

SUPPLEMENTARY DATA

**Impact of Socioeconomic Status on Cardiovascular Disease and Mortality in 24,947 Individuals with Type 1 Diabetes**

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**Supplementary Table 1. Missing Data After Last Observation Carried Forward**

<b>Sex</b>												
	n	missing	unique									
24947	0	2										
Female (11532, 46%), Male (13415, 54%)												
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<b>Age</b>												
	n	missing	unique	Info	Mean	.05	.10	.25	.50	.75	.90	.95
24947	0	72	1	39.19	20	22	28	38	49	59	64	
lowest : 18 19 20 21 22, highest: 85 86 87 88 91												
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<b>Duration of diabetes</b>												
	n	missing	unique	Info	Mean	.05	.10	.25	.50	.75	.90	.95
24921	26	81	1	23.66	3	6	13	22	33	44	49	
lowest : 0 1 2 3 4, highest: 76 79 80 86 88												
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<i>Note: All individuals have at least 1 observation indicating their duration of diabetes or age at onset of diabetes; otherwise they cannot be included based on our epidemiological definition of type 1 diabetes.</i>												
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<b>Age at onset of diabetes</b>												
	n	missing	unique	Info	Mean	.05	.10	.25	.50	.75	.90	.95
24921	26	30	1	15.55	3	5	10	15	22	27	28	
lowest : 0 1 2 3 4, highest: 25 26 27 28 29												
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<i>Note: All individuals have at least 1 observation indicating their duration of diabetes or age at onset of diabetes; otherwise they cannot be included based on our epidemiological definition of type 1 diabetes.</i>												
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<b>Income quintile</b>												
	n	missing	unique									
24920	27	5										
Quintile 5 (4814, 19%), Quintile 1 (5795, 23%), Quintile 2 (4805, 19%), Quintile 3 (4799, 19%), Quintile 4 (4707, 19%)												
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<b>Educational attainment</b>												
	n	missing	unique									
24734	213	3										
9 years or less (4052, 16%), 10 to 12 years (13133, 53%), College/University (7549, 31%)												
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<b>Marital status</b>												
	n	missing	unique									
24920	27	4										
Single (13560, 54%), Divorced (2266, 9%), Married (8800, 35%), Widowed (294, 1%)												
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<b>Immigrant status</b>												
	n	missing	unique									
24947	0	2										
Swedish native (23382, 94%), Immigrant (1565, 6%)												

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**Insulin pump**

n	missing	unique	Info	Mean
21987	2960	2	0.37	1.146

No (18784, 85%), Yes (3203, 15%)

**HbA1c (mmol/mol)**

n	missing	unique	Info	Mean	.05	.10	.25	.50	.75	.90	.95
24604	343	111	1	64.13	43	47	54	63	72	82	90

lowest : 26 27 28 29 30, highest: 138 139 142 143 144

**eGFR (ml/min)**

n	missing	unique	Info	Mean	.05	.10	.25	.50	.75	.90	.95
22797	2150	7054	1	92.16	50.32	61.40	76.55	91.54	107.01	123.44	134.75

lowest : 3.381 3.813 4.247 4.417 4.681, highest: 449.623 456.382 564.080 600.813 604.049

**Systolic blood pressure (mmHg)**

n	missing	unique	Info	Mean	.05	.10	.25	.50	.75	.90	.95
24371	576	115	0.99	126.8	105	110	118	125	135	150	158

lowest : 80 82 84 85 86, highest: 205 210 215 220 235

**Cholesterol-HDL-ratio**

n	missing	unique	Info	Mean	.05	.10	.25	.50	.75	.90	.95
21409	3538	3604	1	3.117	1.905	2.087	2.421	2.917	3.571	4.400	5.000

lowest : 0.9444 1.0000 1.0526 1.1500 1.1739, highest: 11.4583 12.1053 13.6667 13.7500 26.3636

**Body Mass Index (kg/m<sup>2</sup>)**

n	missing	unique	Info	Mean	.05	.10	.25	.50	.75	.90	.95
23428	1519	9622	1	25.61	20.01	20.91	22.69	24.94	27.72	31.05	33.44

lowest : 15.02 15.22 15.23 15.24 15.36, highest: 60.61 62.44 62.50 63.72 70.90

**Smoking**

n	missing	unique	Info	Sum	Mean
24133	814	2	0.32	2945	0.122

**Physical activity**

n	missing	unique
17527	7420	5

Daily (4617, 26%), Never (4086, 23%), <1 time/week (1634, 9%)  
 1-2 times/week (2297, 13%), 3-5 times/week (4893, 28%)

**Albuminuria**

n	missing	unique
23501	1446	3

No albuminuria (18682, 79%), Microalbuminuria (3238, 14%), Macroalbuminuria (1581, 7%)

**Antihypertensive medication**

n	missing	unique	Info	Sum	Mean
24328	619	2	0.64	7417	0.3049

**Lipid lowering medication**

n	missing	unique	Info	Sum	Mean
24230	717	2	0.52	5387	0.2223

**Aspirin**

n	missing	unique	Info	Sum	Mean
23993	954	2	0.35	3232	0.1347

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<b>Heart failure</b>					
n	missing	unique	Info	Sum	Mean
24947	0	2	0.02	156	0.006253
<b>Atrial fibrillation</b>					
n	missing	unique	Info	Sum	Mean
24947	0	2	0.02	128	0.005131
<b>Stable ischemic heart disease</b>					
n	missing	unique	Info	Sum	Mean
24947	0	2	0.02	162	0.006494

**Legend:** Descriptive statistics (n, unique levels, mean, quantiles, frequencies) for all variables included in the study.

