromboembolism                    | 57 (1.8%)       | 70 (1.8%)       | 126 (1.8%)    | 0.005                                  |
| Vulvular disorders                 | 1,020 (31.6%)   | 1,219 (32.0%)   | 2,239 (31.8%) | 0.009                                  |
| Weight loss                        | 67 (2.1%)       | 84 (2.2%)       | 152 (2.2%)    | 0.008                                  |
| **Durable medical equipment claims** |               |                 |               |                                        |
| Ambulance                          | 969 (30.0%)     | 1,134 (29.8%)   | 2,103 (29.9%) | 0.006                                  |
| Hospital beds                      | 74 (2.3%)       | 79 (2.1%)       | 153 (2.2%)    | 0.014                                  |
| Home oxygen                        | 457 (14.2%)     | 562 (14.7%)     | 1,019 (14.5%) | 0.017                                  |
| Wheelchairs                        | 120 (3.7%)      | 135 (3.5%)      | 256 (3.6%)    | 0.010                                  |
| **History of medications use**     |               |                 |               |                                        |
| Metformin                          | 1,984 (61.5%)   | 2,393 (62.8%)   | 4,377 (62.2%) | 0.027                                  |
| Short acting insulin               | 932 (28.9%)     | 1,044 (27.4%)   | 1,975 (28.1%) | 0.033                                  |
| Long acting insulin                | 1,625 (50.4%)   | 1,827 (48.0%)   | 3,452 (49.1%) | 0.048                                  |
| Characteristic                      | SGLT-2i N=3,226 | GLP-1RA N=3,809 | Total N=7,036 | Standardized Absolute Mean Differences |
|------------------------------------|-----------------|-----------------|---------------|----------------------------------------|
| TZD                                | 282 (8.7%)      | 341 (9.0%)      | 623 (8.9%)    | 0.008                                  |
| Meglitinide                        | 137 (4.3%)      | 152 (4.0%)      | 289 (4.1%)    | 0.014                                  |
| SU                                 | 1,430 (44.3%)   | 1,689 (44.3%)   | 3,119 (44.3%) | 0.000                                  |
| DPP-4i                             | 1,252 (38.8%)   | 1,494 (39.2%)   | 2,745 (39.0%) | 0.009                                  |
| Immunosuppressive drugs            | 34 (1.0%)       | 38 (1.0%)       | 72 (1.0%)     | 0.005                                  |
| Steroids                           | 767 (23.8%)     | 929 (24.4%)     | 1,696 (24.1%) | 0.014                                  |
| ACEI                               | 1,420 (44.0%)   | 1,708 (44.8%)   | 3,128 (44.5%) | 0.017                                  |
| ARB                                | 1,333 (41.3%)   | 1,559 (40.9%)   | 2,892 (41.1%) | 0.008                                  |
| CCB                                | 1,252 (38.8%)   | 1,484 (39.0%)   | 2,736 (38.9%) | 0.003                                  |
| BB                                 | 2,570 (79.7%)   | 3,041 (79.8%)   | 5,611 (79.7%) | 0.004                                  |
| NSAIDS                             | 979 (30.4%)     | 1,163 (30.5%)   | 2,142 (30.4%) | 0.004                                  |
| Aspirin                            | 324 (10.0%)     | 365 (9.6%)      | 689 (9.8%)    | 0.015                                  |
| Oral contraceptives                | 65 (2.0%)       | 86 (2.3%)       | 152 (2.2%)    | 0.016                                  |
| Estrogen                           | 202 (6.3%)      | 229 (6.0%)      | 431 (6.1%)    | 0.010                                  |
| Loop diuretics                     | 1,963 (60.9%)   | 2,310 (60.6%)   | 4,273 (60.7%) | 0.005                                  |
| Other diuretics                    | 1,325 (41.1%)   | 1,574 (41.3%)   | 2,899 (41.2%) | 0.005                                  |
| Statin                             | 2,664 (82.6%)   | 3,177 (83.4%)   | 5,841 (83.0%) | 0.022                                  |

**Measures of healthcare utilization**

|               | HbA1C tests         | Flu shots         | Lipid tests |
|---------------|---------------------|------------------|-------------|
| **HbA1C tests** |                     |                  |             |
| 0             | 108 (3.3%)          | 1,142 (35.4%)    | 129 (4.0%)  |
| 1             | 350 (10.8%)         | 1,627 (50.4%)    | 167 (4.4%)  |
| 2             | 633 (19.6%)         | 328 (10.2%)      |             |
| 3             | 825 (25.6%)         | 129 (4.0%)       |             |
| 4             | 705 (21.9%)         | 28 (10.2%)       |             |
| 5+            | 605 (18.8%)         | 13 (4.0%)        |             |
| Characteristic                  | SGLT-2i N=3,226 | GLP-1RA N=3,809 | Total N=7,036 | Standardized Absolute Mean Differences |
|-------------------------------|-----------------|-----------------|--------------|----------------------------------------|
| 0                             | 394 (12.2%)     | 461 (12.1%)     | 855 (12.2%)  | 0.003                                  |
| 1                             | 824 (25.5%)     | 988 (25.9%)     | 1,812 (25.8%)| 0.010                                  |
| 2                             | 834 (25.9%)     | 965 (25.3%)     | 1,800 (25.6%)| 0.012                                  |
| 3                             | 550 (17.0%)     | 660 (17.3%)     | 1,210 (17.2%)| 0.008                                  |
| 4+                            | 625 (19.4%)     | 734 (19.3%)     | 1,359 (19.3%)| 0.003                                  |

Number of hospital admissions

|                          | SGLT-2i         | GLP-1RA         | Total         | Standardized Absolute Mean Differences |
|--------------------------|-----------------|-----------------|---------------|----------------------------------------|
| 0                        | 1,861 (57.7%)   | 2,198 (57.7%)   | 4,060 (57.7%) | 0.000                                  |
| 1                        | 804 (24.9%)     | 938 (24.6%)     | 1,742 (24.8%) | 0.006                                  |
| 2+                       | 562 (17.4%)     | 673 (17.7%)     | 1,234 (17.5%) | 0.007                                  |

Number of days of hospitalization

|                          | SGLT-2i         | GLP-1RA         | Total         | Standardized Absolute Mean Differences |
|--------------------------|-----------------|-----------------|---------------|----------------------------------------|
| 0                        | 1,861 (57.7%)   | 2,198 (57.7%)   | 4,060 (57.7%) | 0.000                                  |
| 1                        | 441 (13.7%)     | 512 (13.4%)     | 953 (13.5%)   | 0.007                                  |
| 2+                       | 924 (28.6%)     | 1,099 (28.9%)   | 2,023 (28.8%) | 0.005                                  |

Number of emergency visits

|                          | SGLT-2i         | GLP-1RA         | Total         | Standardized Absolute Mean Differences |
|--------------------------|-----------------|-----------------|---------------|----------------------------------------|
| 0                        | 1,363 (42.2%)   | 1,624 (42.6%)   | 2,986 (42.4%) | 0.008                                  |
| 1                        | 732 (22.7%)     | 844 (22.2%)     | 1,576 (22.4%) | 0.012                                  |
| 2                        | 437 (13.5%)     | 532 (14.0%)     | 968 (13.8%)   | 0.012                                  |
| 3+                       | 695 (21.6%)     | 810 (21.3%)     | 1,505 (21.4%) | 0.007                                  |

Number of emergency visits due to DM

|                          | SGLT-2i         | GLP-1RA         | Total         | Standardized Absolute Mean Differences |
|--------------------------|-----------------|-----------------|---------------|----------------------------------------|
| 0                        | 3,106 (96.3%)   | 3,667 (96.3%)   | 6,773 (96.3%) | 0.000                                  |
| 1                        | 96 (3.0%)       | 111 (2.9%)      | 206 (2.9%)    | 0.004                                  |
| 2+                       | 25 (0.8%)       | 32 (0.8%)       | 56 (0.8%)     | 0.008                                  |

Number of outpatient visits

|                          | SGLT-2i         | GLP-1RA         | Total         | Standardized Absolute Mean Differences |
|--------------------------|-----------------|-----------------|---------------|----------------------------------------|
| 0                        | 70 (2.2%)       | 83 (2.2%)       | 153 (2.2%)    | 0.002                                  |
| 1                        | 253 (7.8%)      | 307 (8.1%)      | 560 (8.0%)    | 0.008                                  |
| 2                        | 443 (13.7%)     | 544 (14.3%)     | 987 (14.0%)   | 0.016                                  |
| 3                        | 582 (18.1%)     | 661 (17.3%)     | 1,243 (17.7%) | 0.018                                  |
| 4                        | 537 (16.6%)     | 637 (16.7%)     | 1,175 (16.7%) | 0.002                                  |
| 5+                       | 1,342 (41.6%)   | 1,576 (41.4%)   | 2,918 (41.5%) | 0.004                                  |

Number of outpatient visits due to DM

|                          | SGLT-2i         | GLP-1RA         | Total         | Standardized Absolute Mean Differences |
|--------------------------|-----------------|-----------------|---------------|----------------------------------------|
|                          | 1,726 (53.5%)   | 2,001 (52.5%)   | 3,727 (53.0%) | 0.019                                  |

