

## SUPPLEMENTARY MATERIAL

**Supplementary Table 1.** Start and end dates of study period at each participating site for the identification of the source population and date of first recorded SGLT2 inhibitor dispensing.

Site	Dates for identification of source population		
	Start date	End date	Date of first SGLT2 inhibitor
Alberta	January 1, 2008	March 31, 2017	June 6, 2014
British Columbia	January 1, 2006	June 30, 2018	June 3, 2014
Manitoba	January 1, 2006	March 31, 2018	June 9, 2014
Nova Scotia*	November 1, 2016	June 30, 2018	November 1, 2017
Ontario	January 1, 2006	March 31, 2018	July 29, 2015
Quebec	January 1, 2006	June 30, 2018	September 4, 2014
Saskatchewan	February 13, 2008	June 30, 2018	June 27, 2014
CPRD	January 1, 2006	December 31, 2017	February 4, 2013

Abbreviations: CPRD, Clinical Practice Research Datalink; SGLT2, sodium-glucose cotransporter 2.

\*Due to limitations in prescription drug data availability, patients were only included from November 1, 2017 to June 30, 2018.

**Supplementary Table 2.** Covariates included in the time-conditional propensity score model\*.

Covariates	Comment (if applicable)*
<b>Demographic</b>	
Age	Defined at cohort entry date
Sex	
Socioeconomic status	A site-specific definition was applied
<b>Diabetes duration</b>	
	Time since a patient's first diagnosis of diabetes or the time since their initiation of antidiabetic medication, whichever was longer
<b>Comorbidities</b>	
Alcohol-related disorders	
Aortic aneurysm	
Atherosclerosis	
Atrial fibrillation	
Cancer	Excluding non-melanoma skin cancer
Cerebrovascular disease	
Chronic obstructive pulmonary disease	
Cirrhosis	
Coronary artery disease	
Dementia	Defined by a diagnosis of dementia (in the prior 3 years) or a prescription for cholinesterase inhibitors or memantine (in the prior year)
Diabetic nephropathy	
Diabetic neuropathy	
Diabetic retinopathy	
Dialysis	Defined using diagnosis and procedure codes
Dyslipidemia	Diagnosis of dyslipidemia (in the prior 3 years) or a prescription for a statin or other lipid lowering therapy (in the prior year)
Heart failure	
Hypertension	
Hypoglycemia	Hospitalization with a diagnosis in any position in the prior 3 years
Ischemic stroke	
Myocardial infarction	
Other kidney disease	
Peripheral arterial disease	
<b>Use of medications</b>	
Acetylsalicylic acid	
Aldosterone antagonists	
Alpha-glucosidase inhibitors	
Angiotensin II receptor blockers	
Angiotensin-converting enzyme inhibitors	

Covariates	Comment (if applicable)*
Beta-blockers	
Calcium channel blockers	
Digitalis-like agents	
Insulin	
Loop diuretics	
Meglitinides	
Metformin	
Non-acetylsalicylic acid antiplatelet drugs	
Nonsteroidal anti-inflammatory drugs	
Oral anticoagulants	
Oral glucocorticoids	
Other diuretics	
Sulfonylureas	
Thiazide diuretics	
Thiazolidinediones	
No. of different classes of non-antidiabetic medications	Measured by drug class using site-specific approaches and assessed in the 365 days prior to and including study cohort entry. Categorized as 0-1, 2-5, or $\geq 6$
<b>Healthcare use</b>	
Number of inpatient hospitalizations	In the 365 days prior to and including study cohort entry Categorized as 0, 1-2, or $\geq 3$
Number of physician visits	Included inpatient and outpatient visits in the 365 days prior to study cohort entry Categorized as 0-2, 3-5, or $\geq 6$
<b>Additional CPRD covariates</b>	
Blood pressure (mm Hg)	Based on the last measurement before study cohort entry Categorized as DBP <90 mm Hg and SBP <140 mm Hg, DBP $\geq 90$ mm Hg or SBP $\geq 140$ mm Hg, or missing
Body mass index (kg/m <sup>2</sup> )	Based on the last measurement before study cohort entry Categorized as <30 kg/m <sup>2</sup> , $\geq 30$ kg/m <sup>2</sup> , or missing
eGFR (mL/min/1.73 m <sup>2</sup> )	Based on the last measurement before study cohort entry Categorized as <60, $\geq 60$ , or missing
HbA1c (%)	Based on the last measurement before study cohort entry Categorized as $\leq 7$ , 7.1-8, >8, or missing
Race	Assessed ever before study cohort entry Categorized as white, other, or missing
Smoking status	Based on the last measurement before study cohort entry Categorized as never, ever, or missing

Abbreviations: ATC, Anatomical Therapeutic Chemical; DBP, diastolic blood pressure; eGFR, estimated glomerular filtration rate; HbA1c, haemoglobin A1c; SBP, systolic blood pressure.

\*Unless otherwise specified, comorbidities were ascertained from hospitalization or physician claims data in the three years prior to study cohort entry. Medications and healthcare use were assessed in the year prior to study cohort entry. Comorbidities were measured using ICD-9-CM

for outpatient claims (except Ontario, which used ICD-8 codes, and CPRD, which used Read codes) and ICD-10-CA for hospitalization records, and procedures were defined using ICD-9-CM, Canadian Classification of Diagnostic, Therapeutic, and Surgical Procedures (CCP) and Canadian Classification of Health Interventions (CCI) + site-specific procedure codes.