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**Supplementary Table 2. Characteristics of the Cohort at Baseline, According to Sex**

	<b>Females</b>	<b>Males</b>	<b>P value</b>
n	11532	13415	
Age (years) – mean (SD)	39.52 (14.10)	38.91 (13.64)	<0.001
Duration of diabetes (years) – mean (SD)	24.52 (14.42)	22.93 (13.99)	<0.001
Age at onset of diabetes (years) – mean (SD)	15.02 (7.72)	16.00 (7.68)	<0.001
<b>Income – n (%)</b>			<0.001
Quintile 1 (lowest)	3212 (27.9)	2583 (19.3)	
Quintile 2	2806 (24.4)	1999 (14.9)	
Quintile 3	2524 (21.9)	2275 (17.0)	
Quintile 4	1794 (15.6)	2913 (21.7)	
Quintile 5 (highest)	1181 (10.3)	3633 (27.1)	
<b>Education – n (%)</b>			<0.001
9 years or less	1780 (15.6)	2272 (17.1)	
10 to 12 years	5827 (51.0)	7306 (54.9)	
College/University	3814 (33.4)	3735 (28.1)	
<b>Marital status – n (%)</b>			<0.001
Single	5697 (49.5)	7863 (58.7)	
Divorced	1208 (10.5)	1058 (7.9)	
Married	4389 (38.1)	4411 (32.9)	
Widowed	223 (1.9)	71 (0.5)	
Immigrant – n (%)	809 (7.0)	756 (5.6)	<0.001
Insulin pump – n (%)	1807 (17.9)	1396 (11.8)	<0.001
HbA1c mmol/mol – mean (SD)	64.44 (14.94)	63.87 (14.52)	0.003
eGFR ml/min – mean (SD)	87.82 (27.10)	95.91 (27.30)	<0.001
Systolic BP mmHg – mean (SD)	124.64 (16.31)	128.68 (15.15)	<0.001
Cholesterol/HDL-ratio – mean (SD)	2.93 (0.97)	3.28 (1.05)	<0.001
BMI (kg/m <sup>2</sup> ) – mean (SD)	25.64 (4.82)	25.58 (3.83)	0.229
Current smoker – n (%)	1603 (14.4)	1342 (10.3)	<0.001
<b>Physical activity – n (%)</b>			<0.001
Daily	2112 (26.6)	2505 (26.1)	
Never	1943 (24.5)	2143 (22.4)	
<1 time/week	739 (9.3)	895 (9.3)	
1-2 times/week	926 (11.7)	1371 (14.3)	
3-5 times/week	2225 (28.0)	2668 (27.8)	
<b>Albuminuria</b>			<0.001
No albuminuria	8913 (81.9)	9769 (77.4)	
Microalbuminuria	1355 (12.4)	1883 (14.9)	
Macroalbuminuria	617 (5.7)	964 (7.6)	
Antihypertensives – n (%)	3242 (28.8)	4175 (31.9)	<0.001
Statins – n (%)	2336 (20.9)	3051 (23.4)	<0.001
Aspirin – n (%)	1429 (12.9)	1803 (14.0)	0.013
Heart failure – n (%)	73 (0.6)	83 (0.6)	0.950
Stable ischemic heart disease – n (%)	86 (0.7)	76 (0.6)	0.093

**Legend:** Crude baseline values as means ± 1 standard deviation or frequencies (%). P values are justified by the similarities in age and duration of diabetes.

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**Supplementary Table 3. Number of Events and Rates (per 1,000 person years)**

