Supplementary content

Database management and study protocols

The linked databases were separately managed by Statisticon AB (Uppsala, Sweden). In Sweden (DAISY study database), the study protocol was approved by the Stockholm Regional Ethics Committee (reference number 2013/2206-31), with data linkage performed by the Swedish National Board of Health and Welfare. In Norway (DAPHNE study database), the study protocol was approved by the Regional Ethics Committee, Helse Sør-øst (reference number 11744 REK Sør-øst A) and was authorized by the Norwegian Data Inspectorate (Datatilsynet).

Table S1. Baseline demographics

	Type 1 n=59331	Type 2 n=484241
Age	45.8 (16.5)	64.1 (12.4)
Age category		
18-24	7821 (13.2)	1859 (0.4)
25-29	4745 (8.0)	3293 (0.7)
30-34	4584 (7.7)	5994 (1.2)
35-39	5052 (8.5)	9924 (2.0)
40-44	5815 (9.8)	16487 (3.4)
45-49	6388 (10.8)	26808 (5.5)
50-54	5550 (9.4)	36944 (7.6)
55-59	5101 (8.6)	50486 (10.4)
60-64	4955 (8.4)	66570 (13.7)
65-69	4622 (7.8)	86826 (17.9)
70-74	2750 (4.6)	74669 (15.4)
75-79	1318 (2.2)	59331 (12.3)
80-84	630 (1.1)	45050 (9.3)
Sex (Female)	24911 (42.0%)	208361 (43.0%)

Table S2. Baseline comorbidities

	Type 1 n=59331	Type 2 n=484241
CVD	7913 (13.3%)	126769 (26.2%)
Myocardial infarction	2476 (4.2%)	41784 (8.6%)
CABG	1289 (2.2%)	16884 (3.5%)
PCI with stent	2026 (3.4%)	35431 (7.3%)
Unstable angina	1379 (2.3%)	22052 (4.6%)
Angina pectoris	3506 (5.9%)	57638 (11.9%)
Heart failure	1867 (3.1%)	36520 (7.5%)
Atrial fibrillation	1706 (2.9%)	46626 (9.6%)
Stroke	2570 (4.3%)	45074 (9.3%)
Hemorrhagic	378 (0.6%)	6123 (1.3%)
Ischemic	1584 (2.7%)	28951 (6.0%)
Transient ischemic attack	864 (1.5%)	14856 (3.1%)
Peripheral artery disease	2987 (5.0%)	28415 (5.9%)
Major organ specific bleeding	1791 (3.0%)	25912 (5.4%)
Chronic kidney disease	2530 (4.3%)	15985 (3.3%)
Dialysis	831 (1.4%)	2106 (0.4%)
Microvascular complications	42452 (71.6%)	134530 (27.8%)
Diabetic mono-/polyneuropathy	7260 (12.2%)	14060 (2.9%)
Diabetic eye complications	34752 (58.6%)	67402 (13.9%)
Diabetic foot/Peripheral angiopathy	4822 (8.1%)	14498 (3.0%)
Diabetic kidney disease	5729 (9.7%)	11432 (2.4%)
Diabetes with several/unspecified complications	26365 (44.4%)	79994 (16.5%)
Severe hypoglycemia	1762 (3.0%)	5349 (1.1%)
Keto-/lactic acidosis	7490 (12.6%)	3278 (0.7%)
Cancer	2237 (3.8%)	45505 (9.4%)
COPD	949 (1.6%)	22755 (4.7%)
Lower limb amputations	586 (1.0%)	1771 (0.4%)

Table S3. Baseline medications

	Type 1 n=59331	Type 2 n=484241
Diabetes medication	59331 (100.0%)	423747 (87.5%)
Metformin	2043 (3.4%)	344651 (71.2%)
Sulfonylureas	57 (0.1%)	89733 (18.5%)
DPP4 inhibitors	224 (0.4%)	34722 (7.2%)
SGLT-2 inhibitors	30 (0.1%)	2021 (0.4%)
GLP-1 receptor agonists	312 (0.5%)	17677 (3.7%)
Meglitinides	7 (0.0%)	10769 (2.2%)
Thiazolidinediones	13 (0.0%)	4846 (1.0%)
Acarbose	10 (0.0%)	1783 (0.4%)
Insulin	59331 (100.0%)	134350 (27.7%)
Short-acting	59331 (100.0%)	45512 (9.4%)
Intermediate-acting (isophane)	11325 (19.1%)	70544 (14.6%)
Premixed insulin	1054 (1.8%)	41549 (8.6%)
Long-acting	40886 (68.9%)	29866 (6.2%)
Metformin+DPP-4 inhibitors	60 (0.1%)	18246 (3.8%)
Metformin+Meglitinides	0 (0.0%)	178 (0.0%)
CVD risk treatment	31961 (53.9%)	397795 (82.1%)
Low dose aspirin	11530 (19.4%)	172529 (35.6%)
Statins	23782 (40.1%)	281159 (58.1%)
Antihypertensives	24604 (41.5%)	348975 (72.1%)
ACE inhibitors	13367 (22.5%)	154744 (32.0%)
ARB	9932 (16.7%)	151619 (31.3%)
Dihydropyridines (calcium channel blockers)	8635 (14.6%)	139554 (28.8%)
Low ceiling diuretics (thiazides)	1165 (2.0%)	31373 (6.5%)
Beta blockers	9555 (16.1%)	189772 (39.2%)
Non-dihydropyridines (calcium channel blockers)	249 (0.4%)	5385 (1.1%)
High ceiling diuretics (loop diuretics)	5430 (9.2%)	74346 (15.4%)
Aldosterone antagonists	986 (1.7%)	21698 (4.5%)
Digoxin	184 (0.3%)	10510 (2.2%)
Flecainide	44 (0.1%)	754 (0.2%)
Amiodarone	61 (0.1%)	1588 (0.3%)
Warfarin	1246 (2.1%)	37011 (7.6%)
P2Y12 receptor antagonists	1561 (2.6%)	20066 (4.1%)
Direct factor Xa inhibitors	127 (0.2%)	2563 (0.5%)
Direct thrombin inhibitor	110 (0.2%)	2738 (0.6%)
Other antiplatelet drugs	412 (0.7%)	5950 (1.2%)
Weight loss drugs	139 (0.2%)	3162 (0.7%)