**Supplementary Table 3.** Approach implemented to match SGLT2 inhibitor users to DPP-4 inhibitor users within each exposure risk set at each participating site.

Site	Without replacement	With replacement
Alberta		✓
British Columbia		✓
Manitoba		✓
Nova Scotia		✓
Ontario	✓	
Quebec	✓	
Saskatchewan*		✓
CPRD	✓	

Abbreviations: CPRD: Clinical Practice Research Datalink.

\*Matching with replacement by randomly selecting a match using a caliper of  $\pm 0.2$  standard deviations of the ln (time-conditional propensity score).

**Supplementary Table 4.** Diagnoses codes used in outcome definitions.

<b>Variable</b>	<b>ICD-10-CA code</b>
Myocardial infarction	I21.x Acute myocardial infarction
Ischemic stroke	I63.x Cerebral infarction I64.x Stroke, not specified as haemorrhage or infarction
Cardiovascular death	Defined using the following algorithm: <ul style="list-style-type: none"> <li>• In-hospital death with a cardiovascular diagnosis [ICD-10-CA: I00.x-I77.x (except I46.9)] recorded as the most responsible diagnosis or present on admission; or</li> <li>• Out-of-hospital death (including death in the emergency department if data available) without: <ul style="list-style-type: none"> <li>○ Documentation of cancer (ICD-9-CM: 140-172, 174-209; ICD-10-CA: C00-C43, C45-C97) in hospital, emergency department or physician claims data in the prior year; or</li> <li>○ Documentation of trauma (ICD-9-CM: 800-999, E000-E999; ICD-10-CA: S00-T98, V01-Y98) in hospital, emergency department or physician claims data in the preceding month.</li> </ul> </li> </ul>
Heart failure	I11.0 Hypertensive heart disease with (congestive) heart failure I13.0 Hypertensive heart and renal disease with (congestive) heart failure I13.2 Hypertensive heart and renal disease with both (congestive) heart failure and renal failure I50.x Heart failure

Abbreviations: ICD-10-CA, International Classification of Diseases, 10<sup>th</sup> revision, with Canadian Enhancement. ICD-9-CM, International Classification of Diseases, 9<sup>th</sup> revision.

**Supplementary Table 5.** Baseline non-antidiabetic medication use and healthcare use among users of SGLT2 inhibitors and their matched DPP-4 inhibitor users.\*

Characteristic	Pre-matching			Post-matching		
	SGLT2 inhibitors (n = 215,762)	DPP-4 inhibitors (n = 215,762)	aSD	SGLT2 inhibitors (n = 209,867)	DPP-4 inhibitors (n = 209,867)	aSD
<b>Medications<sup>†</sup></b>						
ACEI	98,251 (45.5)	96,807 (44.9)	0.013	95,629 (45.6)	94,973 (45.3)	0.006
Acetylsalicylic acid	38,835 (18.0)	44,758 (20.7)	0.070	37,258 (17.8)	37,223 (17.7)	0.000
Aldosterone antagonists	6,506 (3.0)	8,725 (4.0)	0.056	6,259 (3.0)	6,068 (2.9)	0.005
ARB	69,506 (32.2)	69,133 (32.0)	0.004	67,320 (32.1)	66,996 (31.9)	0.003
Beta-blockers	61,254 (28.4)	72,222 (33.5)	0.110	59,531 (28.4)	59,009 (28.1)	0.006
Calcium channel blockers	65,977 (30.6)	76,133 (35.3)	0.100	64,200 (30.6)	64,322 (30.6)	0.001
Cholinesterase inhibitors or memantine	1,291 (0.6)	5,108 (2.4)	0.147	1,282 (0.6)	1,366 (0.7)	0.005
Digitalis-like agents	2,708 (1.3)	4,766 (2.2)	0.073	2,631 (1.3)	2,702 (1.3)	0.003
Loop diuretics	17,812 (8.3)	32,212 (14.9)	0.210	17,285 (8.2)	17,530 (8.4)	0.004
Non-acetylsalicylic acid antiplatelet drugs	14,722 (6.8)	18,150 (8.4)	0.060	14,279 (6.8)	13,879 (6.6)	0.008
Nonsteroidal anti-inflammatory drugs	42,104 (19.5)	36,759 (17.0)	0.064	40,816 (19.4)	40,054 (19.1)	0.009
Oral anticoagulants	13,989 (6.5)	21,338 (9.9)	0.124	13,610 (6.5)	13,874 (6.6)	0.005
Oral glucocorticoids	13,486 (6.3)	16,761 (7.8)	0.059	13,083 (6.2)	13,149 (6.3)	0.001
Other diuretics	20,347 (9.4)	19,631 (9.1)	0.011	19,739 (9.4)	19,766 (9.4)	0.000
Other lipid lowering therapy	24,760 (11.5)	21,302 (9.9)	0.052	23,879 (11.4)	22,185 (10.6)	0.026
Statins	166,157 (77.0)	164,652 (76.3)	0.016	161,370 (76.9)	160,529 (76.5)	0.009
Thiazide diuretics	55,353 (25.7)	54,213 (25.1)	0.012	53,776 (25.6)	53,343 (25.4)	0.005
No. of different classes of non anti-diabetic medications						
0-1	10,228 (4.7)	9,107 (4.2)	0.025	9,962 (4.7)	10,322 (4.9)	0.008
2-5	67,205 (31.1)	57,102 (26.5)	0.104	65,731 (31.3)	66,311 (31.6)	0.006
≥6	138,329 (64.1)	149,553 (69.3)	0.111	134,174 (63.9)	133,234 (63.5)	0.009