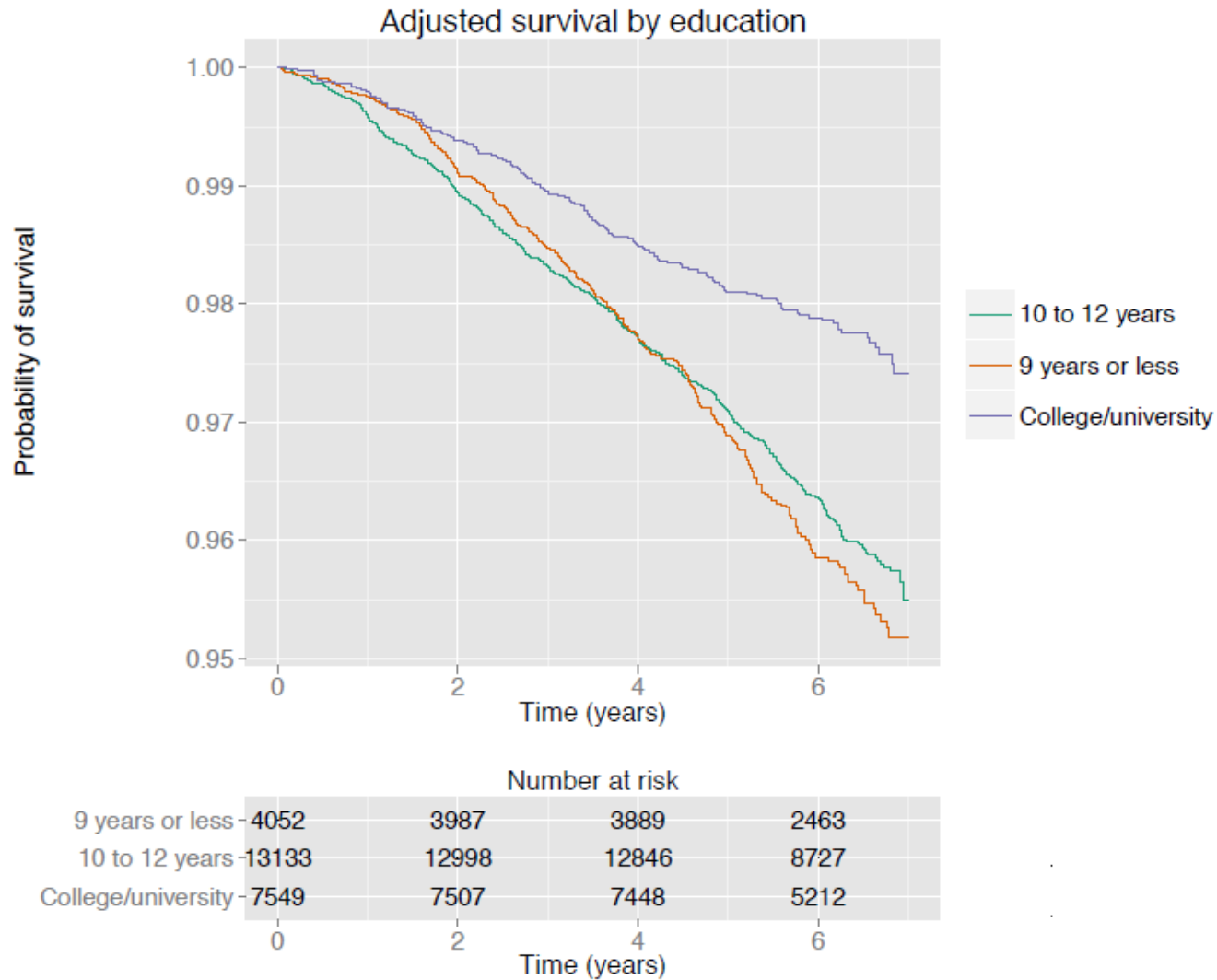
	Fatal/nonfatal CVD		Fatal/nonfatal CHD		Fatal/nonfatal stroke		All-cause death		CV death		Diabetes death	
	Events	Rate	Events	Rate	Events	Rate	Events	Rate	Events	Rate	Events	Rate
<b>Immigrant status</b>												
Swedish native	1301	9,41	1006	7,23	380	2,73	880	6,23	514	3,64	568	4,02
Immigrant	77	8,5	60	6,59	20	2,2	46	4,98	26	2,81	26	2,81
<b>Education</b>												
9 years or less	391	17,06	297	12,82	132	5,7	286	12,01	163	6,85	184	7,73
10 to 12 years	707	9,09	546	6,99	198	2,53	480	6,05	292	3,68	321	4,05
College/University	270	5,93	216	4,73	67	1,47	149	3,22	77	1,66	82	1,77
<b>Income quintile</b>												
Quintile 1	290	8,77	220	6,63	90	2,71	249	7,4	152	4,52	158	4,69
Quintile 2	397	14,29	303	10,8	128	4,56	305	10,63	185	6,45	208	7,25
Quintile 3	239	8,29	192	6,63	61	2,11	143	4,87	85	2,89	100	3,4
Quintile 4	217	7,6	179	6,24	52	1,81	110	3,78	65	2,23	69	2,37
Quintile 5	232	8	169	5,79	69	2,36	112	3,78	49	1,66	54	1,82
<b>Marital status</b>												
Single	374	4,64	282	3,49	114	1,41	338	4,16	187	2,3	221	2,72
Divorced	248	19,07	185	14,07	77	5,85	170	12,55	105	7,75	115	8,49
Married/cohabiting	691	13,25	543	10,33	189	3,6	355	6,59	207	3,84	213	3,95
Widowed	62	39,74	53	33,17	20	12,52	56	33,16	37	21,91	40	23,68

**Legend:** Number of events for each outcome and crude incidence rates per 1,000 person-years according to socioeconomic category.

