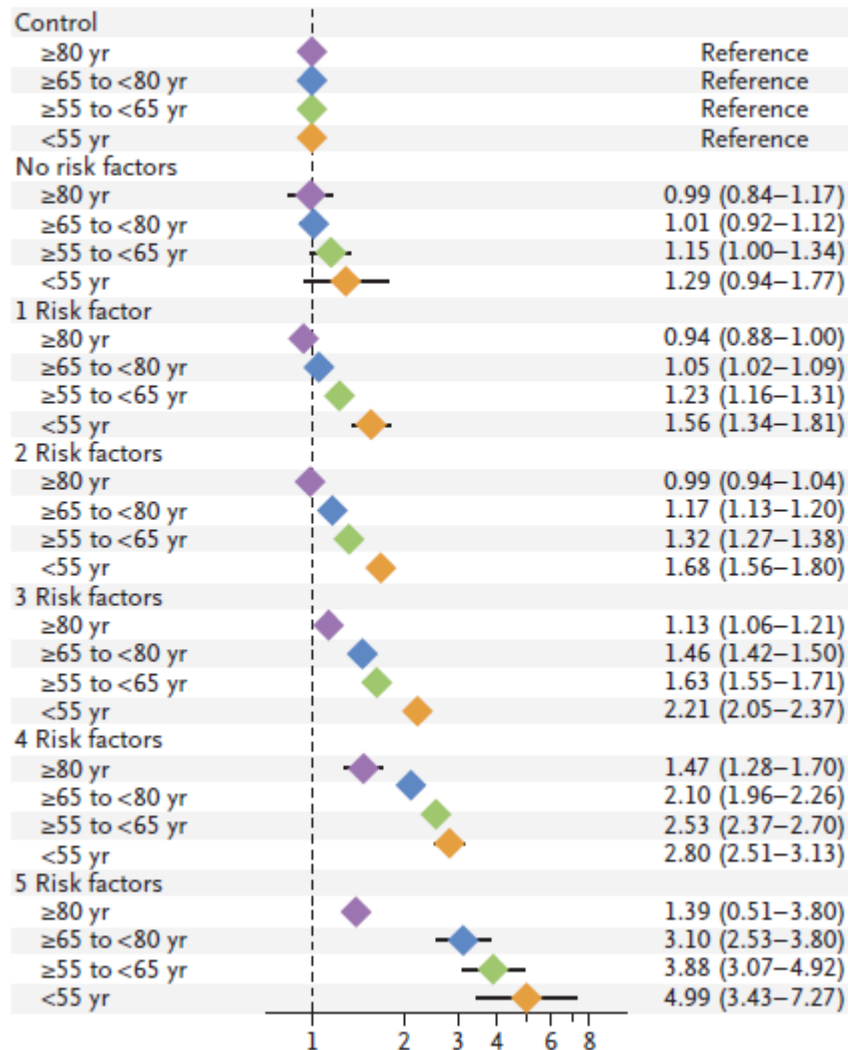


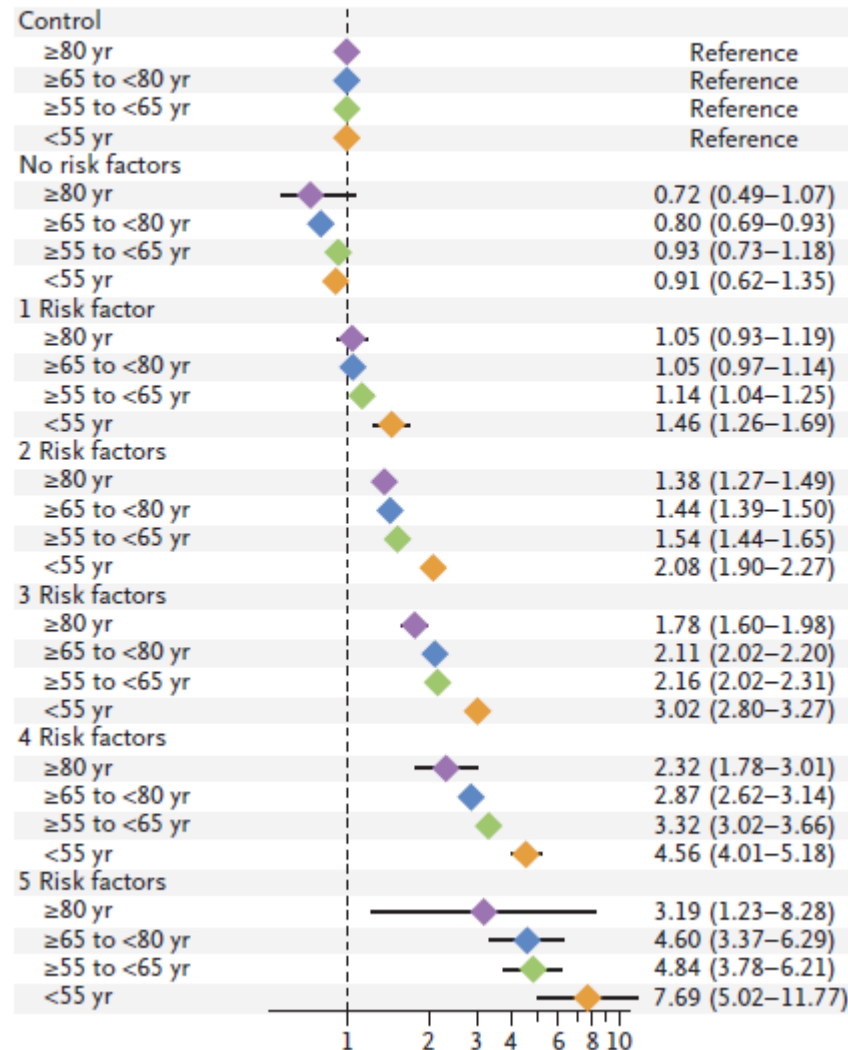
A Excess Mortality in Relation to Range of Risk-Factor Control