Characteristic	Pre-matching			Post-matching		
	SGLT2 inhibitors (n = 215,762)	DPP-4 inhibitors (n = 215,762)	aSD	SGLT2 inhibitors (n = 209,867)	DPP-4 inhibitors (n = 209,867)	aSD
<b>Healthcare use<sup>†</sup></b>						
Inpatient hospitalizations						
0	183,223 (84.9)	167,437 (77.6)	0.188	178,223 (84.9)	177,700 (84.7)	0.007
1-2	30,037 (13.9)	41,973 (19.5)	0.149	29,226 (13.9)	29,567 (14.1)	0.005
≥3	2,502 (1.2)	6,352 (2.9)	0.126	2,418 (1.2)	2,600 (1.2)	0.008
Number of physician visits						
0-2	15,467 (7.2)	17,559 (8.1)	0.036	15,009 (7.2)	15,281 (7.3)	0.005
3-5	32,803 (15.2)	29,570 (13.7)	0.043	32,078 (15.3)	31,677 (15.1)	0.005
≥6	167,492 (77.6)	168,633 (78.2)	0.013	162,780 (77.6)	162,909 (77.6)	0.001

Abbreviations: ACEI, angiotensin-converting enzyme inhibitors; ARB, angiotensin II receptor blockers; DPP-4, dipeptidyl peptidase-4; GLP-1, glucagon-like peptide-1; aSD, absolute value of the standardized difference; SGLT2, sodium-glucose cotransporter 2.

\*Data are presented as n (%). SGLT2 inhibitors patients were matched to DPP-4 inhibitors patients from their exposure set (defined on level of antidiabetic therapy, prior use of GLP-1 receptor agonists, time on DPP-4 inhibitors for prevalent new users and calendar time) on time-conditional propensity score.

<sup>†</sup>Medications and healthcare use were assessed in the year before cohort entry.



**Supplementary Table 6.** Additional baseline characteristics of new users of SGLT2 inhibitors and their matched DPP-4 users in the CPRD.\*

Characteristics	Pre-matching			Post-matching		
	SGLT2 inhibitors (n = 6,204)	DPP-4 inhibitors (n = 6,204)	aSD	SGLT2 inhibitors (n = 5,423)	DPP-4 inhibitors (n = 5,423)	aSD
<b>Blood pressure</b>						
DBP <90 mm Hg and SBP <140 mm Hg	4,010 (64.6)	4,183 (67.4)	0.059	3,503 (64.6)	3,534 (65.2)	0.012
DPB ≥90 mm Hg or SBP ≥140 mm Hg	2,185 (35.2)	2,007 (32.4)	0.061	1,912 (35.3)	1,883 (34.7)	0.011
Missing	9 (0.1)	14 (0.2)	0.019	8 (0.1)	6 (0.1)	0.010
<b>Body mass index</b>						
<30 kg/m <sup>2</sup>	1,612 (26.0)	2,443 (39.4)	0.289	1,533 (28.3)	1,719 (31.7)	0.075
≥30 kg/m <sup>2</sup>	4,570 (73.7)	3,723 (60.0)	0.293	3,873 (71.4)	3,680 (67.9)	0.078
Unknown	22 (0.4)	38 (0.6)	0.037	17 (0.3)	24 (0.4)	0.021
<b>eGFR</b>						
<60 mL/min/1.73m <sup>2</sup>	325 (5.2)	1,757 (28.3)	0.649	285 (5.3)	540 (10.0)	0.178
≥60 mL/min/1.73m <sup>2</sup>	5,869 (94.6)	4,437 (71.5)	0.647	5,131 (94.6)	4,876 (89.9)	0.177
Missing	10 (0.2)	10 (0.2)	0.000	7 (0.1)	7 (0.1)	0.000
<b>HbA1c</b>						
≤7 %	210 (3.4)	1,001 (16.1)	0.440	183 (3.4)	223 (4.1)	0.039
7.1-8 %	1,120 (18.1)	1,617 (26.1)	0.194	1,050 (19.4)	1,059 (19.5)	0.004
>8 %	4,832 (77.9)	3,540 (57.1)	0.456	4,154 (76.6)	4,100 (75.6)	0.023
Missing	42 (0.7)	46 (0.7)	0.008	36 (0.7)	41 (0.8)	0.011
<b>Race</b>						
White	4,582 (73.9)	4,645 (74.9)	0.023	3,968 (73.2)	3,954 (72.9)	0.006
Other	578 (9.3)	708 (11.4)	0.069	533 (9.8)	574 (10.6)	0.025
Missing	1,044 (16.8)	851 (13.7)	0.087	922 (17.0)	895 (16.5)	0.013
<b>Smoking status</b>						
Never	2,474 (39.9)	S	0.015	2,166 (39.9)	2,108 (38.9)	0.022
Ever	3,723 (60.0)	3,678 (59.3)	0.015	3,251 (59.9)	3,308 (61.0)	0.022

Characteristics	Pre-matching			Post-matching		
	SGLT2 inhibitors (n = 6,204)	DPP-4 inhibitors (n = 6,204)	aSD	SGLT2 inhibitors (n = 5,423)	DPP-4 inhibitors (n = 5,423)	aSD
Missing	7 (0.1)	S	0.010	6 (0.1)	7 (0.1)	0.005

Abbreviations: DBP, diastolic blood pressure; DPP-4, dipeptidyl peptidase-4; CPRD: Clinical Practice Research Datalink; eGFR, estimated glomerular filtration rate; GLP-1, glucagon-like peptide-1; HbA1c, hemoglobin A1c; SBP, systolic blood pressure; aSD, absolute value of the standardized difference; SGLT2, sodium-glucose cotransporter 2.