SGLT2i – sodium glucose cotransporter 2 inhibitors; GLP-1RA – glucagon like peptide-1 receptor agonist;
SD – standard deviations; DM – diabetes mellitus; ACEI – angiotensin converting enzyme inhibitors; ARB – angiotensin receptor blockers; BB – beta blockers; CCB – calcium channel blockers; NSAIDs - nonsteroidal anti-inflammatory drugs; DPP-4i – dipeptidyl peptidase-4 inhibitors; SU – sulphonylureas; TZD - thiazolidinediones
Table S12. Risk of hospitalization for heart failure and competing events (mortality prior to heart failure hospitalization)

| ITT analyses | No. of events | No. at risk | No. (%) of competing events | Crude RR* (95% CI) | IPTW + IPCW RR* (95% CI) | Aalen Johansen RR* |
|--------------|---------------|-------------|-----------------------------|-------------------|--------------------------|-------------------|
| **CVD (-) HF (-)** | | | | | | |
| SGLT-2i      | 107           | 11,830      | 200 (1.7%)                  | 0.60 (0.47, 0.77) | 0.83 (0.65, 1.06) | 0.84 (0.61, 1.09) |
| GLP-1RA      | 153           | 10,142      | 178 (1.7%)                  |                   |                         |                   |
| **CVD (+) HF (-)** | | | | | | |
| SGLT-2i      | 34            | 609         | 24 (3.9%)                   | 0.49 (0.33, 0.72) | 0.55 (0.38, 0.80) | 0.55 (0.30, 0.85) |
| GLP-1RA      | 88            | 771         | 29 (3.8%)                   |                   |                         |                   |
| **CVD (-) HF (+)** | | | | | | |
| SGLT-2i      | 180           | 9,399       | 317 (3.4%)                  | 0.65 (0.54, 0.79) | 0.83 (0.69, 1.00) | 0.85 (0.69, 1.04) |
| GLP-1RA      | 242           | 8,205       | 255 (3.1%)                  |                   |                         |                   |
| **CVD (+) HF (+)** | | | | | | |
| SGLT-2i      | 333           | 2,909       | 159 (5.5%)                  | 0.77 (0.68, 0.87) | 0.90 (0.79, 1.02) | 0.90 (0.79, 1.02) |
| GLP-1RA      | 518           | 3,478       | 222 (6.4%)                  |                   |                         |                   |

| As-treated analyses | No. of events | No. at risk | No. (%) of competing events | Crude RR* (95% CI) | IPTW + IPCW RR* (95% CI) | Aalen Johansen RR* |
|---------------------|---------------|-------------|-----------------------------|-------------------|--------------------------|-------------------|
| **CVD (-) HF (-)** | | | | | | |
| SGLT-2i             | 57            | 11,830      | 110 (0.9%)                  | 0.51 (0.37, 0.71) | 0.79 (0.58, 1.06) | 0.65 (0.43, 0.96) |
| GLP-1RA             | 95            | 10,142      | 91 (0.9%)                   |                   |                         |                   |
| **CVD (+) HF (-)** | | | | | | |
| SGLT-2i             | 23            | 609         | 16 (2.6%)                   | 0.47 (0.29, 0.75) | 0.47 (0.29, 0.75) | 0.48 (0.25, 0.85) |
| GLP-1RA             | 62            | 771         | 14 (1.8%)                   |                   |                         |                   |
| **CVD (-) HF (+)** | | | | | | |
| SGLT-2i             | 90            | 9,399       | 178 (1.9%)                  | 0.55 (0.42, 0.71) | 0.65 (0.51, 0.82) | 0.60 (0.42, 0.83) |
| GLP-1RA             | 143           | 8,205       | 146 (1.8%)                  |                   |                         |                   |
| **CVD (+) HF (+)** | | | | | | |
| SGLT-2i             | 211           | 2,909       | 91 (3.1%)                   | 0.70 (0.60, 0.82) | 0.85 (0.73, 0.99) | 0.76 (0.60, 0.91) |
| GLP-1RA             | 360           | 3,478       | 151 (4.3%)                  |                   |                         |                   |

ITT, intention-to-treat; AT, as treated; CVD, cardiovascular disease; HF, heart failure; MACE, major adverse cardiovascular events; RR, risk ratio; -, without; +, with; IPTW, inverse probability of treatment weighted; IPCW, inverse probability of censoring weighted; CI, confidence intervals.

* Aalen Johansen estimators accounting for competing risk (for HHF outcome) and weighted by inverse probability of treatment and censoring weights that account for confounding and informative censoring.
Table S13. Proportions of patients censored due to treatment non-adherence in as-treated analyses

|                          | No. at risk | Proportion of treatment discontinuation (%) | Proportion of treatment switching to/ augmentation with the comparator (%) |
|--------------------------|-------------|---------------------------------------------|-------------------------------------------------------------------------|
| **CVD (-) HF (-)**       |             |                                             |                                                                         |
| SGLT-2i                  | 11,830      | 38.43                                       | 5.43                                                                    |
| GLP-1RA                  | 10,142      | 39.58                                       | 5.80                                                                    |
| **CVD (+) HF (-)**       |             |                                             |                                                                         |
| SGLT-2i                  | 609         | 37.44                                       | 5.09                                                                    |
| GLP-1RA                  | 771         | 38.13                                       | 3.24                                                                    |
| **CVD (-) HF (+)**       |             |                                             |                                                                         |
| SGLT-2i                  | 9,399       | 39.42                                       | 5.84                                                                    |
| GLP-1RA                  | 8,205       | 40.72                                       | 5.80                                                                    |
| **CVD (+) HF (+)**       |             |                                             |                                                                         |
| SGLT-2i                  | 2,909       | 37.74                                       | 5.43                                                                    |
| GLP-1RA                  | 3,478       | 37.00                                       | 4.26                                                                    |

ITT, intention-to-treat; AT, as treated; CVD, cardiovascular disease; HF, heart failure; MACE, major adverse cardiovascular events; RR, risk ratio; -, without; +, with; IPTW, inverse probability of treatment weighted; IPCW, inverse probability of censoring weighted; CI, confidence intervals.
Table S14. RRs and RDs for primary outcomes (HHF, MACE, HHF + MACE, MI, stroke and all-cause mortality) for intent-to-treat analyses

| Outcome (ITT/AT) | Baseline subgroups | SGLT2i Events (N) | GLP-1RA Events (N) | Weighted RD/100* (95% CI) | Weighted RR* (95% CI) |
|------------------|---------------------|------------------|-------------------|--------------------------|-----------------------|
| **HHF (ITT)**    | CVD - CHF -         | 107 (11,830)     | 153/10,142        | -0.3 (-0.8, 0.1)         | 0.8 (0.6, 1.1)        |
|                  | CVD - CHF +         | 34 (609)         | 88 (771)          | -7.1 (-11.2, -2.2)       | 0.6 (0.3, 0.9)        |
|                  | CVD + CHF -         | 180 (9,399)      | 242 (8,205)       | -0.6 (-1.3, 1.3)         | 0.8 (0.7, 1.0)        |
|                  | CVD + CHF +         | 333 (2,909)      | 518 (3,478)       | -1.8 (-4.4, 0.4)         | 0.9 (0.8, 1.0)        |
| **MACE (ITT)**   | CVD - CHF -         | 411 (11,830)     | 349 (10,142)      | 0.4 (-0.1, 0.8)          | 1.1 (0.9, 1.3)        |
|                  | CVD - CHF +         | 48 (609)         | 58 (771)          | 0.4 (-2.4, 3.2)          | 1.1 (0.7, 1.5)        |
|                  | CVD + CHF -         | 619 (9,399)      | 513 (8,205)       | 0.7 (0, 1.5)             | 1.1 (1.0, 1.3)        |
|                  | CVD + CHF +         | 336 (2,909)      | 499 (3,478)       | -1.6 (-3.3, 0.0)         | 0.9 (0.8, 1.0)        |
| **HHF+MACE (ITT)** | CVD - CHF -        | 470 (11,830)     | 455 (10,142)      | 0.0 (-0.5, 0.6)          | 1.0 (0.9, 1.1)        |
|                  | CVD - CHF +         | 67 (609)         | 124 (771)         | -3.9 (-7.4, -0.4)        | 0.7 (0.6, 0.9)        |
|                  | CVD + CHF -         | 735 (9,399)      | 677 (8,205)       | 0.37 (-0.4, 1.2)         | 1.0 (0.9, 1.2)        |
|                  | CVD + CHF +         | 563 (2,909)      | 832 (3,478)       | -2.2 (-4.2, -0.2)        | 0.9 (0.8, 0.9)        |
| **MI (ITT)**     | CVD - CHF -         | 131 (11,830)     | 102 (10,142)      | 0.3 (-0.02, 0.5)         | 1.3 (0.9, 1.6)        |
|                  | CVD - CHF +         | NTS (609)        | 13 (771)          | -0.03 (-1.4, 1.4)        | 0.9 (0.5, 2.1)        |
|                  | CVD + CHF -         | 186 (9,399)      | 154 (8,205)       | 0.3 (-0.1, 0.7)          | 1.2 (0.9, 1.4)        |
|                  | CVD + CHF +         | 83 (2909)        | 126 (3,478)       | -0.4 (-1.2, 0.4)         | 0.9 (0.7, 1.2)        |
| **Stroke (ITT)** | CVD - CHF -         | 106 (11,830)     | 75 (10,142)       | 0.2 (-0.06, 0.4)         | 1.2 (0.93, 1.7)       |
|                  | CVD - CHF +         | 13 (609)         | NTS (771)         | 1.5 (0.1, 2.9)           | 2.6 (1.08, 6.1)       |
|                  | CVD + CHF -         | 160 (9,399)      | 137 (8,205)       | 0.2 (-0.2, 0.6)          | 1.1 (0.89, 1.4)       |
|                  | CVD + CHF +         | 69 (2909)        | 83 (3,478)        | -0.2 (-0.6, 0.9)         | 1.1 (0.80, 1.5)       |
| **Mortality (ITT)** | CVD - CHF -        | 217 (11,830)     | 205 (10,142)      | -0.02 (-0.4, 0.4)        | 0.9 (0.8, 1.2)        |
|                  | CVD - CHF +         | 35 (609)         | 43 (771)          | 0 (-2.4, 2.4)            | 1.0 (0.6, 1.6)        |
|                  | CVD + CHF -         | 344 (9,399)      | 290 (8,205)       | 0.3 (-0.3, 0.8)          | 1.1 (0.9, 1.3)        |
|                  | CVD + CHF +         | 237 (2909)       | 356 (3,478)       | -1.2 (-2.7, 0.2)         | 0.9 (0.8, 1.0)        |

ITT, intention-to-treat; AT, as treated; CVD, cardiovascular disease; HF, heart failure; MACE, major adverse cardiovascular events; RR, risk ratio; -, without; +, with; IPTW, inverse probability of treatment weighted; IPCW, inverse probability of censoring weighted; CI, confidence intervals; NTS, number too small (<12) to report according to data user agreement with the Centers for Medicare and Medicaid Services.