Hazard Ratio (95% CI)



B Excess Acute Myocardial Infarction in Relation to Range of Risk-Factor Control

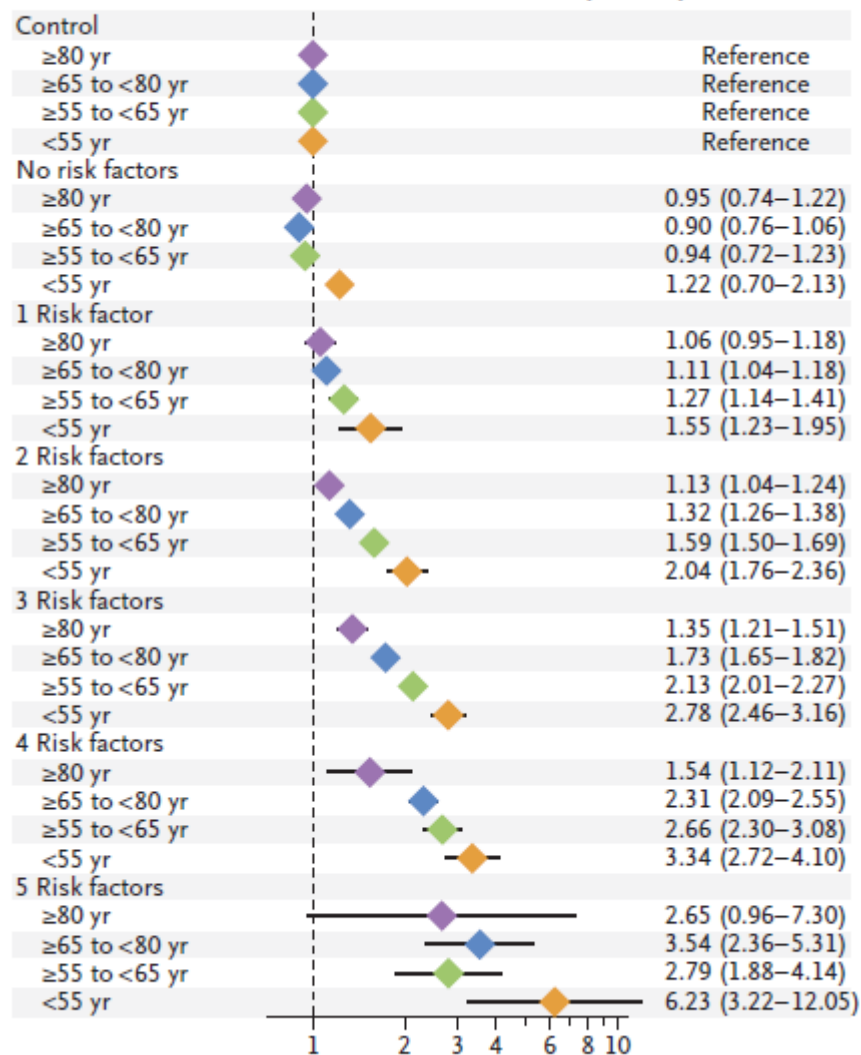
Hazard Ratio (95% CI)