\*Data are presented as n (%). Cells that contained a value <6 were suppressed due to privacy restriction and are presented as S. SGLT2 inhibitors patients were matched to DPP-4 inhibitors patients from their exposure set (defined on level of antidiabetic therapy, prior use of GLP-1 receptor agonists, time on DPP-4 inhibitors for prevalent new users and calendar time) on time-conditional propensity score. The assessment of body mass index, smoking status, blood pressure, eGFR and HbA1c was based on the last measurement before study cohort entry, and race was assessed ever before. Missing data were included in regression models through the use of an indicator variable.

**Supplementary Table 7.** Number of events, patients, and person-years of follow-up and crude incidence rates overall and by site for MACE.

	<b>No. of events</b>	<b>No. of patients</b>	<b>No. of person-years</b>	<b>Crude incidence rate (per 1,000 person-years)</b>
<b>Overall</b>				
SGLT2 inhibitors	2,146	209,867	188,782	11.4
DPP-4 inhibitors	3,001	209,867	181,733	16.5
<b>Alberta</b>				
SGLT2 inhibitors	140	26,186	18,443	7.6
DPP-4 inhibitors	159	26,186	16,512	9.6
<b>British Columbia</b>				
SGLT2 inhibitors	371	44,043	41,764	8.9
DPP-4 inhibitors	429	44,043	39,646	10.8
<b>Manitoba</b>				
SGLT2 inhibitors	94	12,204	11,253	8.4
DPP-4 inhibitors	121	12,204	10,006	12.1
<b>Nova Scotia</b>				
SGLT2 inhibitors	6	1,119	335	17.9
DPP-4 inhibitors	S	1,119	S	9.2
<b>Ontario</b>				
SGLT2 inhibitors	897	65,556	56,312	15.9
DPP-4 inhibitors	1,472	65,556	58,694	25.1
<b>Quebec</b>				
SGLT2 inhibitors	480	44,504	45,797	10.5
DPP-4 inhibitors	592	44,504	42,184	14.0
<b>Saskatchewan</b>				
SGLT2 inhibitors	103	10,832	10,172	10.1
DPP-4 inhibitors	152	10,832	10,676	14.2
<b>CPRD</b>				
SGLT2 inhibitors	55	5,423	4,706	11.7
DPP-4 inhibitors	76	5,423	4,016	18.9

Abbreviations: SGLT2, sodium-glucose cotransporter 2; DPP-4, dipeptidyl peptidase-4; IR, incidence rate; CI, confidence interval; NA, not applicable; CPRD, Clinical Practice Research Datalink; MACE, major adverse cardiovascular events.

Cells that contained a value <6 were suppressed due to privacy restriction and are presented as S.

**Supplementary Table 8.** Summary of results of stratified analyses of pooled adjusted hazard ratios (95% CI) for MACE, its components, and all-cause mortality for SGLT2 inhibitor use versus DPP-4 inhibitor use.

	<b>History of cardiovascular disease</b>			
	<b>Yes (n=110,184)*</b>		<b>No (n=309,550)*</b>	
	<b>Adjusted HR (95% CI)<sup>†</sup></b>	<b>I<sup>2</sup></b>	<b>Adjusted HR (95% CI)</b>	<b>I<sup>2</sup></b>
MACE	0.71 (0.59 to 0.86)	67%	0.78 (0.69 to 0.88)	40%
Myocardial infarction	0.84 (0.69 to 1.03)	42%	0.86 (0.76 to 0.98)	3%
Ischemic stroke	0.90 (0.63 to 1.28)	55%	0.82 (0.63 to 1.09)	45%
Cardiovascular death	0.51 (0.40 to 0.65)	39%	0.74 (0.57 to 0.97)	67%
All-cause mortality	0.53 (0.48 to 0.58)	0%	0.69 (0.57 to 0.83)	68%

Abbreviations: CI, confidence interval; HR, hazard ratio; MACE, major adverse cardiovascular events.

\*There were 55,211 SGLT2 inhibitor users and 54,973 DPP-4 inhibitor users with a previous history of cardiovascular disease. There were 154,656 SGLT2 inhibitor users and 154,894 DPP-4 inhibitor users with no previous history of cardiovascular disease.

<sup>†</sup>Outcome models were adjusted for age (continuous), sex, diabetes duration (continuous), and deciles of time-conditional propensity score.

Note: Nova Scotia had zero events in one of the exposure groups and thus was not included in the MACE (history of cardiovascular disease strata), myocardial infarction, ischemic stroke, cardiovascular death, and all-cause mortality analyses.