* Aalen Johansen estimators accounting for competing risk (for HHF outcome) and weighted by inverse probability of treatment and censoring weights that account for confounding and informative censoring.
Table S15. Effect measure estimates for negative control outcomes

| Outcome (ITT/AT) | Baseline subgroups | SGLT2i (Events/N) | GLP-1RA (Events/N) | Weighted RD*/100 (95% CI) | Weighted RR* (95% CI) |
|------------------|--------------------|-------------------|--------------------|--------------------------|-----------------------|
| Cancer (AT)      | CVD - HF -         | 186/10,543        | 173/9,118          | 0.01 (-0.36, 0.39)       | 1.01 (0.83, 1.22)     |
|                  | CVD - HF +         | NTS/535           | 15/684             | -0.37 (-1.71, 0.97)      | 0.81 (0.37, 1.75)     |
|                  | CVD + HF -         | 150/8,065         | 135/7,085          | -0.19 (-0.62, 0.23)      | 0.91 (0.73, 1.12)     |
|                  | CVD + HF +         | 58/2,442          | 384/2,981          | 0.44 (1.24, 0.36)        | 0.85 (0.62, 1.15)     |
| Cancer (ITT)     | CVD - HF -         | 265/10,543        | 258/9,118          | -0.27 (-0.72, 0.19)      | 0.91 (0.77, 1.07)     |
|                  | CVD - HF +         | NTS/535           | 25/684             | -1.44 (-3.27, 0.39)      | 0.59 (0.30, 1.19)     |
|                  | CVD + HF -         | 236/8,065         | 214/7,085          | -0.12 (-0.67, 0.43)      | 0.96 (0.80, 1.15)     |
|                  | CVD + HF +         | 89/2,442          | 123/2,981          | -0.62 (-1.65, 0.04)      | 0.85 (0.65, 1.11)     |
| Cataract (AT)    | CVD - HF -         | 546/11232         | 500/9673           | 0.00 (-0.59, 0.60)       | 1.00 (0.90, 1.12)     |
|                  | CVD - HF +         | 23/575            | 34/741             | 0.19 (-1.85, 2.24)       | 1.05 (0.65, 1.67)     |
|                  | CVD + HF -         | 440/8868          | 407/7675           | 0.04 (-0.70, 0.62)       | 0.99 (0.88, 1.12)     |
|                  | CVD + HF +         | 143/2752          | 145/3253           | 0.76 (-0.28, 1.79)       | 1.17 (0.95, 1.45)     |
| Cataract (ITT)   | CVD - HF -         | 754/11232         | 735/9673           | -0.46 (-1.17, 0.25)      | 0.94 (0.85, 1.03)     |
|                  | CVD - HF +         | 34/575            | 51/741             | 0.09 (-2.59, 2.77)       | 1.01 (0.67, 1.52)     |
|                  | CVD + HF -         | 656/8868          | 591/7675           | 0.02 (-0.61, 1.01)       | 1.03 (0.92, 1.14)     |
|                  | CVD + HF +         | 197/2752          | 218/3253           | 0.25 (-1.03, 1.53)       | 1.04 (0.86, 1.25)     |

ITT, intention-to-treat; AT, as treated; CVD, cardiovascular disease; HF, heart failure; MACE, major adverse cardiovascular events; RR, risk ratio; -, without; +, with; IPTW, inverse probability of treatment weighted; IPCW, inverse probability of censoring weighted; CI, confidence intervals.

* Weighted by inverse probability of treatment and censoring weights that account for confounding and informative censoring.
Table S16. Effect measure estimates for primary cardiovascular outcomes among patients with no prevalent cancer diagnosis or cancer-related procedures

| Outcome (ITT/AT) | Baseline subgroups | SGLT2i (Events/N) | GLP-1RA (Events/N) | Weighted RR* (95% CI) | Weighted RD*/100 (95% CI) |
|------------------|--------------------|-------------------|--------------------|-----------------------|------------------------|
| HHF (ITT)        | CVD - HF -         | 148/14865         | 234/12626          | 0.72 (0.59, 0.88)     | -0.45 (-0.72, -0.17)    |
|                  | CVD - HF +         | 93/1131           | 182/1430           | 0.72 (0.57, 0.91)     | -3.39 (-5.74, -1.04)    |
|                  | CVD + HF -         | 156/6750          | 186/6065           | 0.96 (0.78, 1.18)     | -0.12 (-0.68, 0.45)     |
|                  | CVD + HF +         | 257/2001          | 399/2475           | 0.89 (0.77, 1.03)     | -1.71 (-3.77, 0.36)     |
| HHF (AT)         | CVD - HF -         | 77/14865          | 145/12626          | 0.62 (0.48, 0.79)     | -0.41 (-0.62, -0.19)    |
|                  | CVD - HF +         | 57/1131           | 128/1430           | 0.67 (0.50, 0.90)     | -2.49 (-4.23, -0.74)    |
|                  | CVD + HF -         | 79/6750           | 108/6065           | 0.79 (0.61, 1.02)     | -0.38 (-0.80, 0.04)     |
|                  | CVD + HF +         | 168/2001          | 279/2475           | 0.84 (0.71, 1.00)     | -1.68 (-3.33, -0.03)    |
| MACE (ITT)       | CVD - HF -         | 554/14865         | 478/12626          | 1.08 (0.96, 1.22)     | 0.30 (-0.15, 0.76)      |
|                  | CVD - HF +         | 106/1131          | 134/1430           | 1.05 (0.83, 1.34)     | 0.49 (-1.77, 2.76)      |
|                  | CVD + HF -         | 496/6750          | 416/6065           | 1.12 (0.99, 1.27)     | 0.81 (-0.08, 1.70)      |
|                  | CVD + HF +         | 258/2001          | 391/2475           | 0.88 (0.76, 1.01)     | -1.89 (-3.97, 0.18)     |
| MACE (AT)        | CVD - HF -         | 323/14865         | 264/12626          | 1.19 (1.02, 1.38)     | 0.40 (0.06, 0.74)       |
|                  | CVD - HF +         | 65/1131           | 85/1430            | 1.20 (0.90, 1.61)     | 1.07 (-0.63, 2.76)      |
|                  | CVD + HF -         | 280/6750          | 256/6065           | 0.99 (0.85, 1.17)     | -0.02 (-0.69, 0.64)     |
|                  | CVD + HF +         | 159/2001          | 252/2475           | 0.81 (0.68, 0.96)     | -1.94 (-3.53, -0.35)    |
| HHF + MACE (ITT) | CVD - HF -         | 641/14865         | 637/12626          | 0.98 (0.88, 1.09)     | -0.08 (-0.58, 0.42)     |
|                  | CVD - HF +         | 161/1131          | 268/1430           | 0.84 (0.70, 1.00)     | -2.90 (-5.76, -0.03)    |
|                  | CVD + HF -         | 598/6750          | 540/6065           | 1.07 (0.96, 1.20)     | 0.63 (-0.35, 1.62)      |
|                  | CVD + HF +         | 435/2001          | 643/2475           | 0.91 (0.82, 1.01)     | -2.33 (-4.84, 0.18)     |
| HHF + MACE (AT)  | CVD - HF -         | 377/14865         | 376/12626          | 1.03 (0.90, 1.17)     | 0.08 (-0.30, 0.47)      |
|                  | CVD - HF +         | 103/1131          | 185/1430           | 0.87 (0.70, 1.08)     | -1.46 (-3.67, 0.76)     |
|                  | CVD + HF -         | 342/6750          | 332/6065           | 0.97 (0.84, 1.12)     | -0.17 (-0.91, 0.58)     |
|                  | CVD + HF +         | 281/2001          | 445/2475           | 0.83 (0.73, 0.95)     | -2.83 (-4.86, -0.79)    |

ITT, intention-to-treat; AT, as treated; CVD, cardiovascular disease; HF, heart failure; MACE, major adverse
cardiovascular events; RR, risk ratio; -, without; +, with; IPTW, inverse probability of treatment weighted; IPCW, inverse probability of censoring weighted; CI, confidence intervals.

* Weighted by inverse probability of treatment and censoring weights that account for confounding and informative censoring.
Table S17. Effect measure estimates for primary cardiovascular outcomes among patients with no prevalent cataract surgery procedures

| Outcome (ITT/AT) | Baseline subgroups | SGLT2i (Events/N) | GLP-1RA (Events/N) | Weighted RR* (95% CI) | Weighted RD*/100 (95% CI) |
|------------------|--------------------|-------------------|--------------------|----------------------|------------------------|
| HHF (ITT)        | CVD - HF -         | 148/14865         | 234/12626          | 0.72 (0.59, 0.88)    | -0.45 (-0.72, -0.17)   |
|                  | CVD - HF +         | 93/1131           | 182/1430           | 0.72 (0.57, 0.91)    | -3.39 (-5.74, -1.04)   |
|                  | CVD + HF -         | 156/6750          | 186/6065           | 0.96 (0.78, 1.18)    | -0.12 (-0.68, 0.45)    |
|                  | CVD + HF +         | 257/2001          | 399/2475           | 0.89 (0.77, 1.03)    | -1.71 (-3.77, 0.36)    |
| HHF (AT)         | CVD - HF -         | 77/14865          | 145/12626          | 0.62 (0.48, 0.79)    | -0.41 (-0.62, -0.19)   |
|                  | CVD - HF +         | 57/1131           | 128/1430           | 0.67 (0.50, 0.90)    | -2.49 (-4.23, -0.74)   |
|                  | CVD + HF -         | 79/6750           | 108/6065           | 0.79 (0.61, 1.02)    | -0.38 (-0.80, 0.04)    |
|                  | CVD + HF +         | 168/2001          | 279/2475           | 0.84 (0.71, 1.00)    | -1.68 (-3.33, -0.03)   |
| MACE (ITT)       | CVD - HF -         | 554/14865         | 478/12626          | 1.08 (0.96, 1.22)    | 0.30 (-0.15, 0.76)     |
|                  | CVD - HF +         | 106/1131          | 134/1430           | 1.05 (0.83, 1.34)    | 0.49 (-1.77, 2.76)     |
|                  | CVD + HF -         | 496/6750          | 416/6065           | 1.12 (0.99, 1.27)    | 0.81 (-0.08, 1.70)     |
|                  | CVD + HF +         | 258/2001          | 391/2475           | 0.88 (0.76, 1.01)    | -1.89 (-3.97, 0.18)    |
| MACE (AT)        | CVD - HF -         | 323/14865         | 264/12626          | 1.19 (1.02, 1.38)    | 0.40 (0.06, 0.74)      |
|                  | CVD - HF +         | 65/1131           | 85/1430            | 1.20 (0.90, 1.61)    | 1.07 (-0.63, 2.76)     |
|                  | CVD + HF -         | 280/6750          | 256/6065           | 0.99 (0.85, 1.17)    | -0.02 (-0.69, 0.64)    |
|                  | CVD + HF +         | 159/2001          | 252/2475           | 0.81 (0.68, 0.96)    | -1.94 (-3.53, -0.35)   |
| HHF + MACE (ITT) | CVD - HF -         | 641/14865         | 637/12626          | 0.98 (0.88, 1.09)    | -0.08 (-0.58, 0.42)    |
|                  | CVD - HF +         | 161/1131          | 268/1430           | 0.84 (0.70, 1.00)    | -2.90 (-5.76, -0.03)   |
|                  | CVD + HF -         | 598/6750          | 540/6065           | 1.07 (0.96, 1.20)    | 0.63 (-0.35, 1.62)     |
|                  | CVD + HF +         | 435/2001          | 643/2475           | 0.91 (0.82, 1.01)    | -2.33 (-4.84, 0.18)    |
| HHF + MACE (AT)  | CVD - HF -         | 377/14865         | 376/12626          | 1.03 (0.90, 1.17)    | 0.08 (-0.30, 0.47)     |
|                  | CVD - HF +         | 103/1131          | 185/1430           | 0.87 (0.70, 1.08)    | -1.46 (-3.67, 0.76)    |
|                  | CVD + HF -         | 342/6750          | 332/6065           | 0.97 (0.84, 1.12)    | -0.17 (-0.91, 0.58)    |
|                  | CVD + HF +         | 281/2001          | 445/2475           | 0.83 (0.73, 0.95)    | -2.83 (-4.86, -0.79)   |

ITT, intention-to-treat; AT, as treated; CVD, cardiovascular disease; HF, heart failure; MACE, major adverse
cardiovascular events; RR, risk ratio; -, without; +, with; IPTW, inverse probability of treatment weighted; IPCW, inverse probability of censoring weighted; CI, confidence intervals.