Table S4. Codes of comorbidities and outcomes

Disease	ICD 10	Surgical code/medication
CVRD (includes all codes below)		
Myocardial infarction	I21-I22, I25.2, I25.6	
Heart failure (total)	I50, I11.0, I13.0, I13.2	
Heart failure	I50	
Heart failure - hypertensive	I11.0, I13.0, I13.2	
CKD (total)	N17-N19, I12.0-I12.9, I13.1, I13.2, N08.3, E10.2, E11.2, E12.2, E13.2, E14.2, Z49, Z99.2	JAK10, TJA20, TJA33, DJ008, DR015-24, QF006
CKD - Acute	N17	
CKD - Chronic	N18	
CKD - Unspecified	N19	
CKD - Diabetic	E10.2, E11.2, E12.2, E13.2, E14.2, N08.3	
CKD - Hypertensive	I12.0-I12.9, I13.1, I13.2	
CKD - Dialysis	Z49, Z99.2	JAK10, TJA20, TJA33, DJ008, DR015-24, QF006
Atrial fibrillation	I48	
Stroke	I60-I66, G45	
Hemorrhagic	I60-I62	
Ischemic	I63	
Peripheral artery disease	I70.2, I73.9, I74.2-9	
Dialysis	Z49, Z99.2	JAK10, TJA20, TJA33, DJ008, DR015-24, QF006
Microvascular complications		
Diabetic mono-/polyneuropathy	G99.0, G59.0, G63.2, E10.4, E11.4, E12.4, E13.4, E14.4	
Diabetic eye complications	H360, H351, H350, E103, E113, E123, E133, E143	CKC12, CKD65
Diabetic foot/Peripheral angiopathy	E11.6B, M14.2, M14.6, M90.8, L98.4, E10.5, E11.5, E12.5, E13.5, E14.5	QDGX10
Diabetic kidney disease	N08.3, E10.2, E11.2, E12.2, E13.2, E14.2	

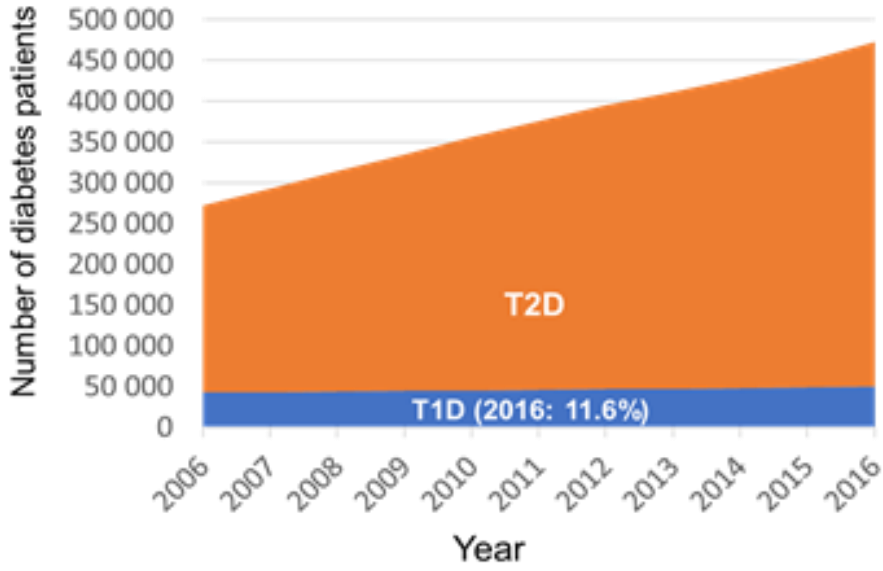
Diabetes with several-/unspecified complications	E11.6, E10.6, E13.6, E14.6, E10.7, E11.7, E12.7, E13.7, E14.7, E10.8, E11.8, E12.0, E12.8, E13.8, E14.8	
Severe hypoglycemia	E10.0, E11.0, E12.0, E13.0, E14.0, E11.6A, E16.0-2	
Keto-/lactate acidosis	E10.1, E11.1, E12.1, E13.1, E14.1, E87.2	
Cancer	C00-C99	
COPD	J44	
Lower limb amputations		NGQ, NHQ

Table S5. Classification of drugs

Drug class	ATC code
Glucose lowering drugs	
SGLT-2 inhibitors	A10BX09, A10BX11, A10BX12 or A10BD15, A10BD16, A10BD20 (in combination)
Metformin	A10BA01, A10BA03, A10BA02, A10BD02, A10BD03, A10BD05, A10BD07, A10BD08, A10BD10, A10BD11, A10BD13, A10BD14, A10BD15, A10BD16, A10BD17, A10BD18, A10BD20, A10BD31
Sulfonylureas	A10BB, A10BD01, A10BD02, A10BD31
DPP-4 inhibitors	A10BH, A10BD07, A10BD08, A10BD10, A10BD11, A10BD12, A10BD13
GLP-1RA	A10BJ
Meglitinides	A10BX02, A10BX03, A10BD03, A10BD04, A10BD05
Thiazolidinediones	A10BG, A10BD05 (in combination)
Acarbose	A10BF
Insulins	
Short-acting	A10AB
Intermediate-acting (isophane)	A10AC
Premixed insulin	A10AD
Long-acting	A10AE
CV preventive drugs	
Low dose aspirin	B01AC06, B01AC56, C10BX01, C10BX02, C10BX04, C10BX05, C10BX06, C10BX08, C10BX12, C07FX02, C07FX03, C07FX04, B01AC86,B01AC56, B01AC36, B01AC34
Statins	C10AA, C10BA, C10BX, A10BH51
Antihypertensives	09A, C09B, C09C, C90D, C08C, C03A, C07, except C09DX04
Loop diuretics	C03C
Aldosterone antagonists	C03DA
Warfarin	B01AA03

Figures S1. Validation of the T1D definition

Figure S1A. Prevalence of subjects with diabetes in Sweden according to Swedish National Diabetes Register data[1] and proportion of T1D among subjects



T1D prevalence in DAISY at index date 2013: 11.5 %

Figure S1B. Incidence of new T1D cases according to Swedish National Diabetes Register data[2] and in the DAISY database

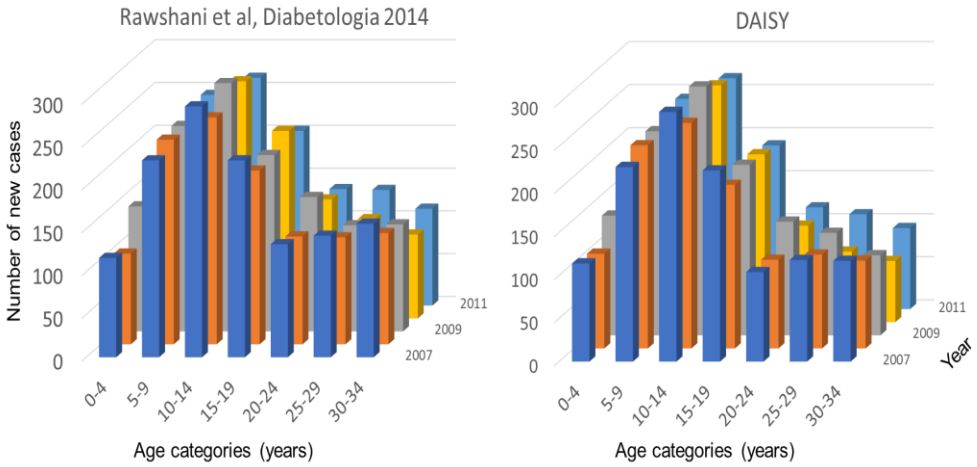


Figure S1C. Age distribution among subjects with T1D in Sweden according to Swedish National Diabetes Register data[1] and according to DAISY data in 2016