SUPPLEMENTARY DATA

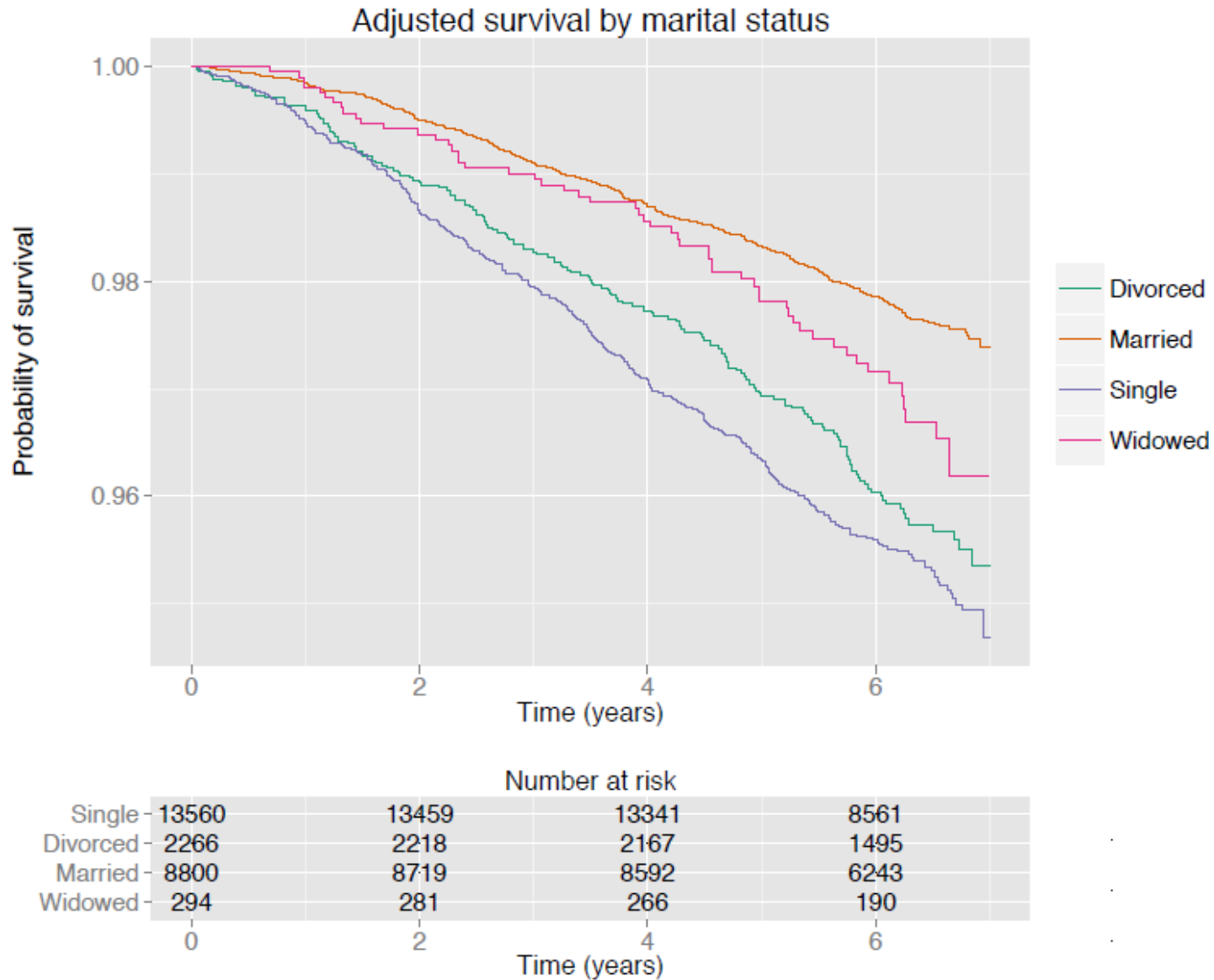
**Supplementary Figure 1.** Adjusted survival curves for total mortality according to socioeconomic categories. Number at risk is depicted below each plot. Adjusted for age at inclusion and age at onset of diabetes.