* Weighted by inverse probability of treatment and censoring weights that account for confounding and informative censoring.
Table S 18. Risk of cardiovascular outcomes after excluding angina and non-specific atherosclerosis codes from baseline subgroup definitions (CVD = myocardial infarction, stroke, cardiac revascularization, ischemic heart disease, peripheral vascular diseases, HF = heart failure)

| Outcome (ITT/AT) | Baseline subgroups | SGLT2i (Events/N) | GLP-1RA (Events/N) | Weighted RR* (95% CI) | Weighted RD*/100 (95% CI) |
|-----------------|-------------------|------------------|-------------------|----------------------|--------------------------|
| HHF (ITT)       | CVD - HF -        | 112/12017        | 163/10319         | 0.81 (0.64, 1.04)    | -0.26 (-0.55, 0.03)      |
|                 | CVD - HF +        | 30/542           | 81/708            | 0.55 (0.38, 0.80)    | -5.13 (-8.08, -2.18)     |
|                 | CVD + HF -        | 192/9598         | 257/8372          | 0.83 (0.69, 1.00)    | -0.42 (-0.88, 0.04)      |
|                 | CVD + HF +        | 320/2590         | 500/3197          | 0.90 (0.79, 1.02)    | -1.54 (-3.34, 0.25)      |
| HHF (AT)        | CVD - HF -        | 50/12017         | 101/10319         | 0.78 (0.57, 1.04)    | -0.20 (-0.42, 0.02)      |
|                 | CVD - HF +        | 21/542           | 59/708            | 0.47 (0.29, 0.75)    | -3.91 (-6.02, -1.81)     |
|                 | CVD + HF -        | 96/9598          | 152/8372          | 0.65 (0.51, 0.82)    | -0.62 (-0.97, -0.28)     |
|                 | CVD + HF +        | 204/2590         | 348/3197          | 0.85 (0.73, 0.99)    | -1.38 (-2.80, 0.04)      |
| MACE (ITT)      | CVD - HF -        | 421/12017        | 358/10319         | 1.10 (0.96, 1.27)    | 0.35 (-0.14, 0.84)       |
|                 | CVD - HF +        | 47/542           | 56/708            | 1.06 (0.74, 1.53)    | 0.03 (-2.94, 3.00)       |
|                 | CVD + HF -        | 629/9598         | 536/8372          | 1.12 (1.00, 1.25)    | 0.58 (-0.15, 1.31)       |
|                 | CVD + HF +        | 317/2590         | 469/3197          | 0.88 (0.78, 1.00)    | -1.38 (-3.16, 0.40)      |
| MACE (AT)       | CVD - HF -        | 249/12017        | 188/10319         | 1.31 (1.09, 1.56)    | 0.58 (0.22, 0.94)        |
|                 | CVD - HF +        | 28/542           | 30/708            | 1.21 (0.74, 1.94)    | 0.63 (-1.44, 2.70)       |
|                 | CVD + HF -        | 354/9598         | 332/8372          | 1.03 (0.90, 1.19)    | -0.09 (-0.64, 0.45)      |
|                 | CVD + HF +        | 196/2590         | 307/3197          | 0.83 (0.71, 0.97)    | -1.15 (-2.52, 0.21)      |
| HHF + MACE (ITT)| CVD - HF -        | 484/12017        | 470/10319         | 1.01 (0.89, 1.14)    | 0.04 (-0.49, 0.58)       |
|                 | CVD - HF +        | 62/542           | 117/708           | 0.69 (0.51, 0.92)    | -4.85 (-8.55, -1.15)     |
|                 | CVD + HF -        | 755/9598         | 707/8372          | 1.03 (0.94, 1.14)    | 0.28 (-0.52, 1.09)       |
|                 | CVD + HF +        | 534/2590         | 794/3197          | 0.91 (0.83, 1.00)    | -2.17 (-4.34, 0.00)      |
| HHF + MACE (AT) | CVD - HF -        | 290/12017        | 270/10319         | 1.15 (0.98, 1.34)    | 0.36 (-0.05, 0.77)       |
|                 | CVD - HF +        | 42/542           | 79/708            | 0.67 (0.47, 0.96)    | -3.17 (-5.91, -0.42)     |
|                 | CVD + HF -        | 429/9598         | 438/8372          | 0.92 (0.82, 1.04)    | -0.41 (-1.02, 0.21)      |
|                 | CVD + HF +        | 342/2590         | 551/3197          | 0.87 (0.78, 0.99)    | -1.99 (-3.75, -0.24)     |

ITT, intention-to-treat; AT, as treated; CVD, cardiovascular disease; HF, heart failure; MACE, major adverse cardiovascular events; RR, risk ratio; -, without; +, with; IPTW, inverse probability of treatment weighted; IPCW, inverse probability of censoring weighted; CI, confidence intervals.

* Aalen Johansen estimators accounting for competing risk (for HHF outcome) and weighted by inverse probability of treatment and censoring weights that account for confounding and informative censoring.
Table S19. Risk of cardiovascular outcomes after excluding peripheral vascular diseases, angina and atherosclerosis codes from baseline subgroup definitions (CVD = Myocardial infarction, stroke, cardiac revascularization, ischemic heart diseases, HF = heart failure)

| Outcome (ITT/AT) | Baseline subgroups | SGLT2i (Events/N) | GLP-1RA (Events/N) | Weighted RR* (95% CI) | Weighted RD*/100 (95% CI) |
|------------------|--------------------|-------------------|--------------------|-----------------------|--------------------------|
| HHF (ITT)        | CVD - HF -         | 141/13997         | 203/12085          | 0.81 (0.65, 1.00)     | -0.27 (-0.54, 0.01)      |
|                  | CVD - HF +         | 51/765            | 116/1018           | 0.66 (0.48, 0.90)     | -3.63 (-6.24, -1.02)     |
|                  | CVD + HF -         | 163/7618          | 217/6606           | 0.86 (0.71, 1.05)     | -0.41 (-0.95, 0.13)      |
|                  | CVD + HF +         | 299/2367          | 465/2887           | 0.89 (0.78, 1.02)     | -1.67 (-3.57, 0.24)      |
| HHF (AT)         | CVD - HF -         | 76/13997          | 126/12085          | 0.72 (0.55, 0.93)     | -0.26 (-0.47, -0.06)     |
|                  | CVD - HF +         | 33/765            | 81/1018            | 0.53 (0.36, 0.78)     | -3.30 (-5.23, -1.37)     |
|                  | CVD + HF -         | 80/7618           | 127/6606           | 0.69 (0.54, 0.88)     | -0.62 (-1.03, -0.21)     |
|                  | CVD + HF +         | 192/2367          | 326/2887           | 0.86 (0.73, 1.01)     | -1.43 (-2.94, 0.08)      |
| MACE (ITT)       | CVD - HF -         | 545/13997         | 452/12085          | 1.13 (1.00, 1.27)     | 0.47 (0.00, 0.94)         |
|                  | CVD - HF +         | 68/765            | 94/1018            | 0.98 (0.72, 1.32)     | -0.21 (-2.83, 2.41)      |
|                  | CVD + HF -         | 505/7618          | 442/6606           | 1.08 (0.95, 1.22)     | 0.50 (-0.33, 1.33)       |
|                  | CVD + HF +         | 296/2367          | 431/2887           | 0.91 (0.80, 1.04)     | -1.34 (-3.23, 0.55)      |
| MACE (AT)        | CVD - HF -         | 325/13997         | 240/12085          | 1.32 (1.13, 1.55)     | 0.64 (0.29, 0.99)         |
|                  | CVD - HF +         | 39/765            | 49/1018            | 1.04 (0.70, 1.56)     | 0.20 (-1.59, 1.98)       |
|                  | CVD + HF -         | 278/7618          | 280/6606           | 0.93 (0.79, 1.08)     | -0.31 (-0.94, 0.31)      |
|                  | CVD + HF +         | 185/2367          | 288/2887           | 0.86 (0.73, 1.02)     | -1.33 (-2.79, 0.13)      |
| HHF + MACE (ITT) | CVD - HF -         | 626/13997         | 593/12085          | 1.03 (0.93, 1.15)     | 0.15 (-0.37, 0.66)       |
|                  | CVD - HF +         | 98/765            | 178/1018           | 0.78 (0.62, 0.99)     | -3.53 (-6.79, -0.26)     |
|                  | CVD + HF -         | 613/7618          | 584/6606           | 1.03 (0.93, 1.15)     | 0.26 (-0.66, 1.18)       |
|                  | CVD + HF +         | 498/2367          | 733/2887           | 0.91 (0.83, 1.01)     | -2.15 (-4.45, 0.14)      |
| HHF + MACE (AT)  | CVD - HF -         | 379/13997         | 341/12085          | 1.15 (1.00, 1.31)     | 0.39 (0.00, 0.78)         |
|                  | CVD - HF +         | 62/765            | 116/1018           | 0.69 (0.52, 0.93)     | -3.16 (-5.60, -0.72)     |
|                  | CVD + HF -         | 340/7618          | 367/6606           | 0.89 (0.78, 1.02)     | -0.60 (-1.31, 0.10)      |
|                  | CVD + HF +         | 322/2367          | 514/2887           | 0.87 (0.77, 0.99)     | -2.08 (-3.95, -0.22)     |

ITT, intention-to-treat; AT, as treated; CVD, cardiovascular disease; HF, heart failure; MACE, major adverse cardiovascular events; RR, risk ratio; -, without; +, with; IPTW, inverse probability of treatment weighted; IPCW, inverse probability of censoring weighted; CI, confidence intervals.