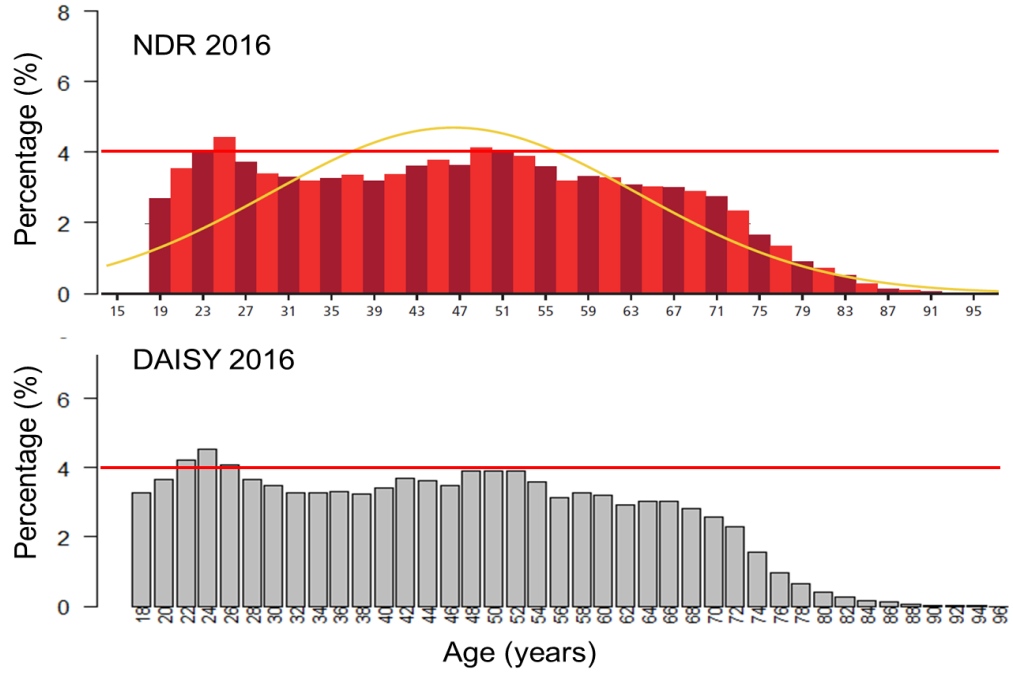
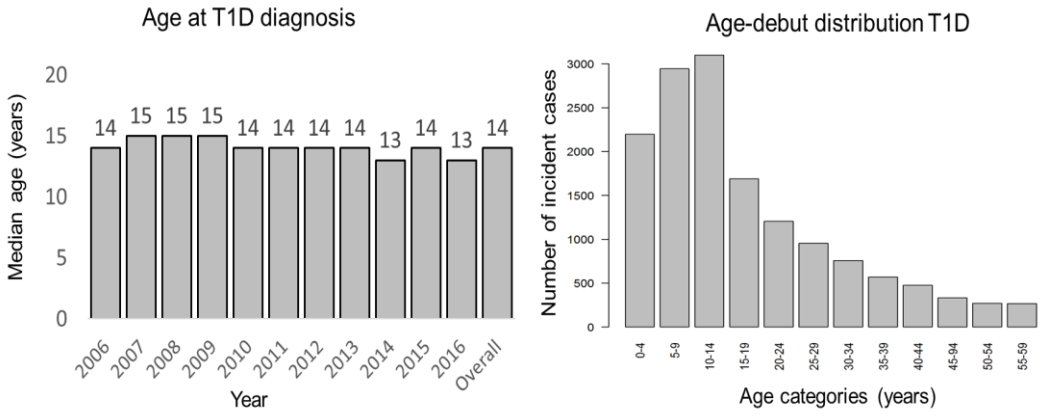


Figure S1D. Median age at T1D diagnosis according to Swedish National Diabetes Register data 2006-2016[1]



Median age at T1D diagnosis in DAISY: 14 years

Figure S2. Age-stratified baseline prevalence of total CV disease

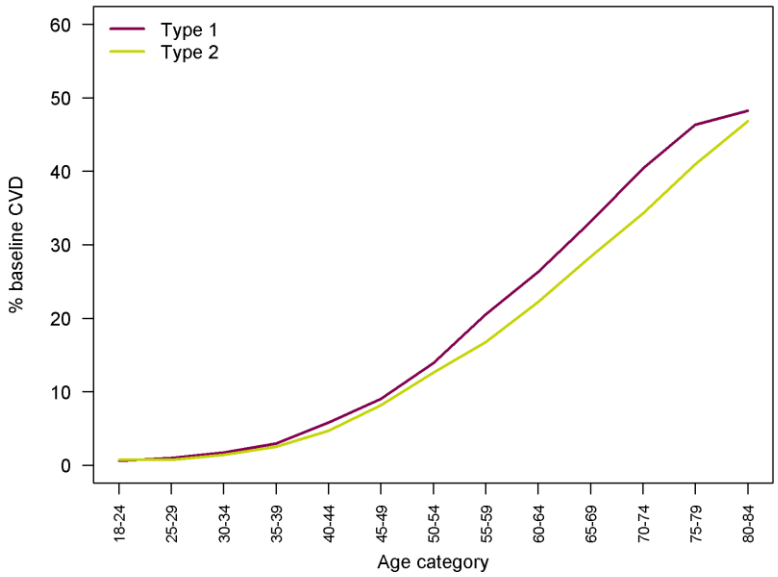


Figure S2. Age-stratified prevalence of total CV disease for T1D and T2D at baseline December 31st 2013

Figures S3. Event rates for total CV disease in whole cohort

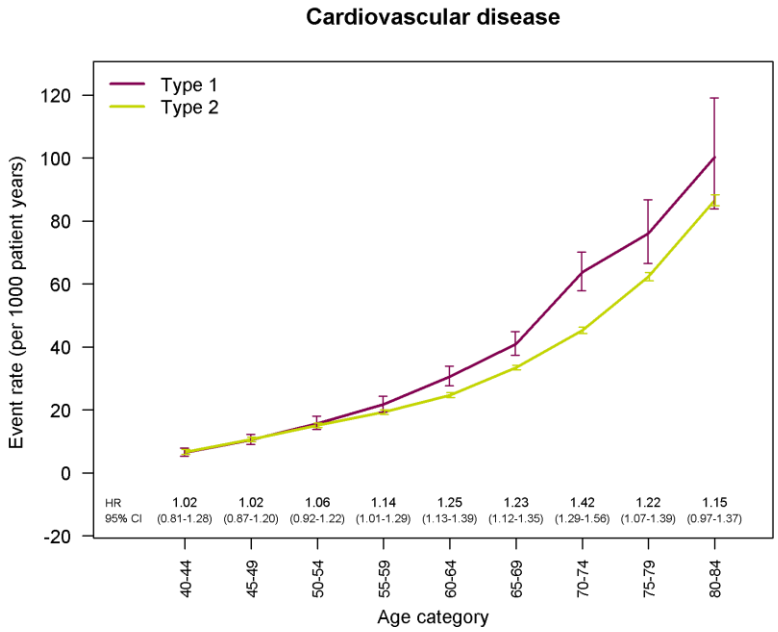


Figure S3. Event rates for total cardiovascular disease in whole cohort with HR values for T1D vs T2D for each age category

Figure S4. Age-stratified event rates for all registered diagnoses, beyond main diagnosis