次のグラフも同様に年齢が若い方が危険因子の影響が高いようです。

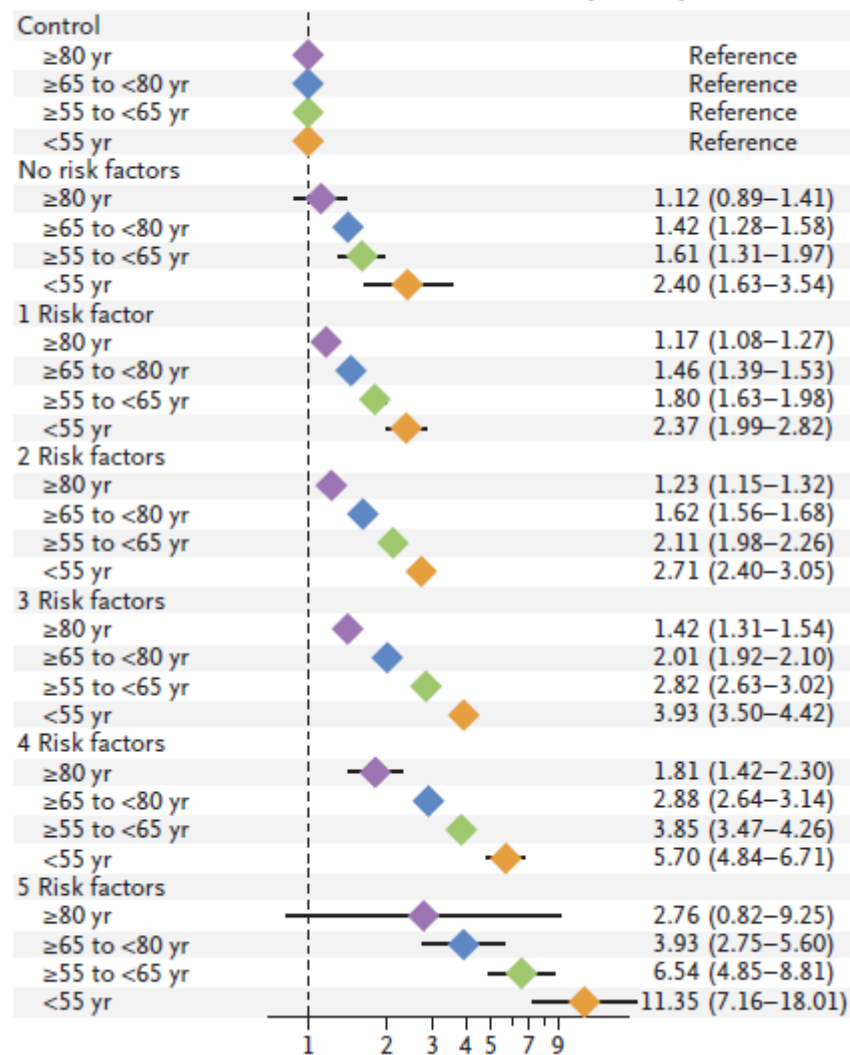
C Excess Stroke in Relation to Range of Risk-Factor Control

Hazard Ratio (95% CI)