(A) According to education



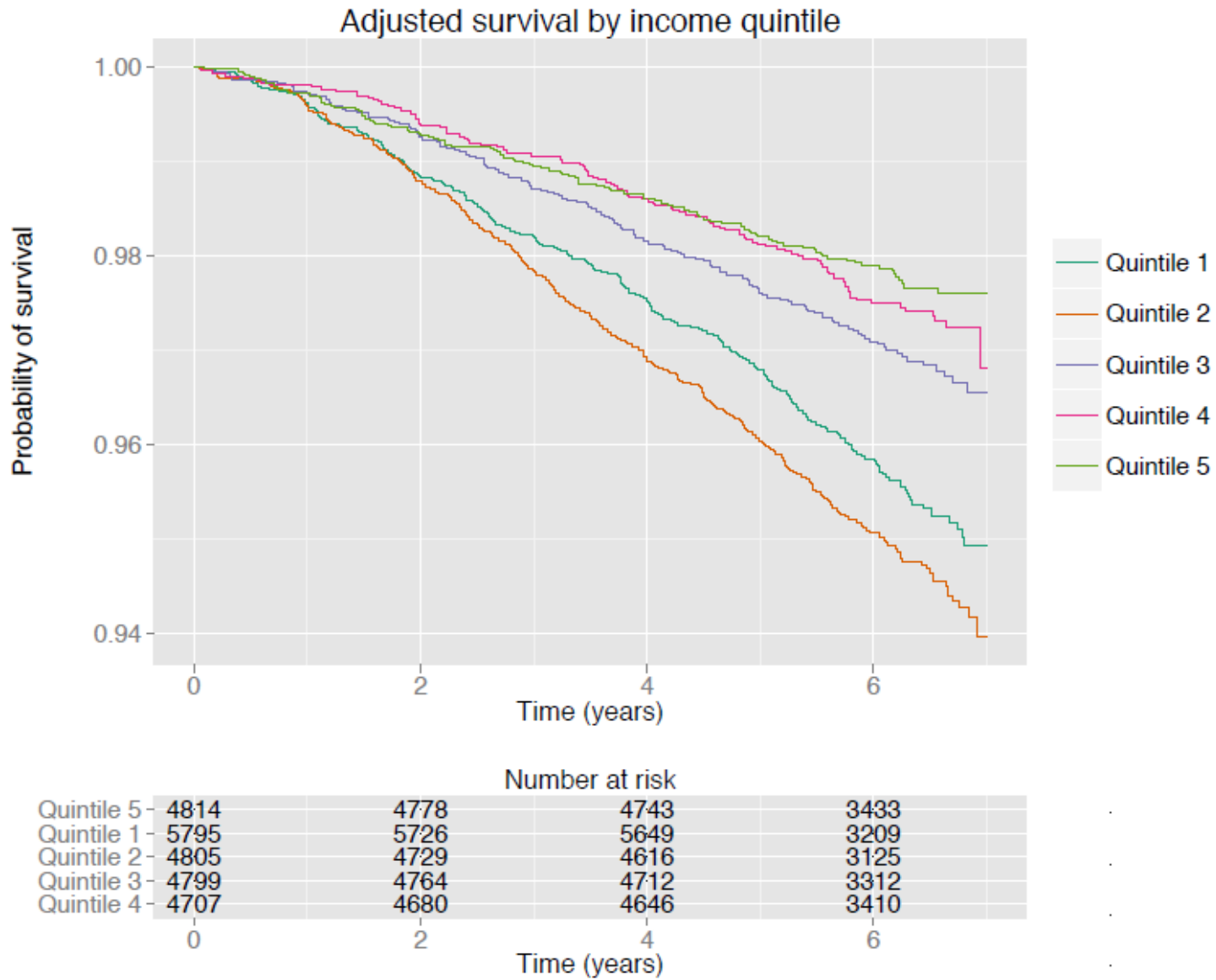
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(B) According to marital status