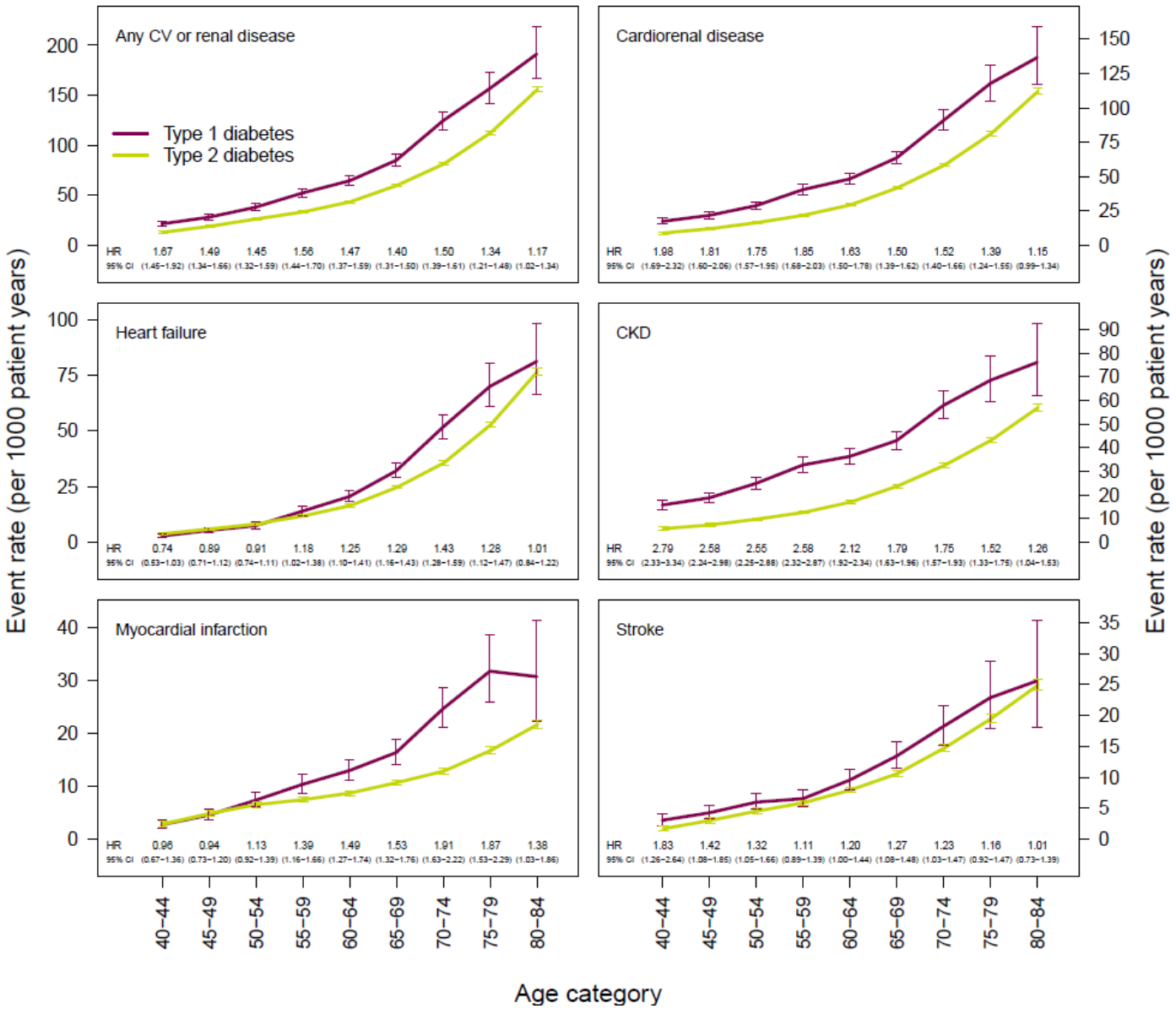


Figure S4. Age-stratified incidence of heart failure (HF), chronic kidney disease (CKD), stroke, myocardial infarction (MI), cardiorenal disease (HF or CKD) and any cardiovascular or renal disease (CVRD; MI, stroke, CV death, HF or CKD) for all registered diagnoses, beyond main diagnosis

Figures S5. Event rates in subjects without CVRD at baseline

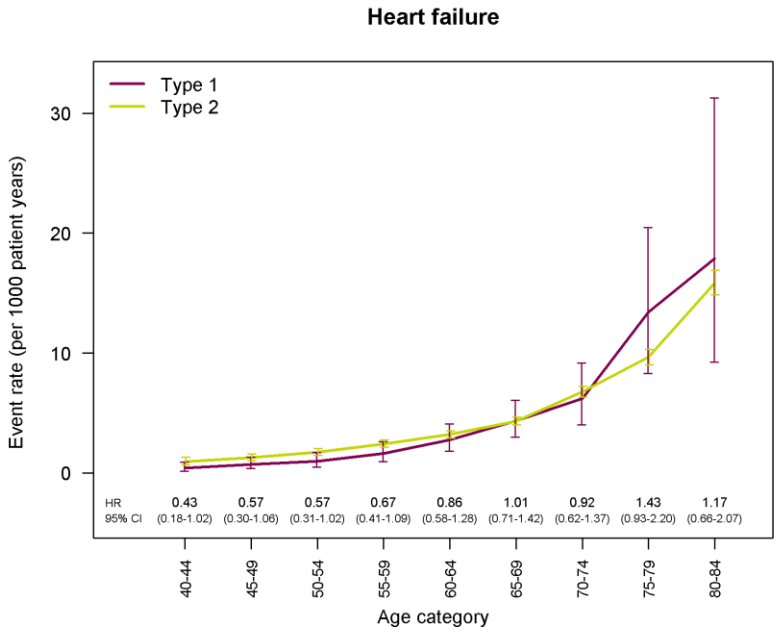


Figure S5A. Event rates for heart failure with HR values for T1D vs T2D for each age category in subjects without CVRD at baseline

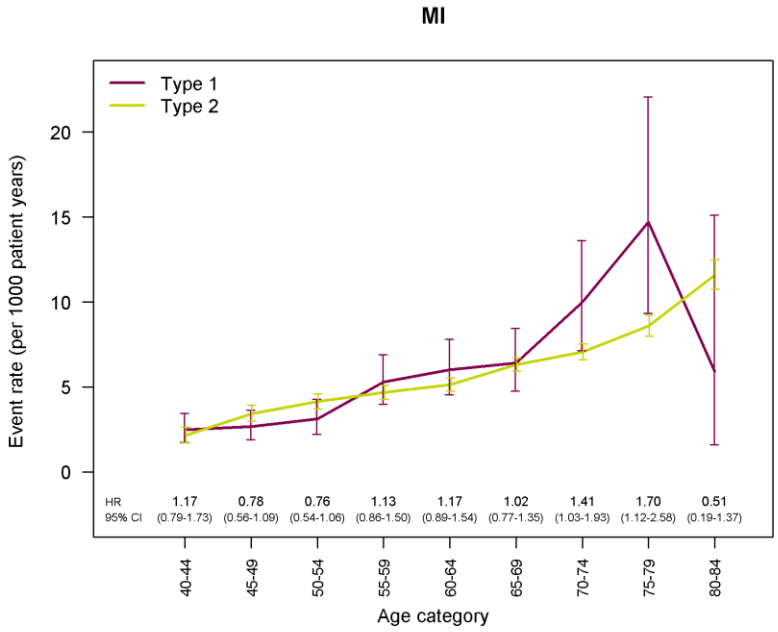


Figure S5B. Event rates for MI with HR values for T1D vs T2D for each age category in subjects without CVRD at baseline