* Aalen Johansen estimators accounting for competing risk (for HHF outcome) and weighted by inverse probability of treatment and censoring weights that account for confounding and informative censoring.
Table S20. Risk of cardiovascular outcomes after excluding angina, non-specific acute/sub-acute ischemic heart diseases and peripheral vascular disease codes from baseline subgroup definitions (CVD = Myocardial infarction, stroke, cardiac revascularization, HF = heart failure)

| Outcome (ITT/AT) | Baseline subgroups | SGLT2i (Events/N) | GLP-1RA (Events/N) | Weighted RR* (95% CI) | Weighted RD*/100 (95% CI) |
|------------------|---------------------|-------------------|--------------------|-----------------------|--------------------------|
| HHF (ITT)        | CVD - HF -          | 148/14865         | 234/12626          | 0.72 (0.59, 0.88)     | -0.45 (-0.72, -0.17)     |
|                  | CVD - HF +          | 93/1131           | 182/1430           | 0.72 (0.57, 0.91)     | -3.39 (-5.74, -1.04)     |
|                  | CVD + HF -          | 156/6750          | 186/6065           | 0.96 (0.78, 1.18)     | -0.12 (-0.68, 0.45)      |
|                  | CVD + HF +          | 257/2001          | 399/2475           | 0.89 (0.77, 1.03)     | -1.71 (-3.77, 0.36)      |
| HHF (AT)         | CVD - HF -          | 77/14865          | 145/12626          | 0.62 (0.48, 0.79)     | -0.41 (-0.62, -0.19)     |
|                  | CVD - HF +          | 57/1131           | 128/1430           | 0.67 (0.50, 0.90)     | -2.49 (-4.23, -0.74)     |
|                  | CVD + HF -          | 79/6750           | 108/6065           | 0.79 (0.61, 1.02)     | -0.38 (-0.80, 0.04)      |
|                  | CVD + HF +          | 168/2001          | 279/2475           | 0.84 (0.71, 1.00)     | -1.68 (-3.33, -0.03)     |
| MACE (ITT)       | CVD - HF -          | 554/14865         | 478/12626          | 1.08 (0.96, 1.22)     | 0.30 (-0.15, 0.76)       |
|                  | CVD - HF +          | 106/1131          | 134/1430           | 1.05 (0.83, 1.34)     | 0.49 (-1.77, 2.76)       |
|                  | CVD + HF -          | 496/6750          | 416/6065           | 1.12 (0.99, 1.27)     | 0.81 (-0.08, 1.70)       |
|                  | CVD + HF +          | 258/2001          | 391/2475           | 0.88 (0.76, 1.01)     | -1.89 (-3.97, 0.18)      |
| MACE (AT)        | CVD - HF -          | 323/14865         | 264/12626          | 1.19 (1.02, 1.38)     | 0.40 (0.06, 0.74)        |
|                  | CVD - HF +          | 65/1131           | 85/1430            | 1.20 (0.90, 1.61)     | 1.07 (-0.63, 2.76)       |
|                  | CVD + HF -          | 280/6750          | 256/6065           | 0.99 (0.85, 1.17)     | -0.02 (-0.69, 0.64)      |
|                  | CVD + HF +          | 159/2001          | 252/2475           | 0.81 (0.68, 0.96)     | -1.94 (-3.53, -0.35)     |
| HHF + MACE (ITT) | CVD - HF -          | 641/14865         | 637/12626          | 0.98 (0.88, 1.09)     | -0.08 (-0.58, 0.42)      |
|                  | CVD - HF +          | 161/1131          | 268/1430           | 0.84 (0.70, 1.00)     | -2.90 (-5.76, -0.03)     |
|                  | CVD + HF -          | 598/6750          | 540/6065           | 1.07 (0.96, 1.20)     | 0.63 (-0.35, 1.62)       |
|                  | CVD + HF +          | 435/2001          | 643/2475           | 0.91 (0.82, 1.01)     | -2.33 (-4.84, 0.18)      |
| HHF + MACE (AT)  | CVD - HF -          | 377/14865         | 376/12626          | 1.03 (0.90, 1.17)     | 0.08 (-0.30, 0.47)       |
|                  | CVD - HF +          | 103/1131          | 185/1430           | 0.87 (0.70, 1.08)     | -1.46 (-3.67, 0.76)      |
|                  | CVD + HF -          | 342/6750          | 332/6065           | 0.97 (0.84, 1.12)     | -0.17 (-0.91, 0.58)      |
|                  | CVD + HF +          | 281/2001          | 445/2475           | 0.83 (0.73, 0.95)     | -2.83 (-4.86, -0.79)     |

ITT, intention-to-treat; AT, as treated; CVD, cardiovascular disease; HF, heart failure; MACE, major adverse cardiovascular events; RR, risk ratio; -, without; +, with; IPTW, inverse probability of treatment weighted; IPCW, inverse probability of censoring weighted; CI, confidence intervals.

* Aalen Johansen estimators accounting for competing risk (for HHF outcome) and weighted by inverse probability of treatment and censoring weights that account for confounding and informative censoring.
Table S21. Risk of cardiovascular outcomes after limiting baseline cardiovascular conditions to inpatient setting (all available follow-up)

| Outcome (ITT/AT) | Baseline subgroups (SGLT2i) | Events/N (GPT-1RA) | HR (95% CI) (weighted) | RD (/100) | RR (/100) |
|------------------|-----------------------------|---------------------|------------------------|-----------|-----------|
| HHF (ITT)        | CVD - HF -                  | 153/19602           | 214/16837              | 0.88 (0.72, 1.09) | -0.39 | 0.88 |
|                  | CVD - HF +                  | 40/207              | 104/329                | 0.72 (0.51, 1.01) | -11.18 | 0.79 |
|                  | CVD + HF -                  | 247/3089            | 345/3087               | 0.86 (0.73, 1.01) | -2.49 | 0.87 |
|                  | CVD + HF +                  | 379/1849            | 613/2347               | 0.90 (0.79, 1.02) | -3.15 | 0.92 |
| HHF (AT)         | CVD - HF -                  | 67/19602            | 112/16837              | 0.70 (0.54, 0.92) | -0.76 | 0.71 |
|                  | CVD - HF +                  | 23/207              | 68/329                 | 0.50 (0.33, 0.78) | -18.76 | 0.58 |
|                  | CVD + HF -                  | 112/3089            | 165/3087               | 0.72 (0.58, 0.89) | -5.33 | 0.74 |
|                  | CVD + HF +                  | 225/1849            | 380/2347               | 0.89 (0.76, 1.04) | -3.38 | 0.91 |
| MACE (ITT)       | CVD - HF -                  | 699/19602           | 631/16837              | 1.17 (1.05, 1.30) | 1.74  | 1.16 |
|                  | CVD - HF +                  | 52/207              | 75/329                 | 1.21 (0.85, 1.73) | 6.21  | 1.15 |
|                  | CVD + HF -                  | 681/3089            | 643/3087               | 1.18 (1.06, 1.31) | 5.04  | 1.13 |
|                  | CVD + HF +                  | 421/1849            | 631/2347               | 0.97 (0.86, 1.10) | -1.03 | 0.98 |
| MACE (AT)        | CVD - HF -                  | 345/19602           | 281/16837              | 1.16 (1.01, 1.33) | 1.05  | 1.15 |
|                  | CVD - HF +                  | 26/207              | 35/329                 | 1.52 (0.98, 2.38) | 12.68 | 1.39 |
|                  | CVD + HF -                  | 321/3089            | 308/3087               | 1.13 (0.98, 1.31) | 3.29  | 1.11 |
|                  | CVD + HF +                  | 215/1849            | 341/2347               | 0.86 (0.74, 1.00) | -5.17 | 0.9  |
| HHF+MACE (ITT)   | CVD - HF -                  | 779/19602           | 768/16837              | 1.09 (0.99, 1.21) | 1.15  | 1.09 |
|                  | CVD - HF +                  | 71/207              | 144/329                | 0.86 (0.65, 1.14) | -5.54 | 0.92 |
| Group                  | Count1 | Count2 | RR (95% CI) | HR  | SE |
|-----------------------|--------|--------|-------------|-----|----|
| CVD + HF -            | 819/3089 | 854/3087 | 1.07 (0.97, 1.18) | 2.44 | 1.05 |
| CVD + HF +            | 636/1849 | 960/2347 | 0.94 (0.85, 1.04) | -2.12 | 0.97 |
| HHF+MACE (AT)         | CVD - HF - | 779/19602 | 768/16837 | 1.09 (0.99, 1.21) | 1.15 | 1.09 |
|                       | CVD - HF + | 71/207 | 144/329 | 0.86 (0.65, 1.14) | -5.54 | 0.92 |
|                       | CVD + HF - | 819/3089 | 854/3087 | 1.07 (0.97, 1.18) | 2.44 | 1.05 |
|                       | CVD + HF + | 636/1849 | 960/2347 | 0.94 (0.85, 1.04) | -2.12 | 0.97 |
Table S22. Risk of cardiovascular outcomes after allowing time varying covariates in censoring weights models

| Outcome (ITT/AT) | Baseline subgroups | Weighted risk in % (SGLT2i) | Weighted risk in % (GLP-1RA) | Weighted RR (95% CI) | Weighted RD (per 100) (95% CI) |
|------------------|---------------------|-----------------------------|-----------------------------|----------------------|---------------------------------|
| HHF (AT)         | CVD - HF -          | 1.18                        | 1.76                        | 0.67 (0.42, 0.99)    | -0.58 (-1.22, -0.02)            |
|                  | CVD - HF +          | 6.88                        | 14.02                       | 0.49 (0.28, 0.99)    | -7.14 (-12.07, -0.09)           |
|                  | CVD + HF -          | 2.41                        | 4.15                        | 0.58 (0.42, 0.76)    | -1.74 (-2.76, -0.88)            |
|                  | CVD + HF +          | 14.9                        | 19.64                       | 0.76 (0.61, 0.93)    | -4.74 (-8.62, -1.33)            |
| MACE (AT)        | CVD - HF -          | 4.76                        | 4.01                        | 1.19 (0.95, 1.47)    | 0.75 (-0.22, 1.65)              |
|                  | CVD - HF +          | 10.04                       | 7.98                        | 1.26 (0.63, 2.3)     | 2.06 (-3.87, 7.49)              |
|                  | CVD + HF -          | 8.49                        | 8.51                        | 1.00 (0.84, 1.18)    | -0.02 (-1.48, 1.44)             |
|                  | CVD + HF +          | 16.1                        | 21.53                       | 0.75 (0.61, 0.92)    | -5.43 (-9.48, -1.58)            |
| HHF+MACE (ITT)   | CVD - HF -          | 5.51                        | 5.29                        | 1.04 (0.86, 1.25)    | 0.22 (-0.83, 1.2)               |
|                  | CVD - HF +          | 14.71                       | 19.53                       | 0.75 (0.48, 1.27)    | -4.82 (-11.81, 3.92)            |
|                  | CVD + HF -          | 10.21                       | 10.91                       | 0.94 (0.8, 1.09)     | -0.7 (-2.12, 0.99)              |
|                  | CVD + HF +          | 25.23                       | 32.76                       | 0.77 (0.65, 0.88)    | -7.52 (-12.47, -3.82)           |
Table S23. Risk of cardiovascular outcomes after allowing all-available years of follow-up