SUPPLEMENTARY DATA

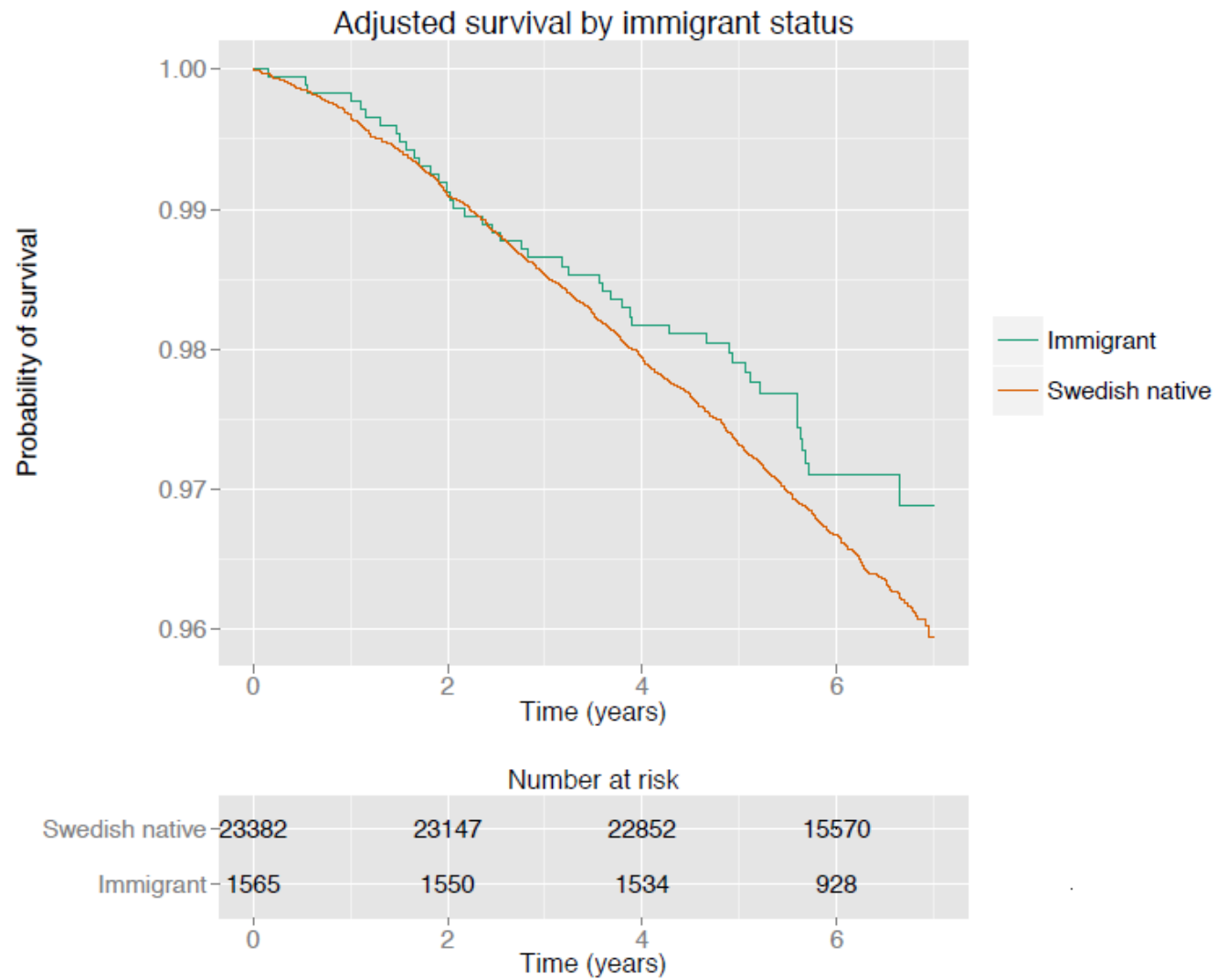
(C) According to income





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(D) According to immigrant status



**Legend:** Cox adjusted survival curves (controlled for age and duration of diabetes). The category *married* includes individuals who were cohabiting (registered as partners).

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**Supplementary Table 4. Cox Regression Tables for all Outcomes**

	Minimally adjusted models		Maximally adjusted models	
	Hazard ratio (95% CI)	P value	Hazard ratio (95% CI)	P value
<b>FATAL/NONFATAL CVD</b>				
Singel	Reference		Reference	
Divorced	1.37 (1.11, 1.69)	0.00294	1.32 (1.06, 1.63)	0.01255
Married	1.02 (0.85, 1.22)	0.80902	1.07 (0.89, 1.30)	0.47018
Widowed	1.64 (1.30, 2.07)	<0.001	1.56 (1.21, 2.01)	0.00057
Income Q1	1.79 (1.41, 2.28)	<0.001	1.48 (1.16, 1.90)	0.00192
Income Q2	2.09 (1.66, 2.62)	<0.001	1.66 (1.31, 2.09)	<0.001
Income Q3	1.36 (1.05, 1.76)	0.01901	1.23 (0.94, 1.61)	0.13022
Income Q4	1.14 (0.86, 1.51)	0.36236	1.10 (0.83, 1.46)	0.49616
Income Q5	Reference		Reference	
Swedish native	Reference		Reference	
Immigrant	0.86 (0.68, 1.09)	0.22181	0.81 (0.66, 0.99)	0.04179
Female	Reference		Reference	
Male	1.29 (1.14, 1.45)	<0.001	1.10 (0.97, 1.25)	0.11931
<10 years educ.	Reference		Reference	
10-12 years educ.	0.82 (0.72, 0.92)	0.00126	0.90 (0.79, 1.03)	0.11429
College/university educ.	0.69 (0.58, 0.83)	<0.001	0.92 (0.76, 1.12)	0.40804
<b>FATAL/NONFATAL CHD</b>				
Singel	Reference		Reference	
Divorced	1.27 (1.00, 1.63)	0.05276	1.22 (0.95, 1.58)	0.11608
Married	1.03 (0.83, 1.26)	0.80344	1.07 (0.86, 1.34)	0.51883
Widowed	2.22 (1.70, 2.89)	<0.001	2.12 (1.59, 2.82)	<0.001
Income Q1	1.68 (1.28, 2.20)	0.0002	1.39 (1.06, 1.83)	0.01872
Income Q2	2.03 (1.57, 2.63)	<0.001	1.61 (1.25, 2.08)	0.00025
Income Q3	1.39 (1.04, 1.86)	0.02432	1.26 (0.94, 1.69)	0.12205
Income Q4	1.18 (0.86, 1.62)	0.30248	1.14 (0.85, 1.55)	0.3837