**Supplementary Table 9.** Summary of the CPRD results for the study outcomes for SGLT2 inhibitor use versus DPP-4 inhibitor use with and without the inclusion of additional covariates in the time-conditional propensity score.\*

Outcome	Adjusted HR (95% CI)*		
	With additional clinical covariates <sup>†</sup>	With addition of eGFR only <sup>‡</sup>	Without additional covariates
MACE	0.77 (0.54 to 1.10)	0.77 (0.54 to 1.11)	0.69 (0.48 to 1.00)
Myocardial infarction	0.75 (0.44 to 1.30)	0.86 (0.49 to 1.50)	0.64 (0.37 to 1.12)
Ischemic stroke	1.15 (0.51 to 2.58)	0.93 (0.43 to 2.02)	1.63 (0.66 to 4.05)
Cardiovascular death	0.59 (0.33 to 1.05)	0.48 (0.26 to 0.89)	0.48 (0.26 to 0.89)
All-cause mortality	0.67 (0.42 to 1.06)	0.57 (0.32 to 1.02)	0.64 (0.39 to 1.04)
Heart failure	0.58 (0.21 to 1.59)	0.32 (0.10 to 0.97)	0.57 (0.19 to 1.70)

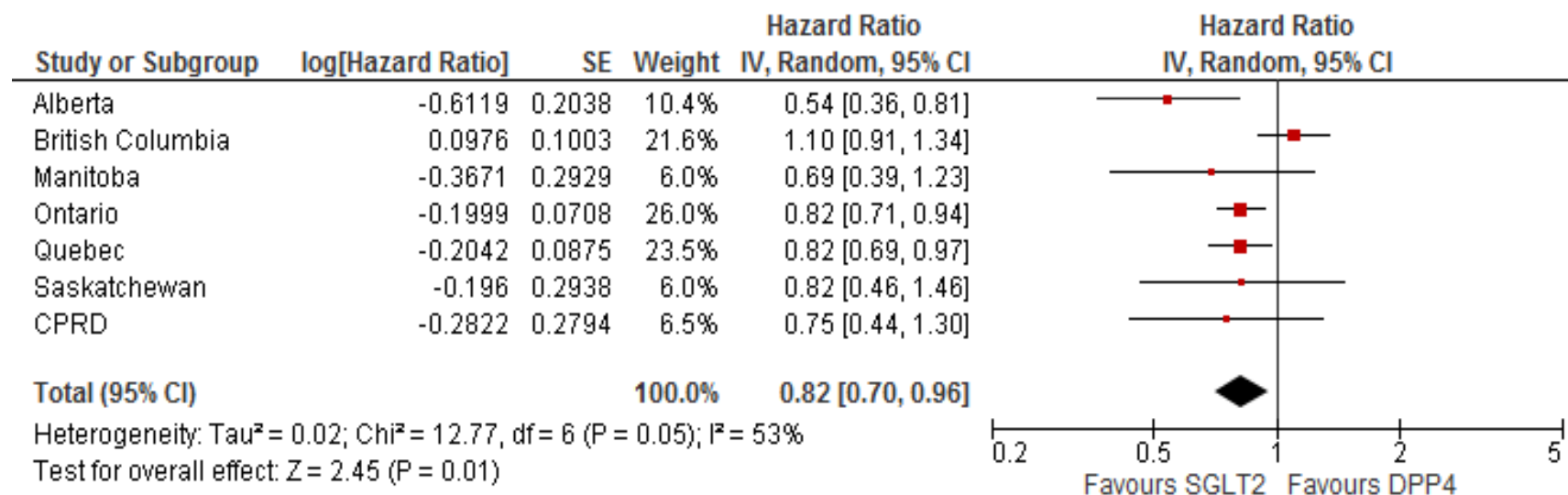
Abbreviations: CI, confidence interval; CPRD, Clinical Practice Research Datalink; DPP-4, dipeptidyl peptidase-4; eGFR, estimated glomerular filtration rate; GLP-1, glucagon-like peptide-1; HbA1c, hemoglobin A1c; HR, hazard ratios; MACE, major adverse cardiovascular events; SGLT2, sodium-glucose cotransporter 2.

\*Outcome models were adjusted for age (continuous), sex, diabetes duration (continuous), and deciles of time-conditional propensity score.

<sup>†</sup>Additional clinical covariates included in the CPRD time-conditional propensity score were body mass index, smoking status, race, blood pressure, eGFR, and HbA1c.

<sup>‡</sup> The CPRD time-conditional propensity score included eGFR in addition to covariates included at all sites.

**Supplementary Figure 1.** Adjusted hazard ratios (95% CI) of myocardial infarction associated with SGLT2 inhibitor use compared with DPP-4 inhibitor use\*.