| Outcome (ITT/AT) | Baseline subgroups | Events/ N (SGLT2i) | Events/ N (GLP-1RA) | HR (95% CI) | RD (/100) | RR (/100) |
|------------------|--------------------|---------------------|---------------------|-------------|-----------|-----------|
| HHF (ITT)        | CVD - HF -         | 151/11830           | 208/10142           | 0.91 (0.74, 1.13) | -0.43     | 0.91      |
|                  | CVD - HF +         | 42/609              | 106/771             | 0.59 (0.41, 0.84) | -10.59    | 0.63      |
|                  | CVD + HF -         | 247/9399            | 347/8205            | 0.82 (0.70, 0.97) | -1.64     | 0.83      |
|                  | CVD + HF +         | 379/2909            | 615/3478            | 0.89 (0.78, 1.00) | -2.99     | 0.9       |
| HHF (AT)         | CVD - HF -         | 66/11830            | 106/10142           | 0.76 (0.58, 1.00) | -0.93     | 0.77      |
|                  | CVD - HF +         | 24/609              | 70/771              | 0.43 (0.27, 0.68) | -13.61    | 0.47      |
|                  | CVD + HF -         | 112/9399            | 167/8205            | 0.67 (0.55, 0.82) | -2.81     | 0.68      |
|                  | CVD + HF +         | 225/2909            | 382/3478            | 0.88 (0.76, 1.03) | -2.89     | 0.9       |
| MACE (ITT)       | CVD - HF -         | 550/11830           | 491/10142           | 1.21 (1.07, 1.36) | 2.57      | 1.19      |
|                  | CVD - HF +         | 63/609              | 88/771              | 1.20 (0.86, 1.65) | 4.14      | 1.16      |
|                  | CVD + HF -         | 791/9399            | 731/8205            | 1.09 (0.99, 1.20) | 1.69      | 1.08      |
|                  | CVD + HF +         | 449/2909            | 670/3478            | 0.97 (0.86, 1.09) | -1.13     | 0.97      |
| MACE (AT)        | CVD - HF -         | 271/11830           | 205/10142           | 1.28 (1.09, 1.51) | 2.41      | 1.27      |
|                  | CVD - HF +         | 30/609              | 39/771              | 1.15 (0.74, 1.78) | 2.57      | 1.13      |
|                  | CVD + HF -         | 380/9399            | 356/8205            | 0.97 (0.85, 1.10) | -0.45     | 0.97      |
|                  | CVD + HF +         | 226/2909            | 365/3478            | 0.82 (0.71, 0.96) | -5.79     | 0.86      |
| HHF+MACE (ITT)   | CVD - HF -         | 629/11830           | 623/10142           | 1.12 (1.00, 1.25) | 1.77      | 1.11      |
|                  | CVD - HF +         | 83/609              | 158/771             | 0.82 (0.63, 1.07) | -5.96     | 0.86      |
|                  | CVD + HF -         | 929/9399            | 944/8205            | 1.01 (0.92, 1.11) | 0.24      | 1.01      |
|                  | CVD + HF +         | 664/2909            | 1001/3478           | 0.93 (0.84, 1.02) | -2.65     | 0.95      |
| HHF+MACE (AT)    | CVD - HF -         | 629/11830           | 623/10142           | 1.12 (1.00, 1.25) | 1.77      | 1.11      |
|                  | CVD - HF +         | 83/609              | 158/771             | 0.82 (0.63, 1.07) | -5.96     | 0.86      |
|                  | CVD + HF -         | 929/9399            | 944/8205            | 1.01 (0.92, 1.11) | 0.24      | 1.01      |
|                  | CVD + HF +         | 664/2909            | 1001/3478           | 0.93 (0.84, 1.02) | -2.65     | 0.95      |
Table S24. Two-year risk of MACE + cardiac revascularization and bypass procedures (risk ratios)

| ITT analyses | No. of events | No. at risk | Crude risks (%) | Crude RR* (95% CI) | IPTW RR (95% CI) | IPTW + IPCW RR (95% CI) |
|--------------|---------------|-------------|-----------------|--------------------|-------------------|------------------------|
| CVD (-) HF (-) |               |             |                 |                    |                   |                        |
| SGLT-2i | 521 | 11,830 | 4.4 | 0.98 (0.87, 1.11) | 1.02 (0.91, 1.16) | 1.03 (0.91, 1.16) |
| GLP-1RA | 455 | 10,142 | 4.4 |                   |                   |                        |
| CVD (+) HF (-) |               |             |                 |                    |                   |                        |
| SGLT-2i | 50 | 609 | 8.2 | 0.92 (0.65, 1.30) | 0.94 (0.66, 1.33) | 0.95 (0.67, 1.36) |
| GLP-1RA | 69 | 771 | 8.9 |                   |                   |                        |
| CVD (-) HF (+) |               |             |                 |                    |                   |                        |
| SGLT-2i | 875 | 9,399 | 9.3 | 1.03 (0.94, 1.13) | 1.10 (1.00, 1.20) | 1.10 (1.00, 1.20) |
| GLP-1RA | 739 | 8,205 | 9.0 |                   |                   |                        |
| CVD (+) HF (+) |               |             |                 |                    |                   |                        |
| SGLT-2i | 419 | 2,909 | 14.4 | 0.85 (0.76, 0.95) | 0.92 (0.82, 1.03) | 0.92 (0.82, 1.02) |
| GLP-1RA | 590 | 3,478 | 16.9 |                   |                   |                        |

| As-treated analyses | No. of events | No. at risk | Crude risks (%) | Crude RR* (95% CI) | IPTW RR (95% CI) | IPTW + IPCW RR (95% CI) |
|---------------------|---------------|-------------|-----------------|--------------------|-------------------|------------------------|
| CVD (-) HF (-) |               |             |                 |                    |                   |                        |
| SGLT-2i | 324 | 11,830 | 2.7 | 1.07 (0.91, 1.26) | 1.17 (0.99, 1.37) | 1.18 (1.02, 1.38) |
| GLP-1RA | 259 | 10,142 | 2.6 |                   |                   |                        |
| CVD (+) HF (-) |               |             |                 |                    |                   |                        |
| SGLT-2i | 30 | 609 | 4.9 | 1.12 (0.69, 1.80) | 1.18 (0.73, 1.90) | 1.11 (0.72, 1.72) |
| GLP-1RA | 34 | 771 | 4.4 |                   |                   |                        |
| CVD (-) HF (+) |               |             |                 |                    |                   |                        |
| SGLT-2i | 517 | 9,399 | 5.5 | 0.99 (0.88, 1.12) | 1.04 (0.92, 1.18) | 1.03 (0.92, 1.16) |
| GLP-1RA | 454 | 8,205 | 5.5 |                   |                   |                        |
| CVD (+) HF (+) |               |             |                 |                    |                   |                        |
| SGLT-2i | 269 | 2,909 | 9.2 | 0.81 (0.70, 0.94) | 0.84 (0.73, 0.97) | 0.86 (0.75, 0.98) |
| GLP-1RA | 397 | 3,478 | 11.4 |                   |                   |                        |

ITT, intention-to-treat; AT, as treated; CVD, cardiovascular disease; HF, heart failure; MACE, major adverse cardiovascular events; RR, risk ratio; -, without; +, with; IPTW, inverse probability of treatment weighted; IPCW, inverse probability of censoring weighted; CI, confidence intervals.

* Weighted by inverse probability of treatment and censoring weights that account for confounding and informative censoring.
Table S25. Two-year risk of MACE + cardiac revascularization and bypass procedures (risk differences)

|                  | Events | Total N | Crude risks (%) | Crude RD (95% CI) | IPTW RD (95% CI) | IPTW + IPCW RD* |
|------------------|--------|---------|-----------------|-------------------|------------------|----------------|
| **ITT analyses** |        |         |                 |                   |                  |                |
| **CVD (-) HF (-)** |       |         |                 |                   |                  |                |
| SGLT-2i          | 521    | 11,830  | 4.4             | -0.08 (-0.6, 0.5) | 0.1 (-0.4, 0.7) | 0.1 (-0.4, 0.7) |
| GLP-1RA          | 455    | 10,142  | 4.4             |                   |                  |                |
| **CVD (+) HF (-)** |       |         |                 |                   |                  |                |
| SGLT-2i          | 50     | 609     | 8.2             | -0.7 (-3.7, 2.2)  | -0.5 (-3.5, 2.4) | -0.6 (-3.5, 2.4) |
| GLP-1RA          | 69     | 771     | 8.9             |                   |                  |                |
| **CVD (-) HF (+)** |       |         |                 |                   |                  |                |
| SGLT-2i          | 875    | 9,399   | 9.3             | 0.3 (-0.6, 1.2)   | 0.9 (0, 1.7)     | 0.9 (0, 1.7)   |
| GLP-1RA          | 739    | 8,205   | 9.0             |                   |                  |                |
| **CVD (+) HF (+)** |       |         |                 |                   |                  |                |
| SGLT-2i          | 419    | 2,909   | 14.4            | -2.6 (-4.3, -0.8) | -1.4 (-3.2, 0.4) | -1.4 (-3.2, 0.4) |
| GLP-1RA          | 590    | 3,478   | 16.9            |                   |                  |                |
| **As-treated analyses** |       |         |                 |                   |                  |                |
| **CVD (-) HF (-)** |       |         |                 |                   |                  |                |
| SGLT-2i          | 324    | 11,830  | 2.7             | 0.2 (-0.2, 0.6)   | 0.4 (-0.02, 0.8) | 0.4 (-0.02, 0.8) |
| GLP-1RA          | 259    | 10,142  | 2.6             |                   |                  |                |
| **CVD (+) HF (-)** |       |         |                 |                   |                  |                |
| SGLT-2i          | 30     | 609     | 4.9             | 0.5 (-1.7, 2.8)   | 0.8 (-1.5, 3.0)  | 0.5 (-1.6, 2.6) |
| GLP-1RA          | 34     | 771     | 4.4             |                   |                  |                |
| **CVD (-) HF (+)** |       |         |                 |                   |                  |                |
| SGLT-2i          | 517    | 9,399   | 5.5             | -0.03 (-0.7, 0.6) | 0.2 (-0.5, 0.9)  | 0.2 (-0.5, 0.9) |
| GLP-1RA          | 454    | 8,205   | 5.5             |                   |                  |                |
| **CVD (+) HF (+)** |       |         |                 |                   |                  |                |
| SGLT-2i          | 269    | 2,909   | 9.2             | -2.2 (-3.7, -0.7) | -2.2 (-3.3, -0.3) | -1.6 (-3.0, -0.2) |
| GLP-1RA          | 397    | 3,478   | 11.4            |                   |                  |                |

ITT, intention-to-treat; AT, as treated; CVD, cardiovascular disease; HF, heart failure; MACE, major adverse cardiovascular events; RR, risk ratio; -, without; +, with; IPTW, inverse probability of treatment weighted; IPCW, inverse probability of censoring weighted; CI, confidence intervals.