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Income Q5	Reference		Reference	
Swedish native	Reference		Reference	
Immigrant	0.91 (0.70, 1.19)	0.49454	0.85 (0.68, 1.07)	0.1672
Female	Reference		Reference	
Male	1.22 (1.07, 1.40)	0.00339	1.06 (0.92, 1.23)	0.38727
<10 years educ.	Reference		Reference	
10-12 years educ.	0.86 (0.75, 0.99)	0.03472	0.95 (0.82, 1.11)	0.53908
College/university educ.	0.74 (0.61, 0.91)	0.0041	1.00 (0.81, 1.25)	0.96983
<b>FATAL/NONFATAL AMI</b>				
Singel	Reference		Reference	
Divorced	1.19 (0.94, 1.51)	0.14693	1.17 (0.92, 1.49)	0.19456
Married	1.00 (0.83, 1.22)	0.98289	1.07 (0.88, 1.30)	0.48926
Widowed	1.25 (0.85, 1.82)	0.25497	1.22 (0.84, 1.79)	0.30086
Income Q1	2.18 (1.63, 2.91)	<0.001	1.70 (1.26, 2.27)	0.00041
Income Q2	2.17 (1.65, 2.85)	<0.001	1.68 (1.28, 2.21)	0.00021
Income Q3	1.69 (1.27, 2.25)	0.00032	1.56 (1.17, 2.07)	0.0025
Income Q4	1.40 (1.04, 1.87)	0.02583	1.38 (1.03, 1.86)	0.03003
Income Q5	Reference		Reference	
Swedish native	Reference		Reference	
Immigrant	0.73 (0.51, 1.03)	0.07652	0.62 (0.43, 0.88)	0.0083
Female	Reference		Reference	
Male	1.16 (0.99, 1.36)	0.05786	1.06 (0.90, 1.25)	0.48903
<10 years educ.	Reference		Reference	
10-12 years educ.	0.96 (0.80, 1.15)	0.67763	1.01 (0.84, 1.21)	0.95527
College/university educ.	0.77 (0.61, 0.98)	0.0303	0.94 (0.74, 1.20)	0.63903
<b>FATAL/NONFATAL STROKE</b>				
Singel	Reference		Reference	
Divorced	1.28 (0.94, 1.74)	0.11362	1.25 (0.92, 1.70)	0.1528
Married	0.95 (0.73, 1.22)	0.68018	1.01 (0.78, 1.31)	0.94185
Widowed	1.25 (0.75, 2.07)	0.3899	1.17 (0.70, 1.95)	0.54618

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Income Q1	2.03 (1.40, 2.93)	0.00017	1.51 (1.04, 2.19)	0.03077
Income Q2	2.14 (1.52, 3.02)	<0.001	1.62 (1.14, 2.29)	0.00683
Income Q3	1.29 (0.88, 1.89)	0.19107	1.15 (0.79, 1.69)	0.46866
Income Q4	1.04 (0.70, 1.54)	0.84502	1.01 (0.68, 1.49)	0.9678
Income Q5	Reference		Reference	
Swedish native	Reference		Reference	
Immigrant	0.72 (0.46, 1.13)	0.15466	0.65 (0.41, 1.02)	0.0601
Female	Reference		Reference	
Male	1.37 (1.11, 1.69)	0.00373	1.17 (0.94, 1.46)	0.15005
<10 years educ.	Reference		Reference	
10-12 years educ.	0.78 (0.62, 0.98)	0.0345	0.81 (0.64, 1.02)	0.07246
College/university educ.	0.55 (0.40, 0.75)	0.00022	0.67 (0.48, 0.93)	0.01562
<b>ALL-CAUSE DEATH</b>				
Singel	Reference		Reference	
Divorced	0.92 (0.76, 1.12)	0.39845	0.82 (0.68, 1.00)	0.05232
Married	0.50 (0.42, 0.59)	<0.001	0.51 (0.43, 0.60)	
Widowed	0.93 (0.69, 1.25)	0.62069	0.85 (0.63, 1.16)	0.31436
Income Q1	2.60 (2.03, 3.34)	<0.001	2.10 (1.63, 2.72)	
Income Q2	2.39 (1.88, 3.04)	<0.001	1.81 (1.42, 2.30)	
Income Q3	1.38 (1.05, 1.80)	0.01892	1.29 (0.99, 1.69)	0.06002
Income Q4	1.01 (0.76, 1.35)	0.92068	1.05 (0.79, 1.40)	0.71475
Income Q5	Reference		Reference	
Swedish native	Reference		Reference	
Immigrant	0.75 (0.56, 1.02)	0.06515	0.67 (0.50, 0.91)	0.00953
Female	Reference		Reference	
Male	1.51 (1.31, 1.73)	<0.001	1.44 (1.25, 1.66)	<0.001
<10 years educ.	Reference		Reference	
10-12 years educ.	1.04 (0.89, 1.21)	0.62478	1.14 (0.97, 1.34)	0.101
College/university educ.	0.75 (0.60, 0.92)	0.00728	0.99 (0.79, 1.23)	0.89766
<b>CARDIOVASCULAR DEATH</b>				

