

<b>Suppl.table 1: Codebook of diagnostic codes (ICD) and ATC codes applied in the study of associations between RVO and CVD and mortality</b>					
<b>ICD-8 and ICD-10 codes for RVO exposure group</b>					
<b>Exposure group</b>	<b>ICD8</b>	<b>ICD10</b>	<b>ATC</b>	<b>Additional criteria</b>	
<i>RVO</i>	37703	DH348*	Not applied	Only if registered at ophthalmology associated department	
<i>BRVO</i>		DH348C	Not applied	Only if registered at ophthalmology associated department	
<i>CRVO</i>		DH348D, DH348F	Not applied	Only if registered at ophthalmology associated department	
<b>ICD-8 and ICD-10 codes for CVD outcome group</b>					
<b>Outcome group</b>	<b>Diagnosis</b>	<b>ICD8</b>	<b>ICD10</b>	<b>ATC</b>	<b>Additional criteria</b>
<b>CVD</b>	<i>All below</i>	All below	All below	Not applied	
<b>Ischemic CVD</b>	<i>Acute myocardial infarction</i>	410*	I21*- I22*, I23*, I240*-I241*, I248, I249*	Not applied	None
	<i>Atherosclerotic heart disease</i>	411*, 413*	I20*, I251, I258, I259	Not applied	None
	<i>Coronary artery bypass graft</i>	N/A	KFNA*-KFNF*, KFNH*, KFNJ*-KFNK*, KFNW*	Not applied	None
	<i>Ischemic stroke</i>	433*-436*	I63*-I64*, G458, G459	Not applied	Only as primary diagnosis
	<i>Peripheral arterial disease</i>	445*	I702, I702A, I739A, I739C	Not applied	Only as primary diagnosis
	<i>Other arterial occlusion</i>	444*	I74*	Not applied	None
<b>Non-ischemic CVD</b>	<i>Non-ischemic heart failure</i>	42709, 42710, 42711, 42719, 42899, 78249	I110, I130, I132, I420, I429, I500*-I501*, I509*	Not applied	Only as primary diagnosis AND EXCLUDED if any prior diagnosis of acute myocardial infarction, atherosclerotic heart disease or coronary artery bypass graft.
	<i>Pulmonary hypertension - idiopathic</i>	426*	I270	Not applied	None
	<i>Atrial fibrillation / atrial flutter</i>	42793, 42794	I48*	Not applied	None
	<i>Non-ischemic stroke</i>	430*, 431*	I60*-I62*	Not applied	Only as primary diagnosis
	<i>Aortic dissection</i>	44109	I710*	Not applied	None
	<i>Aortic dilation/aneurysm</i>	44110, 44111, 44119, 44120, 44121, 44129, 44199	I711*-I716*, I718*-I719*	Not applied	None
	<i>Aortic stenosis</i>	39590, 39592, 39603, 39604, 39690, 39693, 39694	I060, I062, I350, I352	Not applied	None

ICD-8 and ICD-10 codes for CVD outcome group					
Outcome group	Diagnosis	ICD8	ICD10	ATC	Additional criteria
<b>Venous occlusion</b>	<i>Pulmonary hypertension (chronic thromboembolic)</i>	426*	I272	Not applied	None
	<i>Cerebral venous thrombosis</i>	N/A	I676*	Not applied	None
	<i>Deep venous thrombosis</i>	45100, 45108, 45109	I801*-I803*	Not applied	None
	<i>Pulmonary embolism</i>	45099	I26, I260, I269*	Not applied	None
ICD-8 and ICD-10 codes for covariates					
Covariate	ICD8	ICD10	ATC	Additional criteria	
<i>Diabetes mellitus</i>	249*, 250*	E10*-E14*	A10A*, A10B*	Patients with a minimum of 2 medicine prescriptions of A10A or A10B within 12 months OR ICD10 E10* or ICD8 249* or 250* AND age <30 yrs at time of diagnosis AND at least one A10A ATC prescription OR At least two registrations of ICD10 E11* OR At least one registration of ICD10 E12*-E14* EXCLUDED if ICD diagnosis or ATC prescription is within 12 months after a registration of ICD10 DO244/ICD8 63747 (Gestational diabetes) OR ever diagnosed with PCOS: ICD10 DE28.2	
<i>Dyslipidemia</i>	27900-27901, 27200-27201	E78*	C10*	Any registration of ICD E78* AND/OR Two prescriptions of ATC C10 within 12 months, WITHOUT a previous registration of ICD I21*-I22*, I240*-I241*, I248 eller I249*	
<i>Chronic obstructive pulmonary disease</i>		J44*, J96*, J13*-18*	Not applied	J44 only as A-diagnosis and if patient is >30 years at diagnosis AND/OR J96 as A-diagnosis AND ONLY in combination with J44 as B-diagnosis AND/OR J13-18 as A-diagnosis AND ONLY in combination with J44 as B-diagnosis	
<i>Arterial hypertension</i>	400*-404*	I10*, I11, I119*, I12*, I13, I131, I139, I15	α adrenergic blockers (C02A*, C02B*, C02C*) non-loop diuretics (C02DA*, C02L*, C03A*, C03B*, C03D*, C03E*, C03X*, C07C*, C07D*, C08G*, C09BA*, C09DA*, C09XA52) vasodilators (C02DB*, C02DD*, C02DG*) β blockers (C07*, MC09BX02, MC09BX04, MC09BX05) calcium channel blockers (C07FB*, C08*, C09BB*, C09DB*) renin-angiotensin system inhibitors (C09*)	ICD code AND/OR Combination treatment (prescribed within 6 months) with at least two different groups of antihypertensive medication, each prescribed at least twice within 12 months	