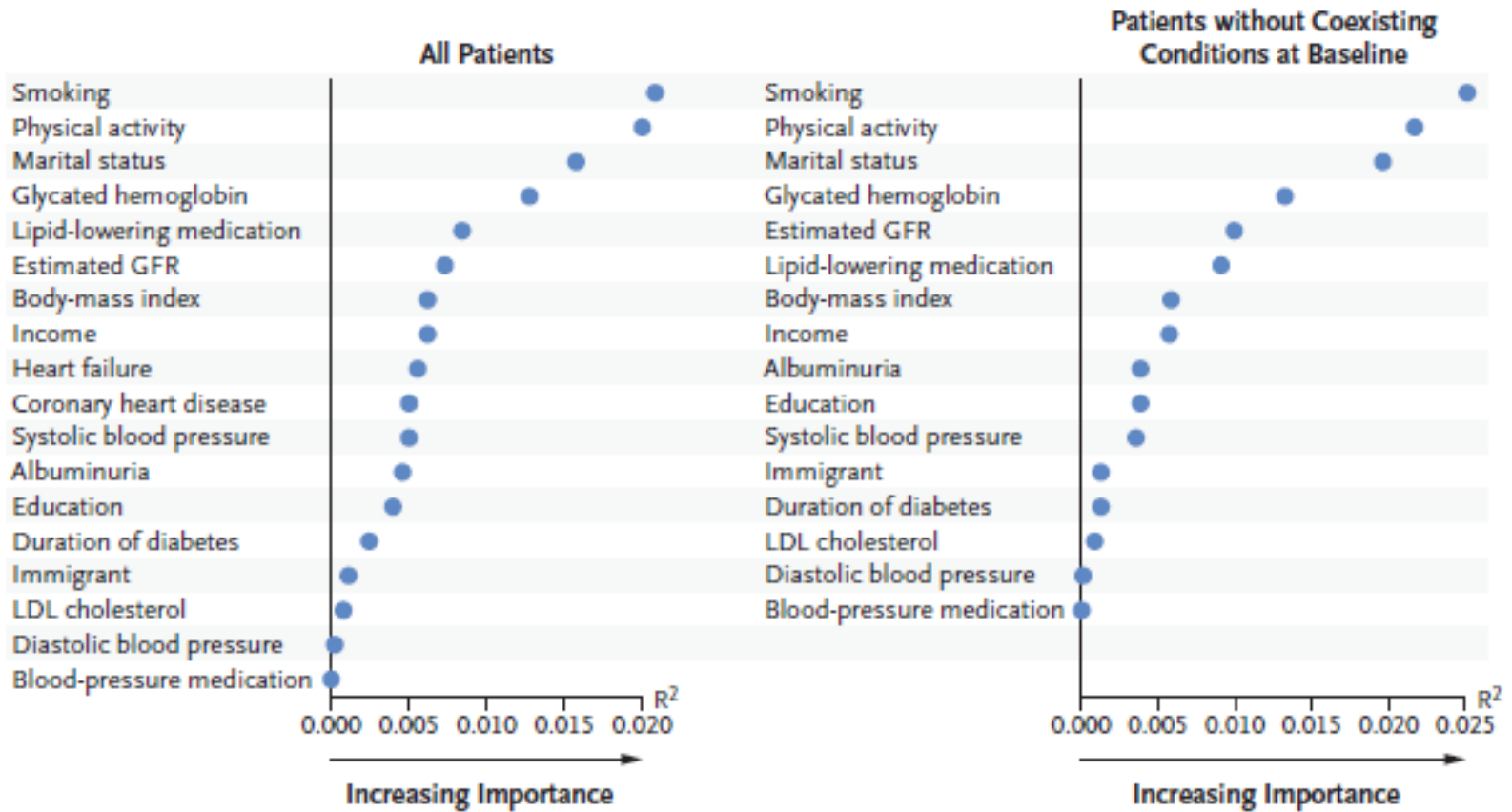


D Excess Heart Failure in Relation to Range of Risk-Factor Control

Hazard Ratio (95% CI)