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Singel	Reference		Reference	
Divorced	0.87 (0.68, 1.12)	0.27953	0.60 (0.47, 0.78)	0.00016
Married	0.45 (0.36, 0.56)	<0.001	0.36 (0.28, 0.45)	<0.001
Widowed	0.94 (0.64, 1.36)	0.73186	0.86 (0.59, 1.25)	0.41862
Income Q1	3.67 (2.56, 5.27)	<0.001	3.28 (2.28, 4.73)	<0.001
Income Q2	3.16 (2.23, 4.48)	<0.001	2.19 (1.54, 3.12)	1,00E-05
Income Q3	1.92 (1.31, 2.81)	0.00076	1.77 (1.21, 2.60)	0.00364
Income Q4	1.33 (0.88, 1.99)	0.17269	1.32 (0.87, 2.01)	0.18937
Income Q5	Reference		Reference	
Swedish native	Reference		Reference	
Immigrant	0.74 (0.50, 1.10)	0.13801	0.83 (0.58, 1.20)	0.32096
Female	Reference		Reference	
Male	1.56 (1.30, 1.87)	<0.001	1.63 (1.34, 1.97)	<0.001
<10 years educ.	Reference		Reference	
10-12 years educ.	1.22 (0.99, 1.49)	0.05831	1.48 (1.20, 1.83)	0.00025
College/university educ.	0.79 (0.59, 1.06)	0.1114	1.08 (0.79, 1.47)	0.63636
<b>DIABETES DEATH</b>				
Singel	Reference		Reference	
Divorced	0.93 (0.73, 1.18)	0.53549	0.90 (0.71, 1.15)	0.39772
Married	0.46 (0.37, 0.56)	<0.001	0.50 (0.40, 0.62)	<0.001
Widowed	0.93 (0.64, 1.35)	0.69403	0.92 (0.63, 1.34)	0.67453
Income Q1	3.11 (2.22, 4.34)	<0.001	2.20 (1.57, 3.08)	<0.001
Income Q2	2.85 (2.07, 3.93)	<0.001	1.94 (1.40, 2.68)	<0.001
Income Q3	1.71 (1.20, 2.43)	0.00276	1.48 (1.04, 2.10)	0.02924
Income Q4	1.25 (0.86, 1.81)	0.24675	1.26 (0.87, 1.83)	0.22742
Income Q5	Reference		Reference	
Swedish native	Reference		Reference	
Immigrant	0.67 (0.45, 1.00)	0.05088	0.55 (0.37, 0.82)	0.00303
Female	Reference		Reference	
Male	1.46 (1.23, 1.73)	<0.001	1.29 (1.08, 1.54)	0.00497

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<10 years educ.	Reference		Reference	
10-12 years educ.	1.06 (0.87, 1.28)	0.55767	1.10 (0.90, 1.34)	0.34279
College/university educ.	0.66 (0.50, 0.87)	0.00341	0.84 (0.63, 1.11)	0.22533
<b>FATAL CVD</b>				
Singel	Reference		Reference	
Divorced	0.79 (0.58, 1.07)	0.13254	0.56 (0.41, 0.78)	0.00062
Married	0.51 (0.40, 0.66)	<0.001	0.40 (0.30, 0.53)	<0.001
Widowed	1.14 (0.53, 2.44)	0.73071	1.13 (0.73, 1.76)	0.5905
Income Q1	3.23 (2.16, 4.84)	<0.001	2.19 (1.38, 3.47)	0.00085
Income Q2	2.59 (1.74, 3.85)	<0.001	2.02 (1.30, 3.15)	0.0018
Income Q3	1.83 (1.21, 2.75)	0.00389	1.68 (1.05, 2.68)	0.02941
Income Q4	1.39 (0.91, 2.12)	0.12447	1.47 (0.90, 2.41)	0.12504
Income Q5	Reference		Reference	
Swedish native	Reference		Reference	
Immigrant	0.65 (0.39, 1.10)	0.10586	0.55 (0.32, 0.95)	0.03186
Female	Reference		Reference	
Male	1.42 (1.13, 1.78)	0.00235	1.51 (1.19, 1.92)	0.00075
<10 years educ.	Reference		Reference	
10-12 years educ.	1.25 (0.94, 1.66)	0.11812	1.19 (0.92, 1.54)	0.17601
College/university educ.	0.77 (0.53, 1.11)	0.16381	0.91 (0.63, 1.33)	0.62987

**Legend:** Results from the Cox regressions for all outcomes, including fatal CVD and fatal/nonfatal AMI. Refer to figures 1 and 2 in the main text for details regarding covariate adjustments.