\*: subgroups included. HR= Hazard ratio, ICD= International Classification of Diseases, ATC= Anatomical Therapeutic Chemical code, RVO= Retinal vein occlusion, BRVO= Branch retinal vein occlusion, CRVO= Central retinal vein occlusion, CVD= Cardiovascular diseases

**Suppl.table 2: Hazard ratios of CVDs and all-cause mortality of patients with RVO, BRVO and CRVO compared to individuals without RVO**

	RVO	BRVO	CRVO
<b>CVD</b>			
Crude HR (95% CI)	1.29 (1.24;1.33)	1.22 (1.10;1.34)	1.23 (1.10;1.37)
Adjusted HR (95% CI)*	1.29 (1.25;1.34)	1.26 (1.14;1.39)	1.22 (1.10;1.36)
Adjusted HR (95% CI)**	1.13 (1.09;1.17)	1.14 (1.03;1.25)	1.12 (1.00;1.25)
<b>Ischemic CVD</b>			
Crude HR (95% CI)	1.26 (1.21;1.32)	1.14 (1.02;1.29)	1.12 (0.99;1.28)
Adjusted HR (95% CI)*	1.36 (1.30;1.42)	1.36 (1.20;1.52)	1.27 (1.11;1.44)
Adjusted HR (95% CI)**	1.16 (1.11;1.21)	1.18 (1.05;1.33)	1.12 (0.99;1.28)
<b>Non-ischemic CVD</b>			
Crude HR (95% CI)	1.44 (1.33;1.55)	1.40 (1.23;1.59)	1.38 (1.18;1.60)
Adjusted HR (95% CI)*	1.32 (1.23;1.42)	1.29 (1.13;1.46)	1.24 (1.07;1.44)
Adjusted HR (95% CI)**	1.23 (1.15;1.33)	1.22 (1.07;1.38)	1.16 (1.00;1.35)
<b>Venous disease</b>			
Crude HR (95% CI)	1.17 (1.06;1.28)	1.21 (0.95;1.56)	1.15 (0.87;1.51)
Adjusted HR (95% CI)*	1.07 (0.97;1.17)	1.02 (0.79;1.31)	0.97 (0.74;1.28)
Adjusted HR (95% CI)**	0.99 (0.90;1.09)	0.99 (0.78;1.28)	0.91 (0.69;1.20)
<b>All-cause mortality</b>			
Crude HR (95% CI)	1.13 (1.10;1.16)	1.13 (1.06;1.21)	1.36 (1.27;1.45)
Adjusted HR (95% CI)*	1.09 (1.06;1.11)	1.08 (1.01;1.16)	1.26 (1.18;1.35)
Adjusted HR (95% CI)**	1.01 (0.98;1.03)	1.06 (0.99;1.14)	1.18 (1.11;1.26)