A Death from Any Cause



危険因子のランキングですが左を参照ください。

右は合併症(心房細動、冠疾患、心不全)がベースラインでない場合です。

B Acute Myocardial Infarction

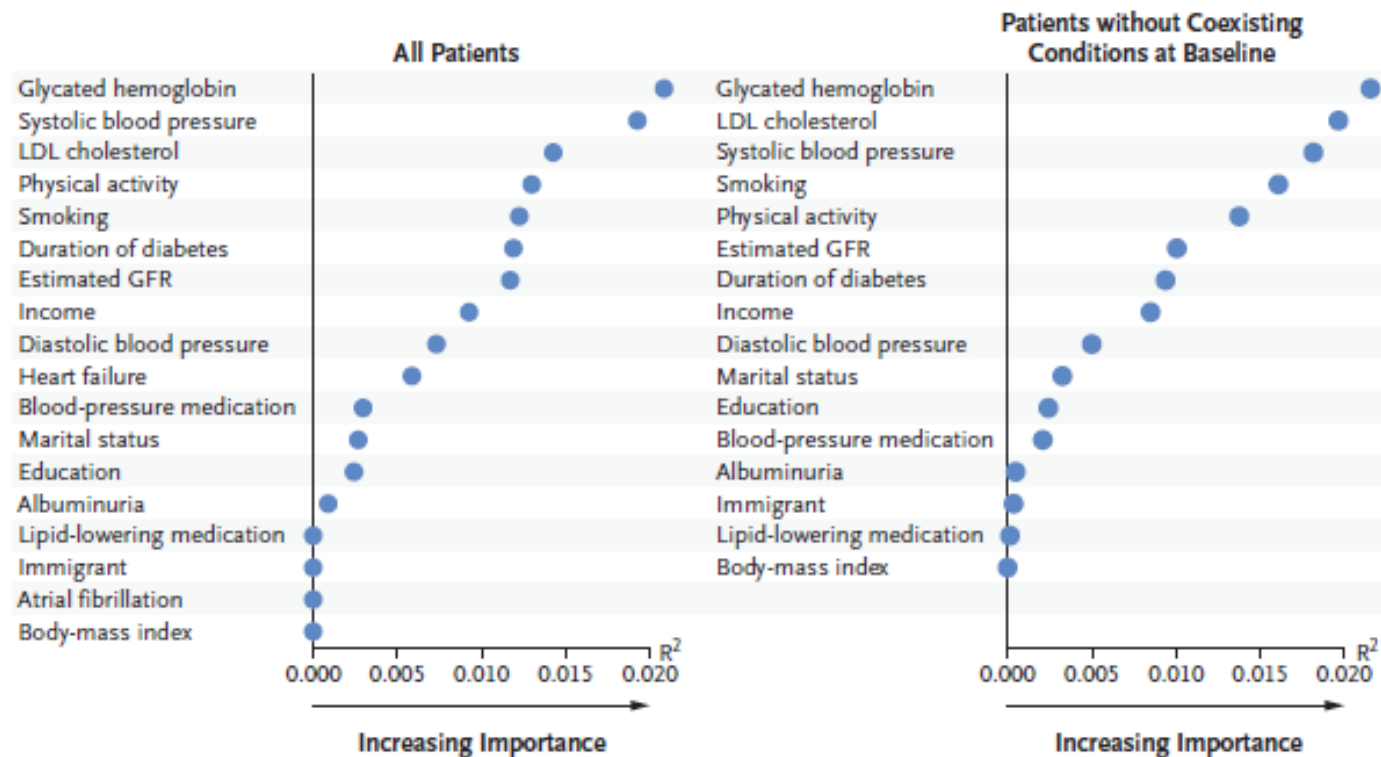
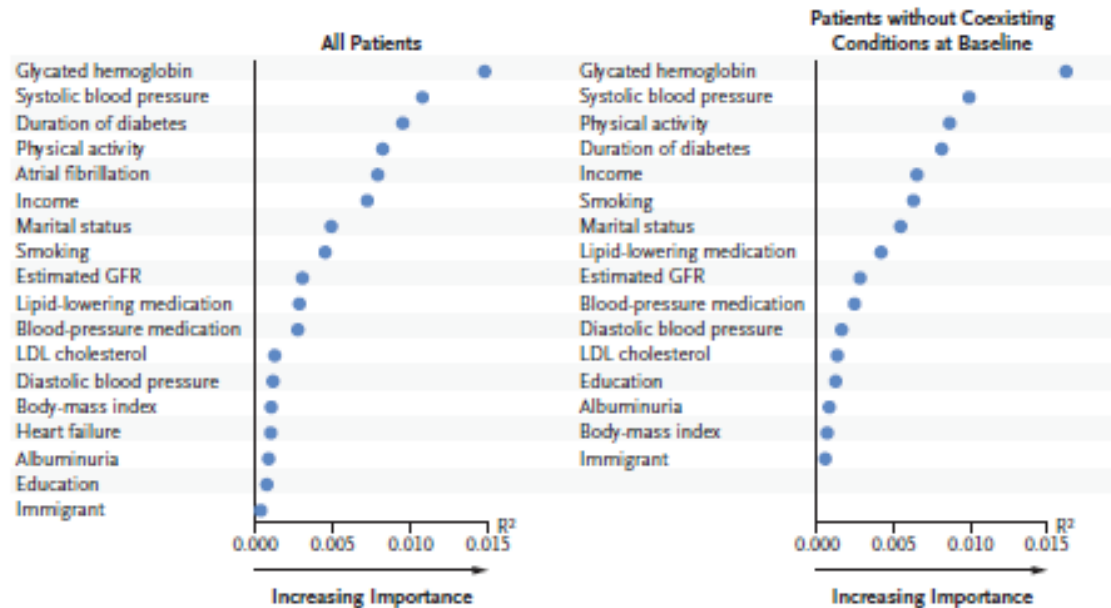