* Weighted by inverse probability of treatment and censoring weights that account for confounding and informative censoring.
Table S26. Risk ratios for hospitalization for heart failure after exclusion of heart failure events during a 2-month pre-index period

| Subgroups                        | IP weighted RR (95% CI)* |
|----------------------------------|--------------------------|
| **ITT – HHF risk**               |                          |
| CHF (-) CVD (-)                  | 0.83 (0.65, 1.05)        |
| CHF (+) CVD (-)                  | 0.54 (0.31, 0.92)        |
| CHF (-) CVD (+)                  | 0.83 (0.69, 1.00)        |
| CHF (+) CVD (+)                  | 0.92 (0.75, 1.13)        |
| **As-treated – HHF risk**        |                          |
| CHF (-) CVD (-)                  | 0.79 (0.58, 1.06)        |
| CHF (+) CVD (-)                  | 0.66 (0.35, 1.25)        |
| CHF (-) CVD (+)                  | 0.65 (0.51, 0.82)        |
| CHF (+) CVD (+)                  | 0.93 (0.72, 1.20)        |

ITT, intention-to-treat; AT, as treated; CVD, cardiovascular disease; HF, heart failure; MACE, major adverse cardiovascular events; RR, risk ratio; -, without; +, with; IPTW, inverse probability of treatment weighted; IPCW, inverse probability of censoring weighted; CI, confidence intervals.

* Weighted by inverse probability of treatment and censoring weights that account for confounding and informative censoring.
Table S27. Risk ratios for MACE outcomes after exclusion of MI and stroke events during a 2-month pre-index period

| Subgroups       | IP weighted RR (95% CI)* |
|-----------------|---------------------------|
| **ITT – MACE risk**                      |                           |
| CHF (-) CVD (-) | 1.10 (0.96, 1.27)         |
| CHF (+) CVD (-) | 1.06 (0.73, 1.53)         |
| CHF (-) CVD (+) | 1.10 (0.98, 1.23)         |
| CHF (+) CVD (+) | 0.89 (0.78, 1.02)         |
| **As-treated – MACE risk**               |                           |
| CHF (-) CVD (-) | 1.31 (1.09, 1.56)         |
| CHF (+) CVD (-) | 1.21 (0.75, 1.94)         |
| CHF (-) CVD (+) | 1.02 (0.88, 1.18)         |
| CHF (+) CVD (+) | 0.85 (0.72, 0.99)         |

ITT, intention-to-treat; AT, as treated; CVD, cardiovascular disease; HF, heart failure; MACE, major adverse cardiovascular events; RR, risk ratio; -, without; +, with; IPTW, inverse probability of treatment weighted; IPCW, inverse probability of censoring weighted; CI, confidence intervals.

* Weighted by inverse probability of treatment and censoring weights that account for confounding and informative censoring.
Table S28. Health seeking behaviors during the first 6 months after the index date (second prescription date)

|                          | No. at risk | Proportion of flu shot (%) | Proportion of lipid tests (%) |
|--------------------------|-------------|----------------------------|------------------------------|
| **CVD (-) HF (-)**       |             |                            |                              |
| SGLT-2i                  | 11,830      | 33.5                       | 50.7                         |
| GLP-1RA                  | 10,142      | 33.7                       | 49.2                         |
| **CVD (+) HF (-)**       |             |                            |                              |
| SGLT-2i                  | 609         | 31.7                       | 47.0                         |
| GLP-1RA                  | 771         | 34.2                       | 47.0                         |
| **CVD (-) HF (+)**       |             |                            |                              |
| SGLT-2i                  | 9,399       | 34.6                       | 53.1                         |
| GLP-1RA                  | 8,205       | 35.6                       | 50.4                         |
| **CVD (+) HF (+)**       |             |                            |                              |
| SGLT-2i                  | 2,909       | 34.5                       | 50.8                         |
| GLP-1RA                  | 3,478       | 36.1                       | 47.0                         |

ITT, intention-to-treat; AT, as treated; CVD, cardiovascular disease; HF, heart failure; MACE, major adverse cardiovascular events; RR, risk ratio; -, without; +, with; IPTW, inverse probability of treatment weighted; IPCW, inverse probability of censoring weighted; CI, confidence intervals.
Table S29. Subdistribution hazard ratios (HR) for hospitalization for heart failure outcome from fine and gray Cox model

| CVD (-) HF (-)     | Median follow-up (IQR) | IPTW + IPCW HR (95% CI) | Subdistribution HR* (95% CI) | RR from subdistribution hazard functions* |
|---------------------|------------------------|-------------------------|-------------------------------|------------------------------------------|
| SGLT-2i             | 1.32 (0.70, 1.99)      | 0.82 (0.62, 1.08)       | 0.82 (0.64, 1.05)             | 0.82                                      |
| GLP-1RA             | 1.31 (0.67, 1.99)      | 0.55 (0.35, 0.84)       | 0.55 (0.37, 0.81)             | 0.57                                      |
|                      |                        | 1.25 (0.58, 1.99)       | 0.82 (0.66, 1.02)             | 0.82                                      |

| CVD (+) HF (-)     | Median follow-up (IQR) | IPTW + IPCW HR (95% CI) | Subdistribution HR* (95% CI) | RR from subdistribution hazard functions* |
|---------------------|------------------------|-------------------------|-------------------------------|------------------------------------------|
| SGLT-2i             | 1.14 (0.55, 1.99)      | 0.55 (0.35, 0.84)       | 0.55 (0.37, 0.81)             | 0.57                                      |
| GLP-1RA             | 1.25 (0.58, 1.99)      | 0.82 (0.66, 1.02)       | 0.82 (0.68, 0.99)             | 0.82                                      |

| CVD (-) HF (+)     | Median follow-up (IQR) | IPTW + IPCW HR (95% CI) | Subdistribution HR* (95% CI) | RR from subdistribution hazard functions* |
|---------------------|------------------------|-------------------------|-------------------------------|------------------------------------------|
| SGLT-2i             | 1.49 (0.68, 0.99)      | 0.82 (0.66, 1.02)       | 0.82 (0.68, 0.99)             | 0.82                                      |
| GLP-1RA             | 1.48 (0.64, 0.99)      | 0.90 (0.77, 1.04)       | 0.90 (0.79, 1.03)             | 0.91                                      |

| CVD (+) HF (+)     | Median follow-up (IQR) | IPTW + IPCW HR (95% CI) | Subdistribution HR* (95% CI) | RR from subdistribution hazard functions* |
|---------------------|------------------------|-------------------------|-------------------------------|------------------------------------------|
| SGLT-2i             | 1.21 (0.54, 1.99)      | 0.90 (0.77, 1.04)       | 0.90 (0.79, 1.03)             | 0.91                                      |
| GLP-1RA             | 1.16 (0.48, 1.99)      | 0.83 (0.68, 1.01)       | 0.83 (0.71, 0.98)             | 0.85                                      |

ITT, intention-to-treat; AT, as treated; CVD, cardiovascular disease; HF, heart failure; MACE, major adverse cardiovascular events; RR, risk ratio; -, without; +, with; IPTW, inverse probability of treatment weighted; IPCW, inverse probability of censoring weighted; CI, confidence intervals.

* Weighted by inverse probability of treatment and censoring weights that account for confounding and informative censoring.
Table S30. Risk of cardiovascular outcomes after excluding exenatide initiators

| Outcome (ITT/AT) | Baseline subgroups | Events/N (SGLT2i) | Events/N (GLP-1RA) | HR (95% CI) | RD (per 100) | RR |
|------------------|--------------------|-------------------|-------------------|-------------|--------------|----|
| HHF (ITT)        | CVD - HF -         | 151/11830         | 164/8174          | 0.92 (0.74, 1.16) | -0.38        | 0.93 |
|                  | CVD - HF +         | 42/609            | 79/600            | 0.62 (0.43, 0.90) | -8.30        | 0.65 |
|                  | CVD + HF -         | 247/9399          | 265/6633          | 0.85 (0.71, 1.01) | -1.38        | 0.86 |
|                  | CVD + HF +         | 379/2909          | 486/2820          | 0.87 (0.76, 0.99) | -3.34        | 0.89 |
| HHF (AT)         | CVD - HF -         | 66/11830          | 85/8174           | 0.79 (0.59, 1.05) | -0.88        | 0.79 |
|                  | CVD - HF +         | 24/609            | 57/600            | 0.41 (0.26, 0.66) | -14.12       | 0.45 |
|                  | CVD + HF -         | 112/9399          | 125/6633          | 0.73 (0.59, 0.91) | -2.17        | 0.74 |
|                  | CVD + HF +         | 225/2909          | 307/2820          | 0.86 (0.73, 1.01) | -3.63        | 0.88 |
| MACE (ITT)       | CVD - HF -         | 550/11830         | 378/8174          | 1.23 (1.08, 1.40) | 2.78         | 1.21 |
|                  | CVD - HF +         | 63/609            | 67/600            | 1.19 (0.84, 1.68) | 3.95         | 1.16 |
|                  | CVD + HF -         | 791/9399          | 570/6633          | 1.10 (0.98, 1.22) | 1.81         | 1.08 |
|                  | CVD + HF +         | 449/2909          | 532/2820          | 0.96 (0.84, 1.08) | -1.39        | 0.97 |
| MACE (AT)        | CVD - HF -         | 271/11830         | 167/8174          | 1.27 (1.07, 1.51) | 2.40         | 1.25 |
|                  | CVD - HF +         | 30/609            | 28/600            | 1.21 (0.76, 1.93) | 3.07         | 1.19 |
|                  | CVD + HF -         | 380/9399          | 286/6633          | 0.96 (0.84, 1.10) | -0.54        | 0.96 |
|                  | CVD + HF +         | 226/2909          | 303/2820          | 0.81 (0.69, 0.94) | -6.60        | 0.85 |
| HHF+MACE (ITT)   | CVD - HF -         | 151/11830         | 164/8174          | 0.92 (0.74, 1.16) | -0.38        | 0.93 |
|                  | CVD - HF +         | 42/609            | 79/600            | 0.62 (0.43, 0.90) | -8.30        | 0.65 |
|                  | CVD + HF -         | 247/9399          | 265/6633          | 0.85 (0.71, 1.01) | -1.38        | 0.86 |
|                  | CVD + HF +         | 379/2909          | 486/2820          | 0.87 (0.76, 0.99) | -3.34        | 0.89 |
| HHF+MACE (AT)    | CVD - HF -         | 66/11830          | 85/8174           | 0.79 (0.59, 1.05) | -0.88        | 0.79 |
|                  | CVD - HF +         | 24/609            | 57/600            | 0.41 (0.26, 0.66) | -14.12       | 0.45 |
|                  | CVD + HF -         | 112/9399          | 125/6633          | 0.73 (0.59, 0.91) | -2.17        | 0.74 |
|                  | CVD + HF +         | 225/2909          | 307/2820          | 0.86 (0.73, 1.01) | -3.63        | 0.88 |
Table S31. Risk of cardiovascular outcomes among canagliflozin vs. liraglutide initiators