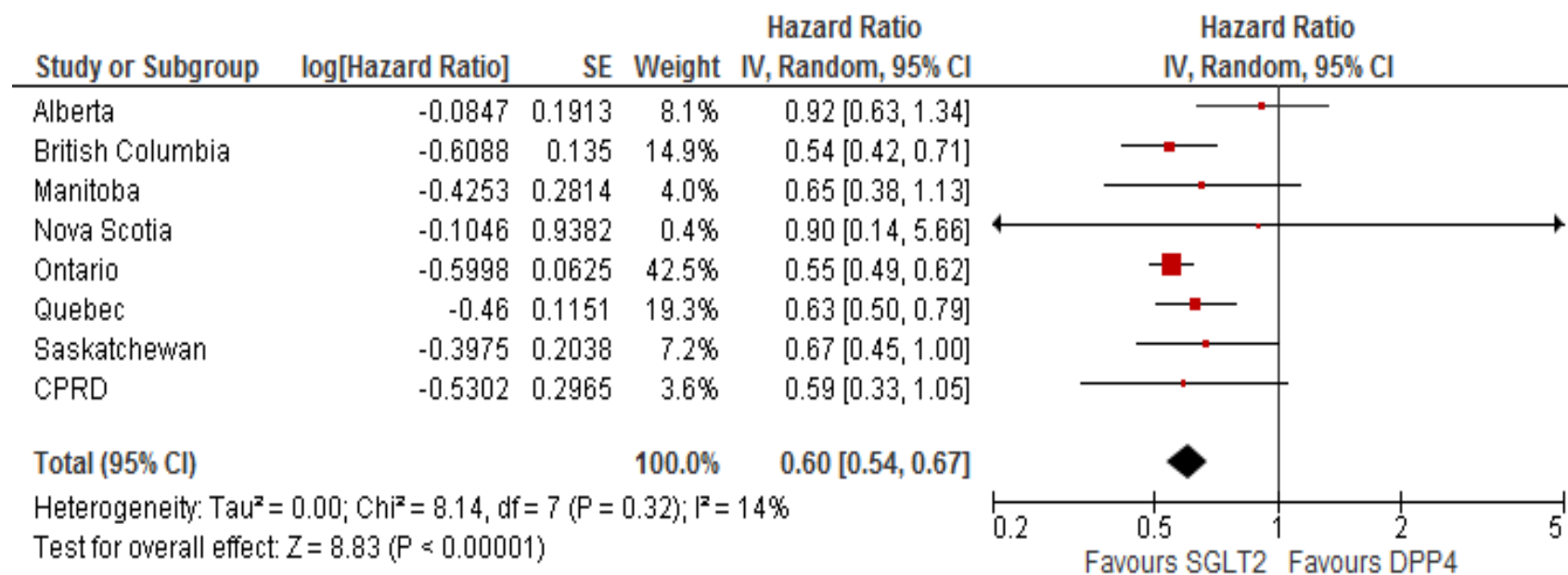


Abbreviations: CI, confidence interval; CPRD: Clinical Practice Research Datalink; DPP-4, dipeptidyl peptidase-4; HR, hazard ratio; SGLT2, sodium-glucose cotransporter 2.

\*Outcome models were adjusted for age (continuous), sex, diabetes duration (continuous), and deciles of time-conditional propensity score.

Note: Nova Scotia had zero events in one of the exposure groups and thus was not included in this analysis.

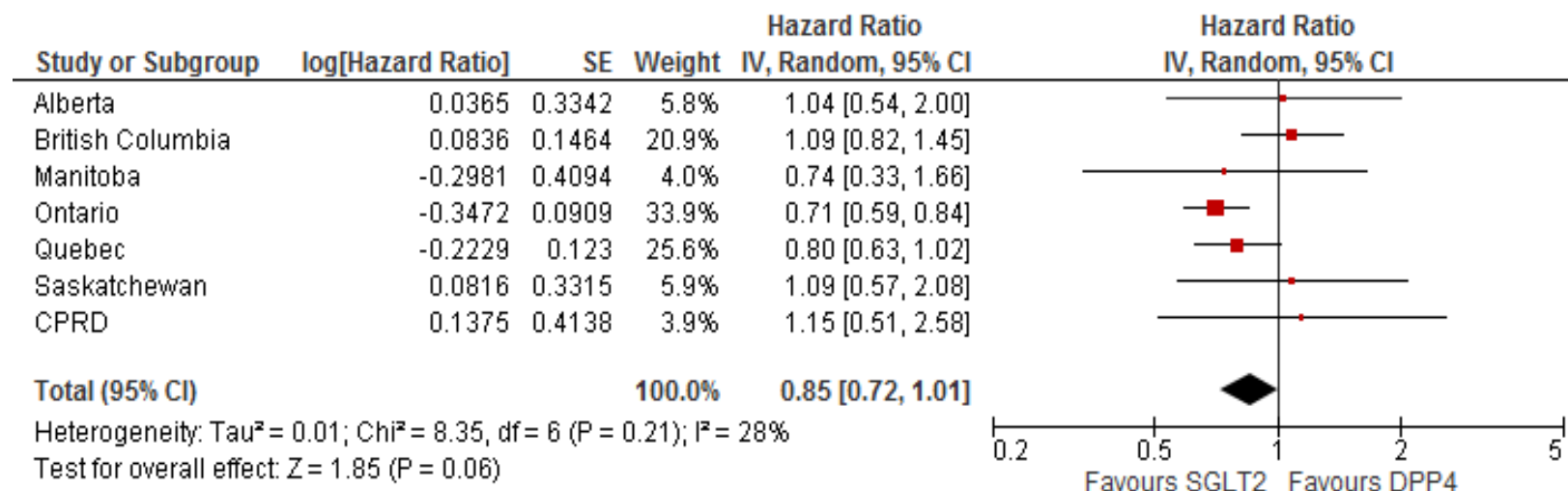
**Supplementary Figure 2.** Adjusted hazard ratios (95% CI) of cardiovascular death associated with SGLT2 inhibitor use compared with DPP-4 inhibitor use\*.



Abbreviations: CI, confidence interval; CPRD: Clinical Practice Research Datalink; DPP-4, dipeptidyl peptidase-4; HR, hazard ratio; SGLT2, sodium-glucose cotransporter 2.

\*Outcome models were adjusted for age (continuous), sex, diabetes duration (continuous), and deciles of time-conditional propensity score.

**Supplementary Figure 3.** Adjusted hazard ratios (95% CI) of ischemic stroke associated with SGLT2 inhibitor use compared with DPP-4 inhibitor use\*.