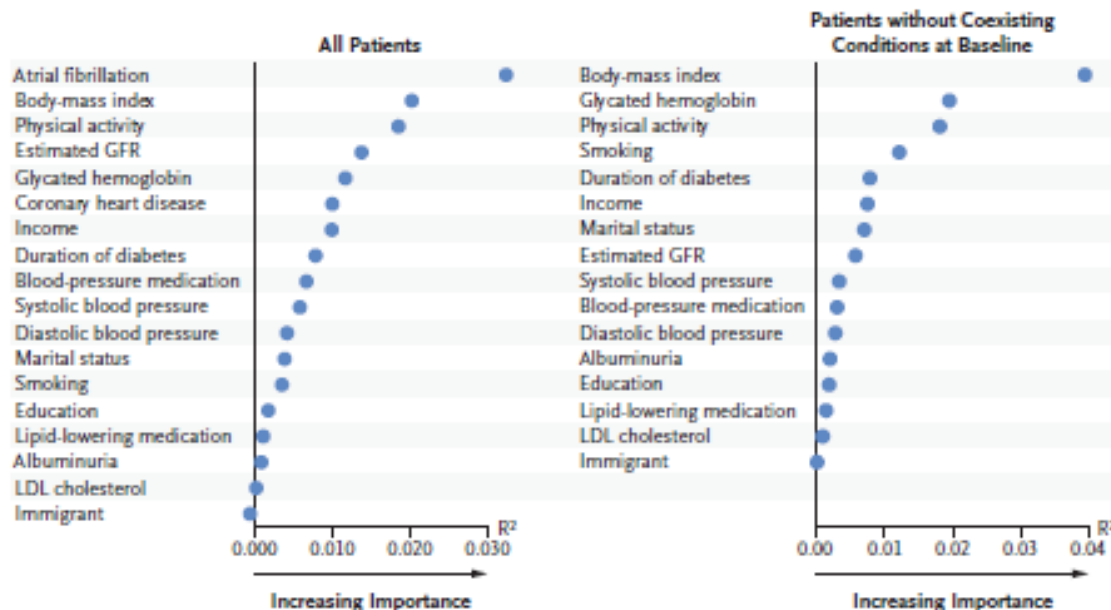
Figure 2. Relative Importance of Risk Factors for Predicting Death from Any Cause, Acute Myocardial Infarction, Stroke, and Hospitalization for Heart Failure among Patients with Type 2 Diabetes, with or without Preexisting Conditions.