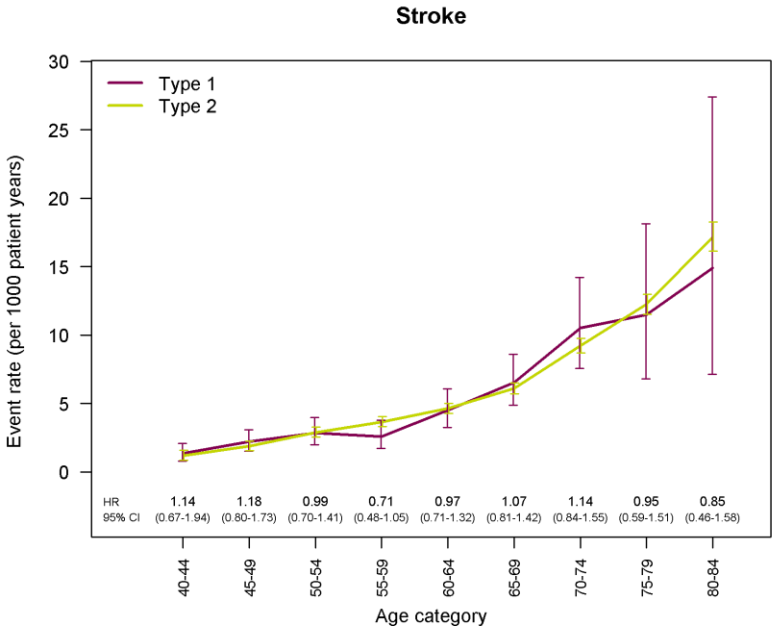


Figure S5C. Event rates for stroke with HR values for T1D vs T2D for each age category in subjects without CVRD at baseline

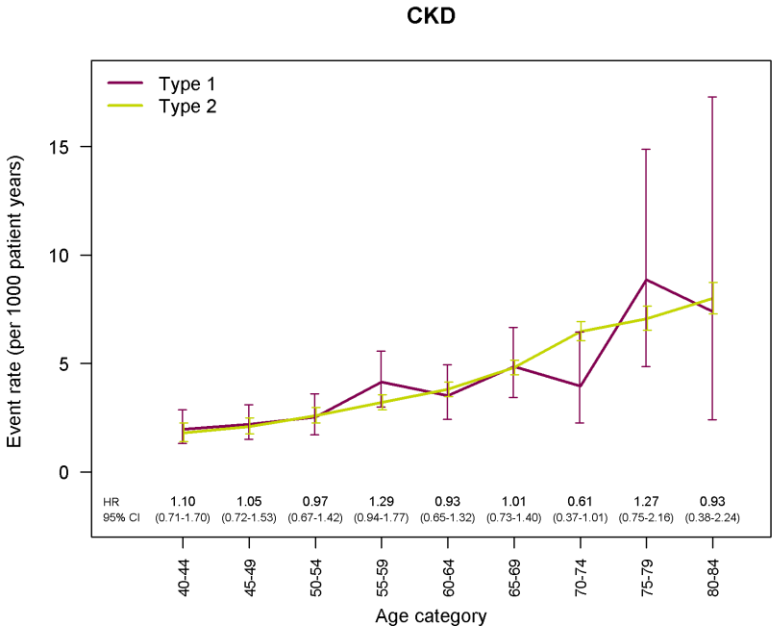


Figure S5D. Event rates for CKD with HR values for T1D vs T2D for each age category in subjects without CVRD at baseline

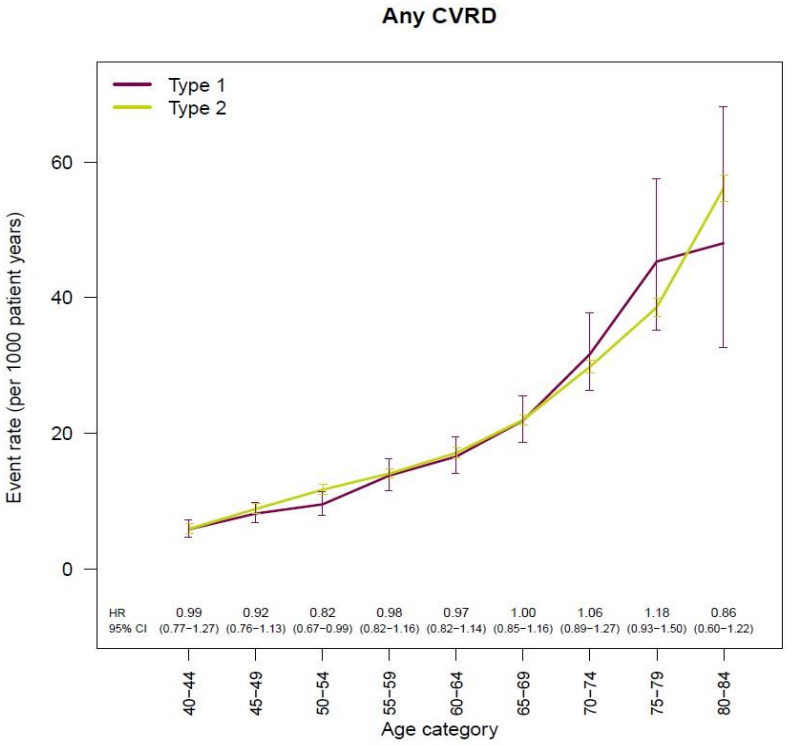


Figure S5E. Event rates for any CVRD with HR values for T1D vs T2D for each age category in subjects without CVRD at baseline

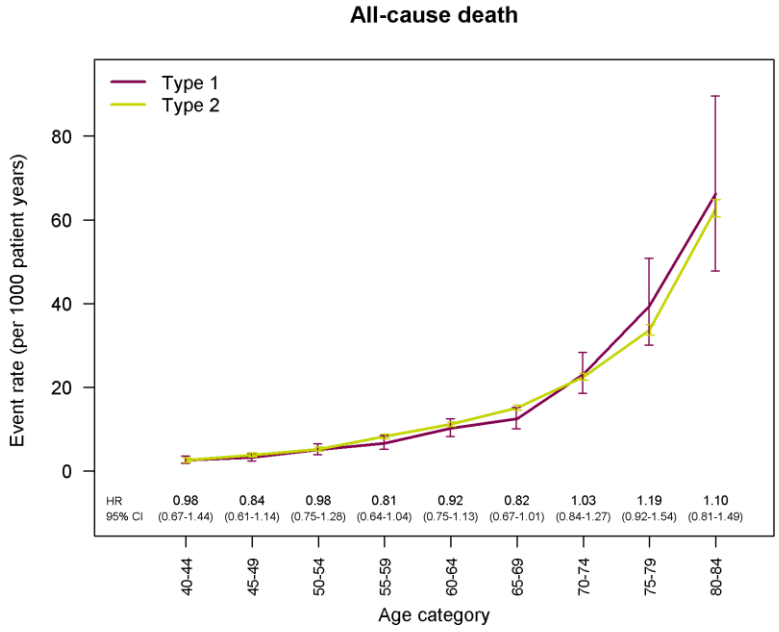


Figure S5F. Event rates for all-cause death with HR values for T1D vs T2D for each age category in subjects without CVRD at baseline