\*: adjusted for sex, age at entry. \*\*: adjusted for sex, age at entry, index year, marital status at entry, diabetes, hypertension, chronic obstructive pulmonary disorders, dyslipidemia and Charlson comorbidity index conditions. RVO= Retinal vein occlusion, BRVO= Branch retinal vein occlusion, CRVO= Central retinal vein occlusion, CVD= Cardiovascular diseases

**Suppl.table 3: Hazard ratios of CVDs and all-cause mortality of individuals with RVO, BRVO and CRVO prior to and after March 17th 2011 compared to individuals without RVO**

	RVO prior to 2011	RVO after 2011	BRVO prior to 2011	BRVO after 2011	CRVO prior to 2011	CRVO after 2011
<b>CVD</b>						
Crude HR (95% CI)	1.29 (1.24;1.35)	1.26 (1.18;1.35)	1.25 (1.04;1.50)	1.21 (1.07;1.35)	1.22 (1.03;1.46)	1.23 (1.07;1.41)
Adjusted HR (95% CI)*	1.29 (1.23;1.34)	1.30 (1.21;1.39)	1.28 (1.06;1.54)	1.25 (1.11;1.40)	1.20 (1.01;1.43)	1.24 (1.08;1.42)
Adjusted HR (95% CI)**	1.10 (1.06;1.15)	1.19 (1.11;1.28)	1.10 (0.92;1.32)	1.15 (1.02;1.29)	1.08 (0.91;1.29)	1.14 (0.99;1.31)
<b>Ischemic CVD</b>						
Crude HR (95% CI)	1.33 (1.27;1.40)	1.10 (1.01;1.19)	1.25 (1.00;1.55)	1.11 (0.96;1.27)	1.17 (0.95;1.44)	1.10 (0.93;1.30)
Adjusted HR (95% CI)*	1.38 (1.31;1.45)	1.31 (1.21;1.43)	1.41 (1.13;1.75)	1.33 (1.16;1.53)	1.24 (1.01;1.53)	1.28 (1.09;1.51)
Adjusted HR (95% CI)**	1.15 (1.10;1.21)	1.17 (1.07;1.27)	1.19 (0.96;1.48)	1.18 (1.02;1.35)	1.08 (0.88;1.33)	1.15 (0.98;1.36)
<b>Non-ischemic CVD</b>						
Crude HR (95% CI)	1.30 (1.24;1.36)	1.44 (1.33;1.55)	1.30 (1.05;1.61)	1.40 (1.23;1.59)	1.22 (1.00;1.48)	1.38 (1.18;1.60)
Adjusted HR (95% CI)*	1.25 (1.19;1.31)	1.32 (1.23;1.42)	1.25 (1.01;1.54)	1.29 (1.13;1.46)	1.13 (0.93;1.38)	1.24 (1.07;1.44)
Adjusted HR (95% CI)**	1.06 (1.01;1.12)	1.24 (1.15;1.33)	1.06 (0.86;1.31)	1.22 (1.07;1.38)	1.00 (0.82;1.21)	1.16 (1.00;1.35)
<b>Venous disease</b>						
Crude HR (95% CI)	1.13 (1.01;1.27)	1.26 (1.06;1.50)	1.59 (1.04;2.41)	1.08 (0.79;1.47)	1.13 (0.72;1.77)	1.16 (0.81;1.64)
Adjusted HR (95% CI)*	1.08 (0.97;1.21)	1.04 (0.87;1.23)	1.41 (0.93;2.14)	0.88 (0.65;1.21)	1.03 (0.65;1.61)	0.94 (0.66;1.34)
Adjusted HR (95% CI)**	0.99 (0.89;1.11)	0.98 (0.83;1.17)	1.38 (0.91;2.10)	0.86 (0.63;1.18)	0.98 (0.62;1.53)	0.87 (0.61;1.24)
<b>All-cause mortality</b>						
Crude HR (95% CI)	1.08 (1.05;1.11)	1.26 (1.21;1.32)	1.04 (0.90;1.20)	1.16 (1.07;1.26)	1.20 (1.08;1.34)	1.46 (1.34;1.58)
Adjusted HR (95% CI)*	1.05 (1.02;1.08)	1.19 (1.14;1.24)	1.01 (0.88;1.17)	1.10 (1.02;1.19)	1.13 (1.02;1.27)	1.35 (1.24;1.46)
Adjusted HR (95% CI)**	0.97 (0.94;1.00)	1.11 (1.06;1.16)	0.94 (0.82;1.09)	1.11 (1.02;1.20)	1.27 (1.13;1.41)	1.14 (1.05;1.24)