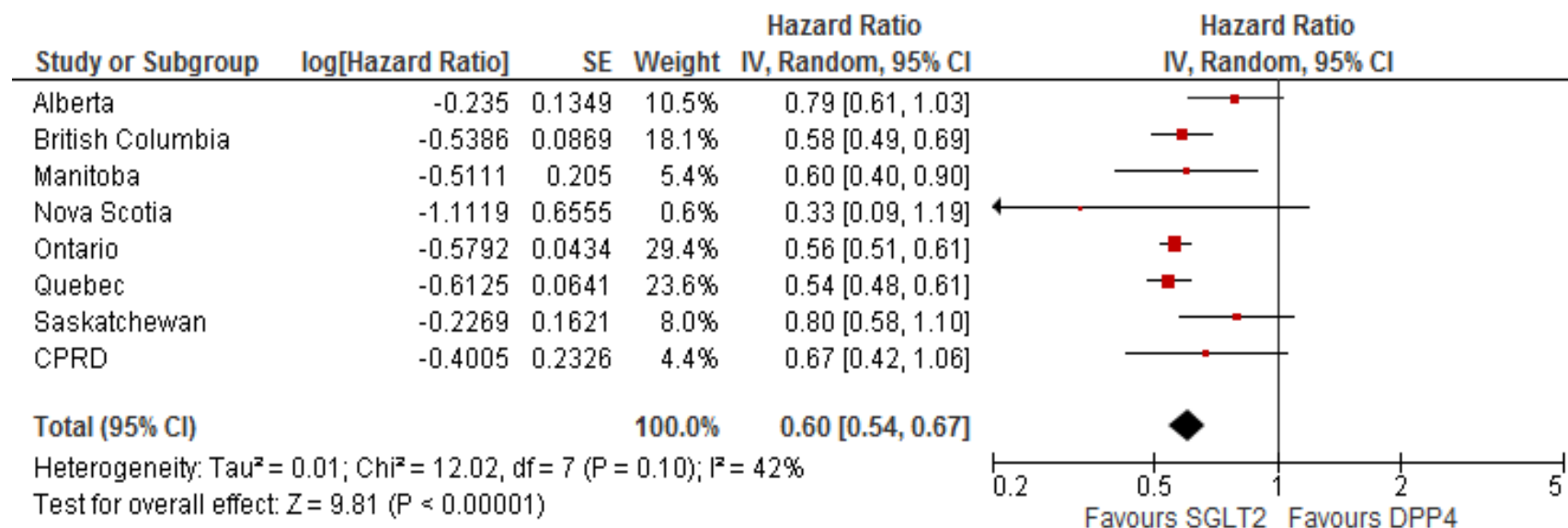
Abbreviations: CI, confidence interval; CPRD: Clinical Practice Research Datalink; DPP-4, dipeptidyl peptidase-4; HR, hazard ratio; SGLT2, sodium-glucose cotransporter 2.

\*Outcome models were adjusted for age (continuous), sex, diabetes duration (continuous), and deciles of time-conditional propensity score.

Note: Nova Scotia had zero events in one of the exposure groups and thus was not included in this analysis.



**Supplementary Figure 4.** Adjusted hazard ratios (95% CI) of all-cause mortality associated with SGLT2 inhibitor use compared with DPP-4 inhibitor use\*.

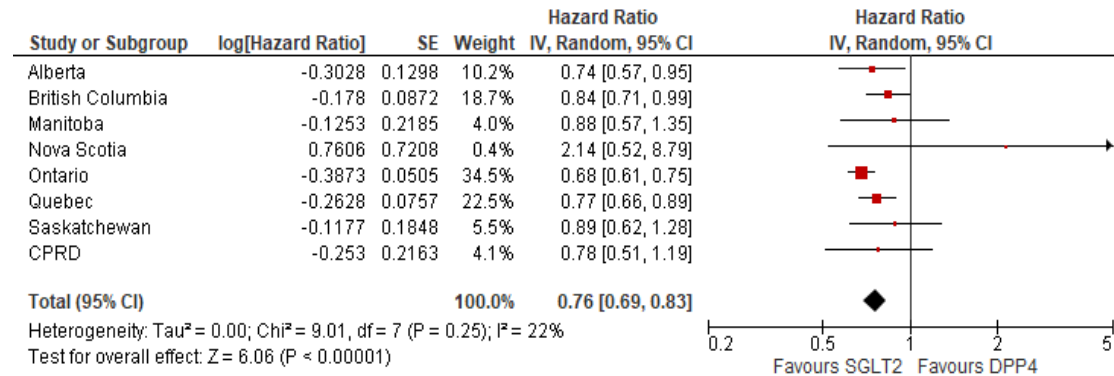


Abbreviations: CI, confidence interval; CPRD: Clinical Practice Research Datalink; DPP-4, dipeptidyl peptidase-4; HR, hazard ratio; SGLT2, sodium-glucose cotransporter 2.

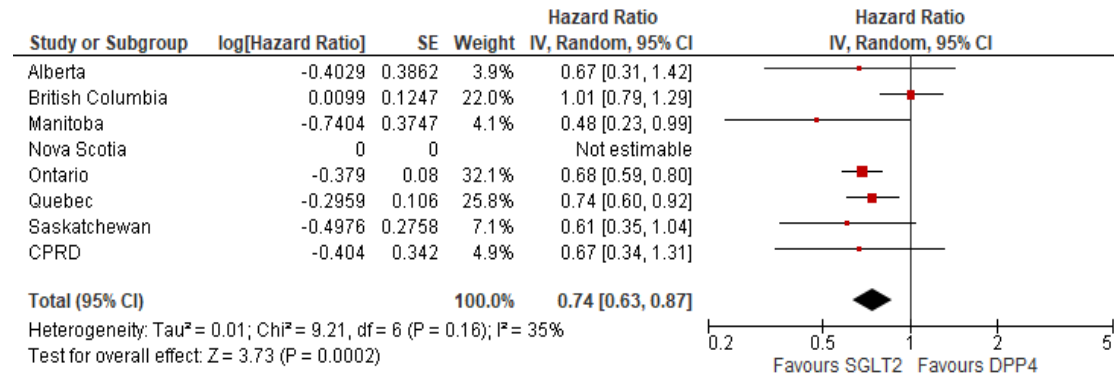
\*Outcome models were adjusted for age (continuous), sex, diabetes duration (continuous), and deciles of time-conditional propensity score.