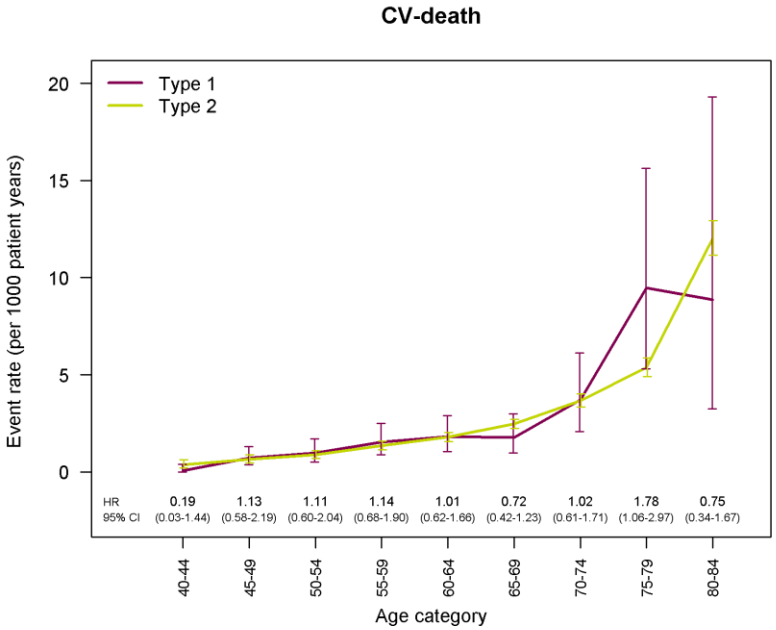


Figure S5G. Event rates for CV death with HR values for T1D vs T2D for each age category in subjects without CVRD at baseline

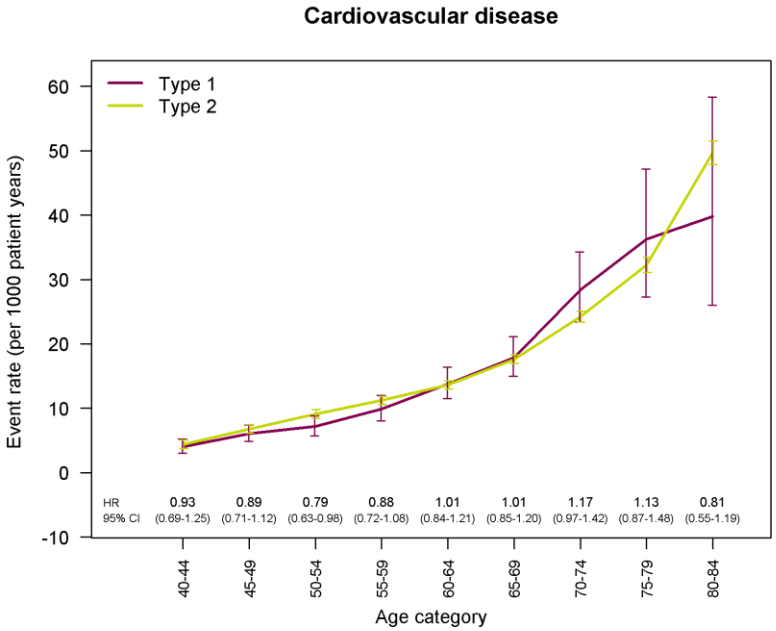


Figure S5H. Event rates for total cardiovascular disease with HR values for T1D vs T2D for each age category in subjects without CVRD at baseline

Figures S6. Event rates in subjects with previous CVRD at baseline

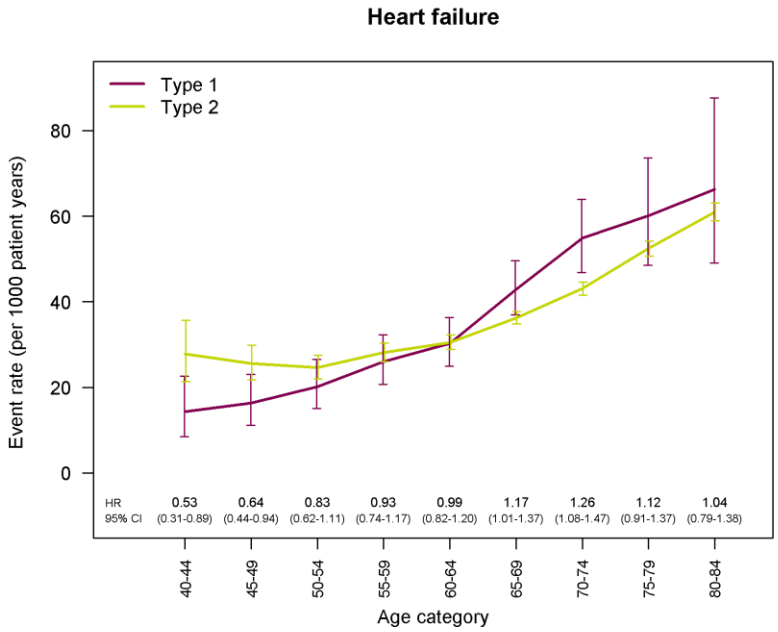


Figure S6A. Event rates for heart failure with HR values for T1D vs T2D for each age category in subjects with previous CVRD at baseline

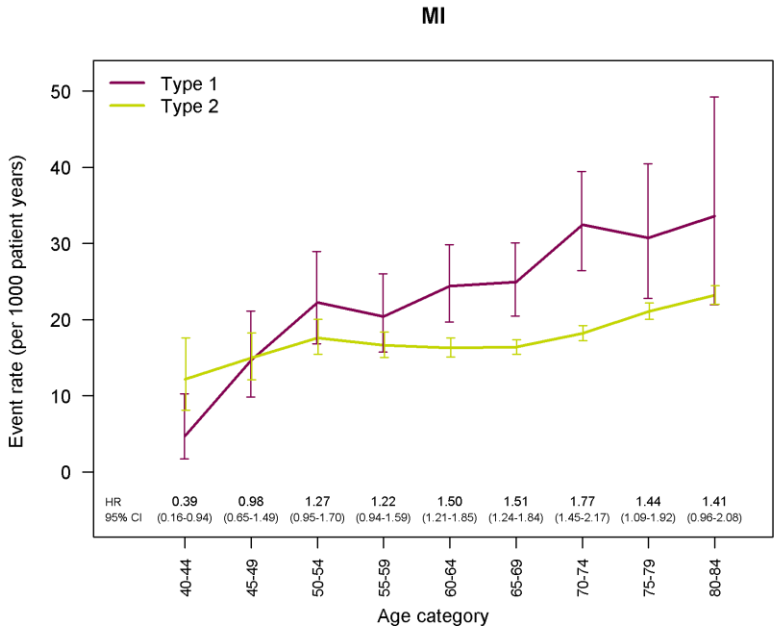


Figure S6B. Event rates for MI with HR values for T1D vs T2D for each age category in subjects with previous CVRD at baseline