\*: adjusted for sex, age at entry. \*\*: adjusted for sex, age at entry, index year, marital status at entry, diabetes, hypertension, chronic obstructive pulmonary disorders, dyslipidemia and Charlson comorbidity index conditions. RVO= Retinal vein occlusion, BRVO= Branch retinal vein occlusion, CRVO= Central retinal vein occlusion, CVD= Cardiovascular diseases

**Suppl.table 4: Hazard ratios of CVDs and all-cause mortality of individuals with RVO, BRVO and CRVO prior to and after March 17th 2011 compared to individuals without RVO**

	RVO	BRVO	CRVO	Not RVO exposed
<b>CVD</b>				
No. of CVD events	2,983	398	329	912,702
Time to CVD (yrs)	3.7(1.5;7.2)	2.5(1.2;4.3)	2.5(0.9;4.6)	9.5(4.7;14.8)
Age at CVD diagnosis (yrs)	77.3(69.6;83.9)	74.7(67.1;82.0)	77.2(70.0;83.5)	69.1(58.9;78.5)
Total risk time (person-years at risk)	59,743	9,071	7,145	49,569,145
Rate of CVD per 1000 person-years at risk	49.9	43.9	46.0	18.4
<b>Ischemic CVD</b>				
No. of ischemic CVD events	2,152	278	228	631,619
Time to ischemic CVD (yrs)	3.7(1.5;7.2)	2.2(1.0;4.1)	2.3(0.8;4.7)	8.8(4.4;14.1)
Age at ischemic CVD diagnosis (yrs)	77.3(69.2;83.8)	75.0(67.0;81.8)	77.8(71.1;83.5)	69.0(58.9;78.6)
Total risk time (person-years at risk)	69,842	10,595	8,517	52,159,479
Rate of ischemic CVD per 1000 person-years at risk	30.8	26.2	26.8	12.1
<b>Non-ischemic CVD</b>				
No. of non-ischemic CVD events	2,396	322	270	533,272
Time to non-ischemic CVD (yrs)	4.2(1.8;7.9)	2.5(1.2;4.2)	2.5(0.9;4.6)	10.9(5.6;16.0)
Age at non-ischemic CVD diagnosis (yrs)	79.3(72.2;85.1)	76.7(69.0;83.5)	79.0(71.0;85.4)	73.9(64.7;81.8)
Total risk time (person-years at risk)	79,326	11,442	9,327	55,265,430
Rate of non-ischemic CVD per 1000 person-years at risk	30.2	28.1	28.9	9.6
<b>Venous disease</b>				
No. of venous disease events	438	62	50	126,579
Time to venous disease (yrs)	3.8(1.6;7.6)	2.9(1.6;5.0)	2.3(1.4;4.0)	11.1(5.9;16.1)
Age at venous disease diagnosis (yrs)	77.1(71.1;84.0)	74.2(70.1;82.8)	77.8(70.0;85.1)	69.4(58.4;78.8)
Total risk time (person-years at risk)	93,748	13,508	11,128	57,658,861
Rate of venous disease per 1000 person-years at risk	4.7	4.6	4.5	2.2
<b>All-cause mortality</b>				
No. of deaths	6,304	792	898	1,240,072
Time to death (yrs)	5.3(2.6;9.3)	3.6(1.8;5.7)	3.5(1.7;5.7)	10.9(5.3;16.9)
Age at death (yrs)	84.2(77.6;89.7)	83.1(76.5;89.2)	84.6(78.1;89.8)	79.8(69.9;87.3)
Total risk time (person-years at risk)	97,889	14,060	11,657	58,809,748
Mortality rate (deaths/1000 person-years)	64.4	56.3	77.0	21.1

Time and age presented as median (25%;75% percentile). RVO= Retinal vein occlusion, BRVO= Branch retinal vein occlusion, CRVO= Central retinal vein occlusion, CVD= Cardiovascular diseases, yrs= years

**Suppl.table 5: Hazard ratios of CVDs and all-cause mortality of individuals with RVO, BRVO and CRVO compared to individuals without RVO in women and men**