| Outcome (ITT/AT) | Baseline subgroups | Events/N (SGLT2i) | Events/N (GLP-1RA) | HR (95% CI) | RD (per 100) | RR |
|------------------|--------------------|-------------------|--------------------|-------------|--------------|----|
| HHF (ITT)        | CVD - HF -         | 115/7884          | 136/5685           | 0.90 (0.70, 1.17) | -0.48         | 0.91 |
|                  | CVD - HF +         | 30/397            | 65/412             | 0.50 (0.32, 0.79) | -10.96        | 0.54 |
|                  | CVD + HF -         | 199/6153          | 228/4434           | 0.84 (0.69, 1.02) | -1.49         | 0.85 |
|                  | CVD + HF +         | 304/1848          | 390/1875           | 0.95 (0.82, 1.10) | -1.27         | 0.96 |
| HHF (AT)         | CVD - HF -         | 45/7884           | 66/5685            | 0.72 (0.51, 1.00) | -1.15         | 0.72 |
|                  | CVD - HF +         | 15/397            | 44/412             | 0.40 (0.22, 0.72) | -12.94        | 0.43 |
|                  | CVD + HF -         | 86/6153           | 102/4434           | 0.68 (0.52, 0.88) | -2.76         | 0.69 |
|                  | CVD + HF +         | 173/1848          | 236/1875           | 0.90 (0.74, 1.08) | -2.55         | 0.91 |
| MACE (ITT)       | CVD - HF -         | 426/7884          | 313/5685           | 1.23 (1.06, 1.42) | 2.72          | 1.21 |
|                  | CVD - HF +         | 50/397            | 57/412             | 1.18 (0.80, 1.74) | 3.72          | 1.15 |
|                  | CVD + HF -         | 619/6153          | 470/4434           | 1.08 (0.96, 1.22) | 1.60          | 1.07 |
|                  | CVD + HF +         | 350/1848          | 423/1875           | 1.04 (0.90, 1.19) | 1.09          | 1.03 |
| MACE (AT)        | CVD - HF -         | 192/7884          | 134/5685           | 1.18 (0.96, 1.44) | 1.60          | 1.17 |
|                  | CVD - HF +         | 24/397            | 23/412             | 1.44 (0.83, 2.50) | 6.17          | 1.39 |
|                  | CVD + HF -         | 275/6153          | 218/4434           | 0.88 (0.75, 1.04) | -1.69         | 0.89 |
|                  | CVD + HF +         | 159/1848          | 227/1875           | 0.83 (0.69, 1.00) | -5.69         | 0.86 |
| HHF+MACE (ITT)   | CVD - HF -         | 487/7884          | 395/5685           | 1.14 (1.00, 1.30) | 2.04          | 1.13 |
|                  | CVD - HF +         | 62/397            | 99/412             | 0.75 (0.54, 1.03) | -8.08         | 0.79 |
|                  | CVD + HF -         | 725/6153          | 609/4434           | 1.01 (0.91, 1.13) | 0.24          | 1.01 |
|                  | CVD + HF +         | 518/1848          | 623/1875           | 0.99 (0.88, 1.11) | -0.43         | 0.99 |
| HHF+MACE (AT)    | CVD - HF -         | 487/7884          | 395/5685           | 1.14 (1.00, 1.30) | 2.04          | 1.13 |
|                  | CVD - HF +         | 62/397            | 99/412             | 0.75 (0.54, 1.03) | -8.08         | 0.79 |
|                  | CVD + HF -         | 725/6153          | 609/4434           | 1.01 (0.91, 1.13) | 0.24          | 1.01 |
|                  | CVD + HF +         | 518/1848          | 623/1875           | 0.99 (0.88, 1.11) | -0.43         | 0.99 |
Figure S1. Cohort flowchart of patients initiating a SGLT-2i or a GLP-1RA

69,266 initiators of SGLT-2i or GLP-1RA in Medicare between 2013 and 2017

66,293 T2D patients ≥66 years old with >1 year baseline enrollment in Medicare (33,516 SGLT-2i, 32,777 GLP-1RA initiators)

64,275 T2D patients with no ESRD or CKD stage 4-5, initiating a SGLT-2i (n=33,112) or GLP-1RA (n=31,163) initiators

24,747 SGLT-2i and 22,596 GLP-1RA initiators with at least one refill of the same drug class

21,972 T2D patients with no CVD* or HF initiating a SGLT-2i or a GLP-1RA

1,380 T2D patients with no CVD* but with HF initiating a SGLT-2i or a GLP-1RA

17,604 T2D patients with CVD* but no HF initiating a SGLT-2i or a GLP-1RA

6,387 T2D patients with both CVD* and HF initiating a SGLT-2i or a GLP-1RA

2,973 excluded:
- patients who initiated both SGLT-2i and GLP-1RA on the index date
- patients <66 years old
- patients with <1 year enrollment in Medicare plans A, B, D prior to index

2,018 excluded:
- patients with ESRD, CKD stage 4-5 or on renal dialysis

39,528 excluded:
- patients who did not refill at least once with the same drug class within 90 days at the end of the days-supply of the first prescription

T2D: type 2 diabetes; SGLT2i: sodium-glucose cotransporter-2 inhibitors; GLP-1RA: glucagon-like peptide-1 receptor agonists; CVD: cardiovascular disease; PS: propensity score; HF: heart failure
* Defined as history of myocardial infarction, angina, coronary atherosclerosis and other forms of chronic ischemic heart disease, coronary procedure, heart failure, ischemic stroke, peripheral arterial disease or surgery, lower extremity amputation
Figure S2. Causal diagram to depict relations between exposure, outcome, censoring and competing events (L = a set of confounders, X = SGLT2i vs. GLP-1RA, $Y_k$ = outcome $Y$ at time $k$, $Y_{k+1}$ = outcome $Y$ at time $k+1$, $D_k$ = competing event, i.e., death at time $k$, $D_{k+1}$ = competing event, i.e., death at time $k+1$, $C_k$ = censoring event, i.e., treatment changes at time $k$, $C_{k+1}$ = censoring event, i.e., treatment changes at time $k+1$)
Figure S3. Cumulative risk of hospitalization for heart failure stratified by baseline atherosclerotic cardiovascular diseases (CVD) and heart failure (HF) (intent-to-treat analyses adjusted for baseline confounding and informative censoring)
Figure S4. Cumulative risk of major adverse cardiovascular outcomes (myocardial infarction, stroke, mortality) stratified by baseline atherosclerotic cardiovascular diseases (CVD) and heart failure (HF) (intent-to-treat analyses adjusted for baseline confounding and informative censoring)
Figure S5. Cumulative risk of a composite of hospitalization for heart failure or major adverse cardiovascular outcomes (myocardial infarction, stroke, mortality) stratified by baseline atherosclerotic cardiovascular diseases (CVD) and heart failure (HF) (intent-to-treat analyses adjusted for baseline confounding and informative censoring)
Figure S6. Inverse probability of treatment and censoring weighted risk ratios (RR) and differences (RD) for hospitalization for heart failure for intent-to-treat (ITT) and as-treated (AT) analyses (secondary definition which includes rheumatic and hypertensive heart failure codes in addition to congestive heart failure codes)

| Cohort | RR    | RD/100 |
|--------|-------|--------|
| ITT    |       |        |
| CVD - CHF - | 0.87  | -0.19  |
| CVD + CHF - | 0.48  | -6.68  |
| CVD - CHF + | 0.88  | -0.36  |
| CVD + CHF + | 0.91  | -1.41  |
| AT     |       |        |
| CVD - CHF - | 0.81  | -0.18  |
| CVD + CHF - | 0.43  | -4.48  |
| CVD - CHF + | 0.69  | -0.58  |
| CVD + CHF + | 0.86  | -1.44  |
Figure S7. Inverse probability of treatment and censoring weighted risk ratios (RR) and differences (RD) for MACE outcomes for intent-to-treat (ITT) and as-treated (AT) analyses (with only ischemic stroke)
Figure S8. Inverse probability of treatment and censoring weighted risk ratios (RR) and differences (RD) for MACE outcomes with cardiac revascularization procedures for intent-to-treat (ITT) and as-treated (AT) analyses (with only ischemic stroke)

| Cohort | RR     | RD/100 |
|--------|--------|--------|
| ITT    |        |        |
| CVD - CHF - | 1.03   | 0.15   |
| CVD + CHF - | 0.94   | -0.56  |
| CVD - CHF + | 1.10   | 0.91   |
| CVD + CHF + | 0.92   | -1.39  |
| AT     |        |        |
| CVD - CHF - | 1.18   | 0.45   |
| CVD + CHF - | 1.11   | 0.53   |
| CVD - CHF + | 1.04   | 0.24   |
| CVD + CHF + | 0.86   | -1.61  |