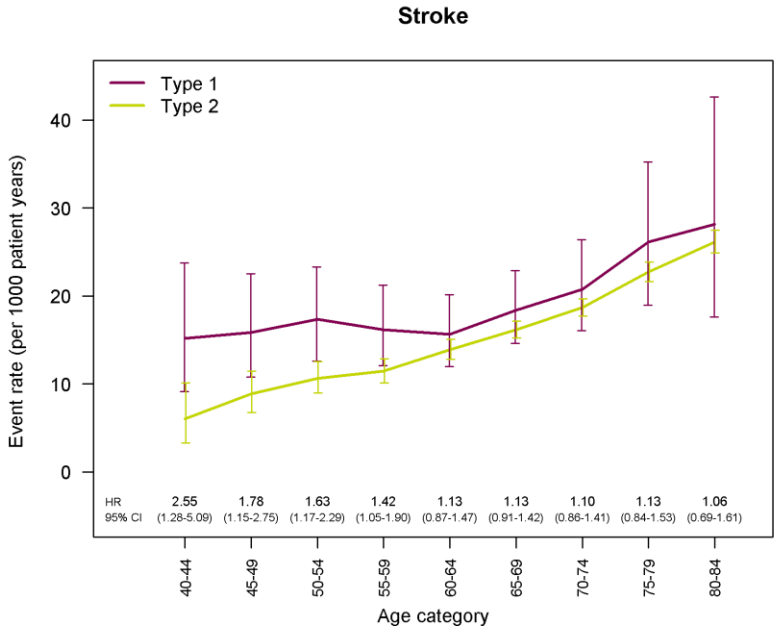


Figure S6C. Event rates for stroke with HR values for T1D vs T2D for each age category in subjects with previous CVRD at baseline

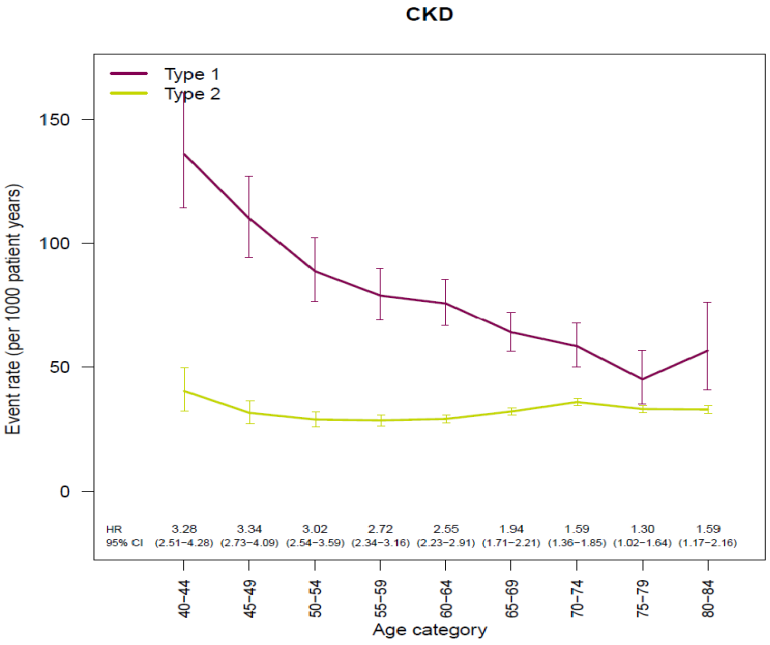


Figure S6D. Event rates for CKD with HR values for T1D vs T2D for each age category in subjects with previous CVRD at baseline

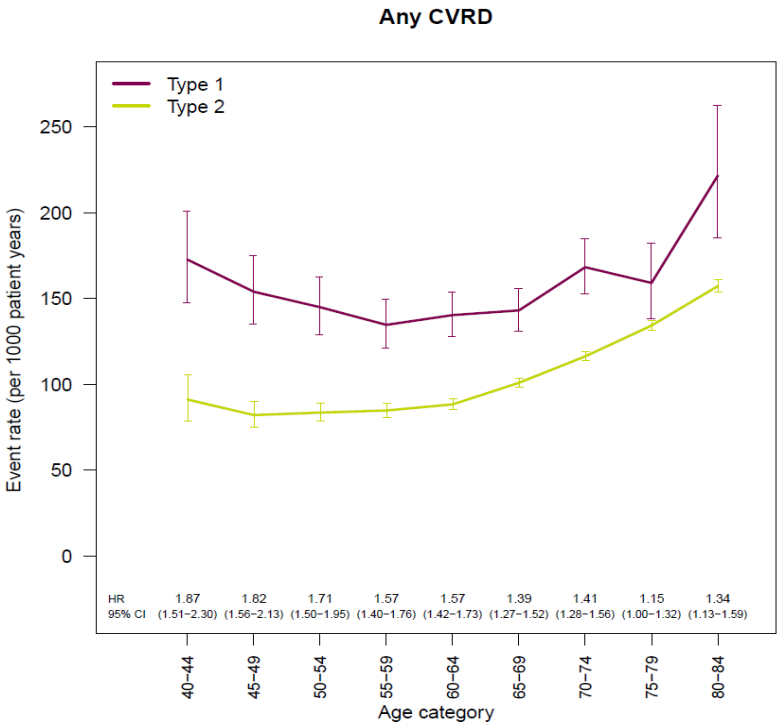


Figure S6E. Event rates for any CVRD with HR values for T1D vs T2D for each age category in subjects with previous CVRD at baseline

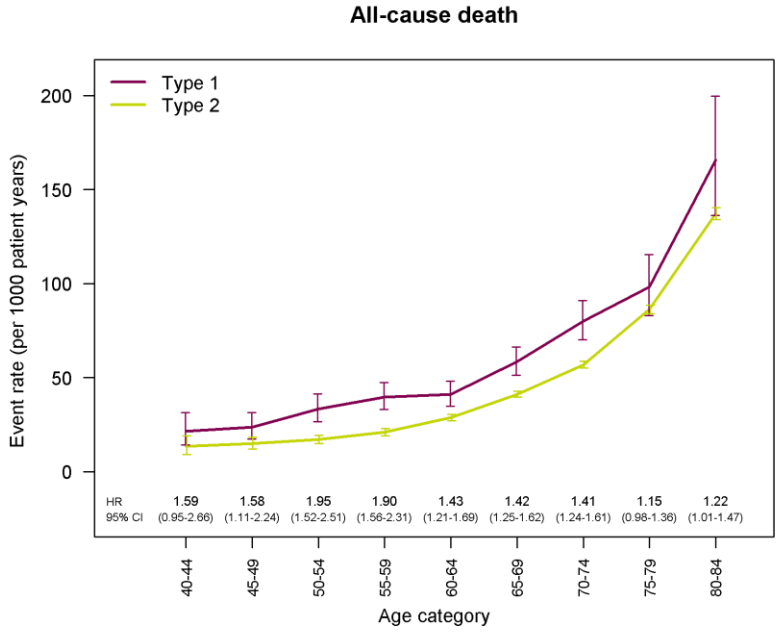


Figure S6F. Event rates for all-cause death with HR values for T1D vs T2D for each age category in subjects with previous CVRD at baseline