	RVO		BRVO		CRVO	
	Women	Men	Women	Men	Women	Men
<b>CVD</b>						
Crude HR (95% CI)	1.30 (1.23;1.36)	1.30 (1.24;1.35)	1.19 (1.03;1.37)	1.26 (1.05;1.52)	1.29 (1.10;1.50)	1.21 (1.02;1.44)
Adjusted HR (95% CI)*	1.33 (1.27;1.40)	1.29 (1.24;1.35)	1.26 (1.09;1.45)	1.29 (1.08;1.55)	1.35 (1.16;1.58)	1.19 (1.00;1.42)
Adjusted HR (95% CI)**	1.15 (1.09;1.21)	1.10 (1.06;1.15)	1.13 (0.98;1.30)	1.11 (0.92;1.33)	1.18 (1.01;1.38)	1.06 (0.89;1.26)
<b>Ischemic CVD</b>						
Crude HR (95% CI)	1.27 (1.20;1.35)	1.33 (1.27;1.40)	1.12 (0.94;1.32)	1.25 (1.00;1.55)	1.19 (0.98;1.44)	1.15 (0.94;1.42)
Adjusted HR (95% CI)*	1.41 (1.33;1.50)	1.38 (1.31;1.45)	1.38 (1.16;1.63)	1.41 (1.14;1.76)	1.43 (1.18;1.73)	1.23 (1.00;1.51)
Adjusted HR (95% CI)**	1.18 (1.11;1.25)	1.15 (1.09;1.20)	1.20 (1.01;1.43)	1.18 (0.95;1.46)	1.21 (1.00;1.46)	1.05 (0.85;1.30)
<b>Non-ischemic CVD</b>						
Crude HR (95% CI)	1.33 (1.26;1.41)	1.30 (1.24;1.37)	1.36 (1.16;1.60)	1.32 (1.07;1.63)	1.27 (1.06;1.52)	1.21 (0.99;1.47)
Adjusted HR (95% CI)*	1.30 (1.23;1.38)	1.26 (1.20;1.32)	1.29 (1.10;1.52)	1.27 (1.02;1.56)	1.21 (1.01;1.45)	1.13 (0.93;1.37)
Adjusted HR (95% CI)**	1.13 (1.06;1.19)	1.07 (1.02;1.12)	1.20 (1.02;1.41)	1.08 (0.87;1.33)	1.06 (0.88;1.27)	0.98 (0.81;1.20)
<b>Venous disease</b>						
Crude HR (95% CI)	1.12 (0.98;1.28)	1.14 (1.02;1.27)	1.26 (0.90;1.77)	1.59 (1.05;2.42)	1.17 (0.79;1.74)	1.13 (0.72;1.77)
Adjusted HR (95% CI)*	1.03 (0.91;1.18)	1.08 (0.97;1.21)	1.07 (0.77;1.50)	1.42 (0.93;2.15)	1.01 (0.69;1.50)	1.03 (0.66;1.61)
Adjusted HR (95% CI)**	0.94 (0.83;1.08)	0.99 (0.88;1.11)	1.03 (0.74;1.44)	1.36 (0.90;2.07)	0.93 (0.63;1.38)	0.97 (0.62;1.52)
<b>All-cause mortality</b>						
Crude HR (95% CI)	1.13 (1.09;1.17)	1.08 (1.05;1.11)	1.17 (1.06;1.29)	1.04 (0.90;1.20)	1.36 (1.24;1.50)	1.20 (1.07;1.34)
Adjusted HR (95% CI)*	1.10 (1.06;1.14)	1.05 (1.02;1.08)	1.12 (1.01;1.23)	1.01 (0.88;1.17)	1.31 (1.19;1.44)	1.13 (1.02;1.27)
Adjusted HR (95% CI)**	1.02 (0.99;1.06)	0.96 (0.94;0.99)	1.10 (1.00;1.21)	0.93 (0.80;1.07)	1.29 (1.17;1.42)	1.25 (1.12;1.39)

\*: adjusted for age at entry. \*\*: adjusted for age at entry, index year, marital status at entry, diabetes, hypertension, chronic obstructive pulmonary disorders, dyslipidemia and Charlson comorbidity index conditions.  
RVO= Retinal vein occlusion, BRVO= Branch retinal vein occlusion, CRVO= Central retinal vein occlusion, CVD= Cardiovascular diseases

Suppl.figure 1: No. of retinal vein occlusion diagnoses per year