**Supplementary Figure 5.** Adjusted hazard ratios (95% CI) of MACE for SGLT2 inhibitor use versus with DPP-4 inhibitor use, stratified by duration of follow-up time .

Follow-up < 1 year:



Follow-up >1 year:

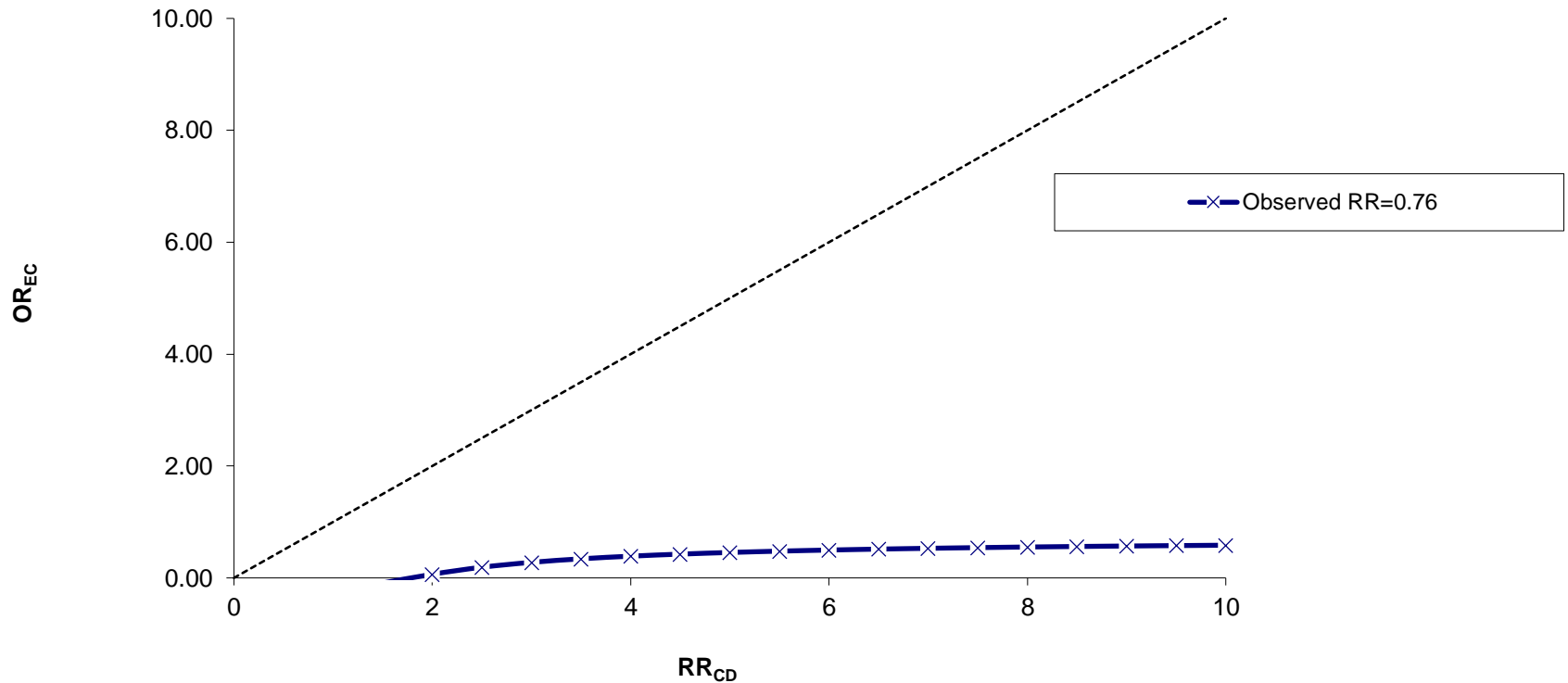


Abbreviations: CI, confidence interval; CPRD: Clinical Practice Research Datalink; DPP-4, dipeptidyl peptidase-4; HR, hazard ratio; MACE, major adverse cardiovascular events; SGLT2, sodium-glucose cotransporter 2.

\*Outcome models were adjusted for age (continuous), sex, diabetes duration (continuous), and deciles of time-conditional propensity score.

Note: Nova Scotia had zero events with follow-up >1 year and thus was not included in this strata.

**Supplementary Figure 6.** Rule out method to explore unmeasured confounding.



Abbreviations: OR<sub>EC</sub>: Odds ratio between exposure and confounder; RR<sub>CD</sub>: Relative risk between confounder and disease; RR: relative risk for association between exposure and outcome of interest.

Assuming a prevalence of the unmeasured confounder of 0.2, it would require an unmeasured confounder with an odds ratio between exposure and the confounder of <0.58 (and in most reasonable cases, substantially less than this) and a relative risk between the confounder and outcome >2 (and substantially higher in most cases) to explain the observed results of our primary analysis (HR: 0.76, 95% CI: 0.69 to 0.84).

Reference: Schneeweiss S. Sensitivity analysis and external adjustment for unmeasured confounders in epidemiologic database studies of therapeutics. *Pharmacoepidemiology and drug safety* 2006;15(5):291-303.