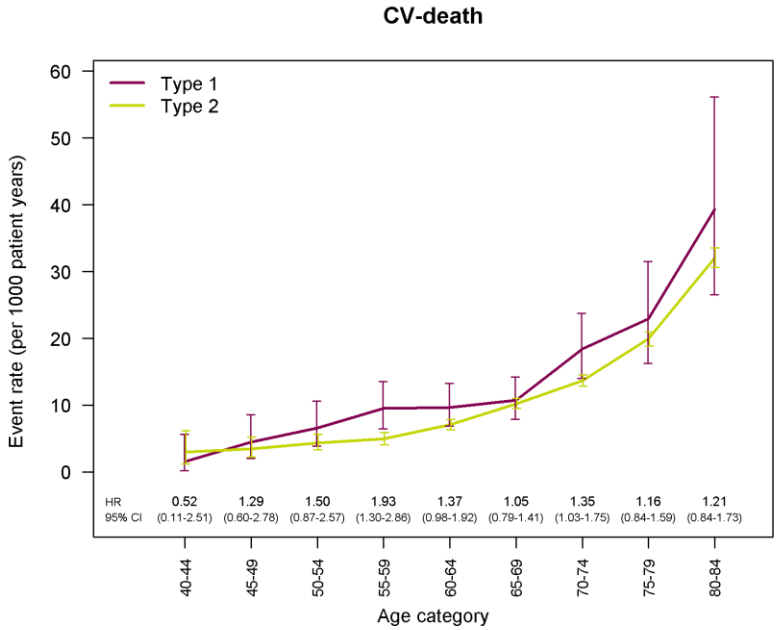


Figure S6G. Event rates for CV death with HR values for T1D vs T2D for each age category in subjects with previous CVRD at baseline

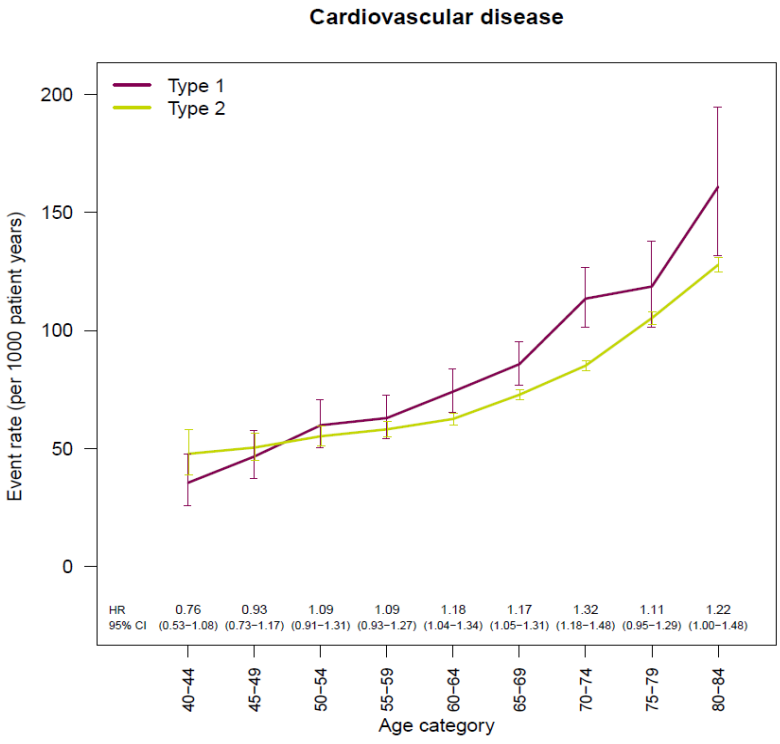


Figure S6H. Event rates for total cardiovascular disease with HR values for T1D vs T2D for each age category in subjects with previous CVRD at baseline

Figure S7. T1D duration and CVRD risk

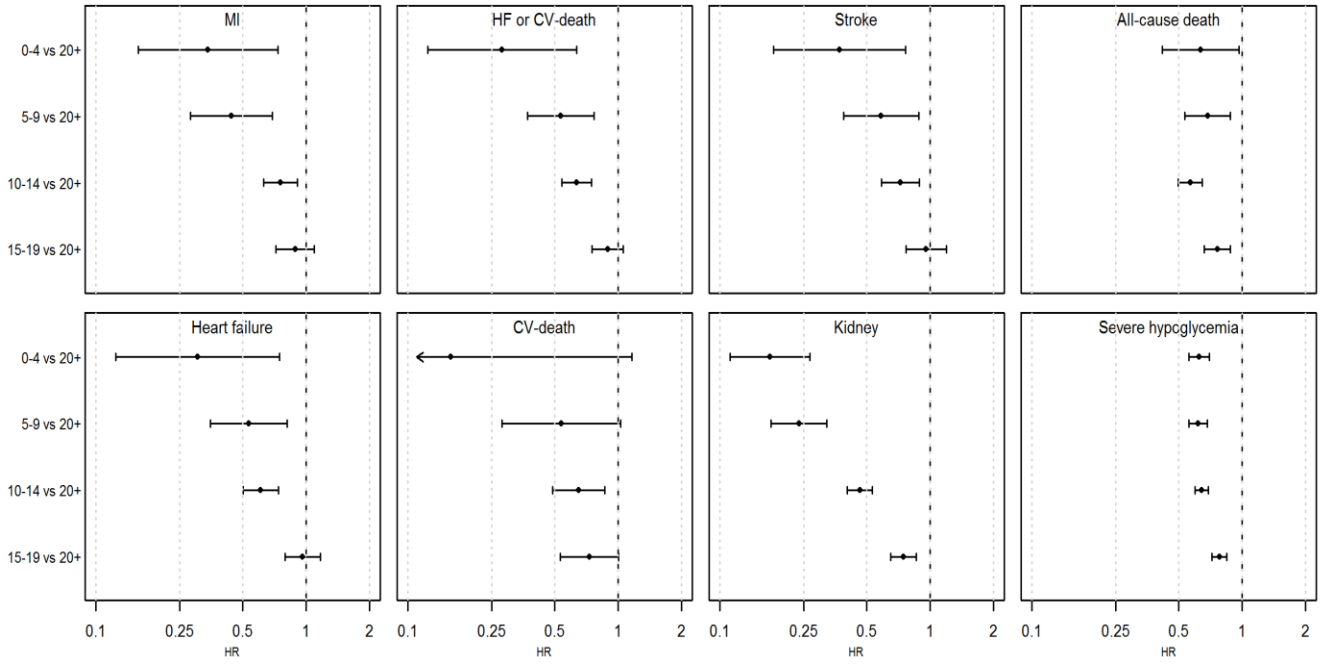


Figure S7. T1D duration in years and age-adjusted risk of CVRD at baseline in Sweden 2013 (reference is duration >20 years). Severe hypoglycemia included as a comparison.

References

1 Swedish National Diabetes Register Annual Report 2017. Available on: https://www.ndr.nu/pdfs/Arsrapport_NDR_2017.pdf. Accessed: 19.10.2018. .

2 Rawshani A, Landin-Olsson M, Svensson AM, *et al.* The incidence of diabetes among 0-34 year olds in Sweden: New data and better methods. *Diabetologia* 2014; **57**: 1375–81.