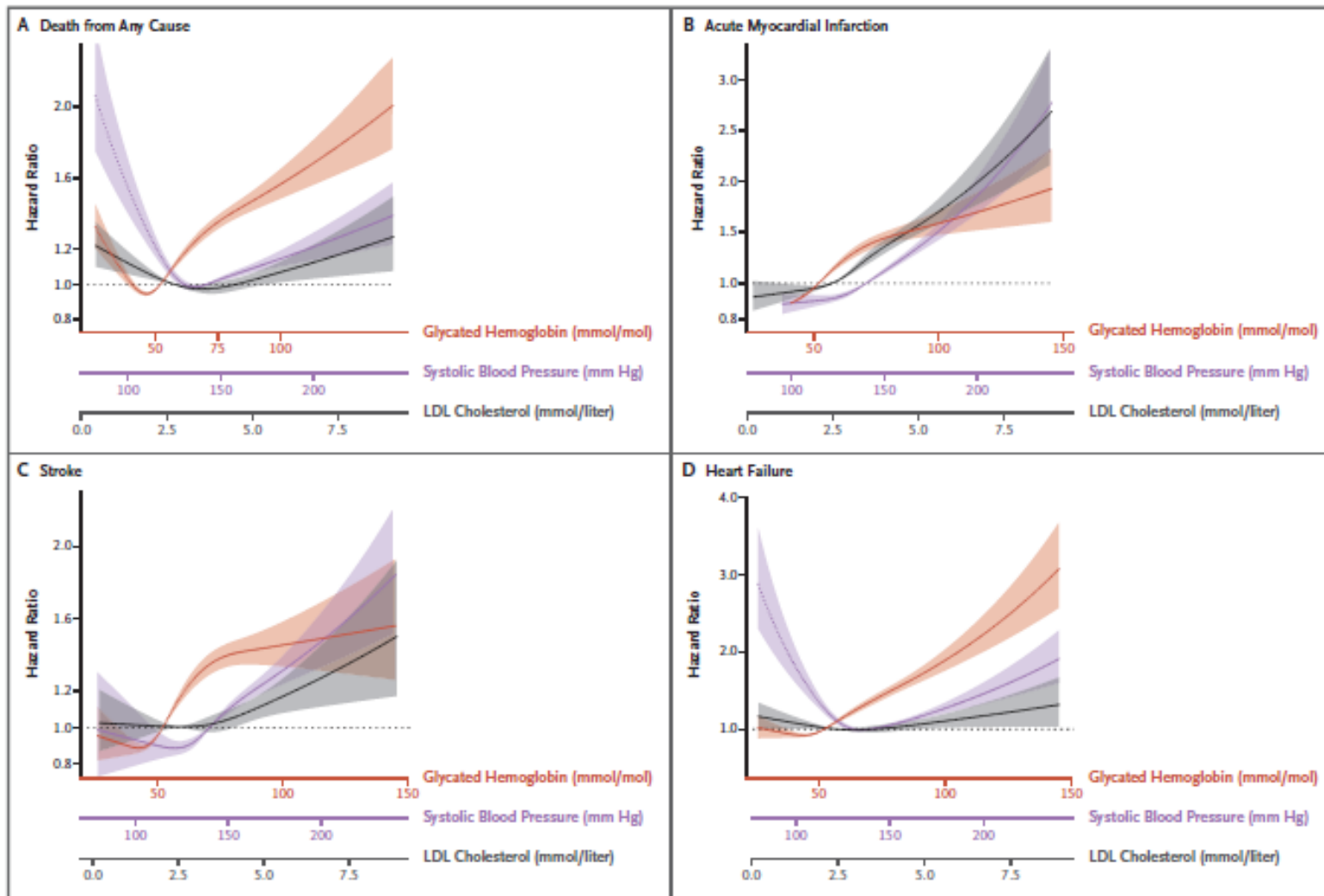
The estimated explained relative risk (i.e., relative importance) shows the strength of the association for various risk-factor variables (with values outside the target ranges) for predicting death (Panel A), acute myocardial infarction (Panel B), stroke (Panel C, facing page), and hospitalization for heart failure (Panel D, facing page) among patients with type 2 diabetes. Results were obtained from the first imputed data set; there were no significant differences between the sets. The analysis was restricted to patients with type 2 diabetes. We constructed a Cox hazard model for each outcome, which included every predictor. We then constructed a separate Cox model for each predictor and permuted covariables from each of these Cox models to estimate the explained relative risk (R^2). R^2 was generated by developed applications for the Cox model and is bounded between 0 and 1. Risk factors showing a clear and substantial R^2 measure, as compared with other adjacent predictors, are considered to be relevant. Full definitions of the risk factors and the values that were considered to be outside the target ranges are provided in the Supplementary Appendix. The body-mass index is the weight in kilograms divided by the square of the height in meters. LDL denotes low-density lipoprotein, and GFR glomerular filtration rate.

C Stroke



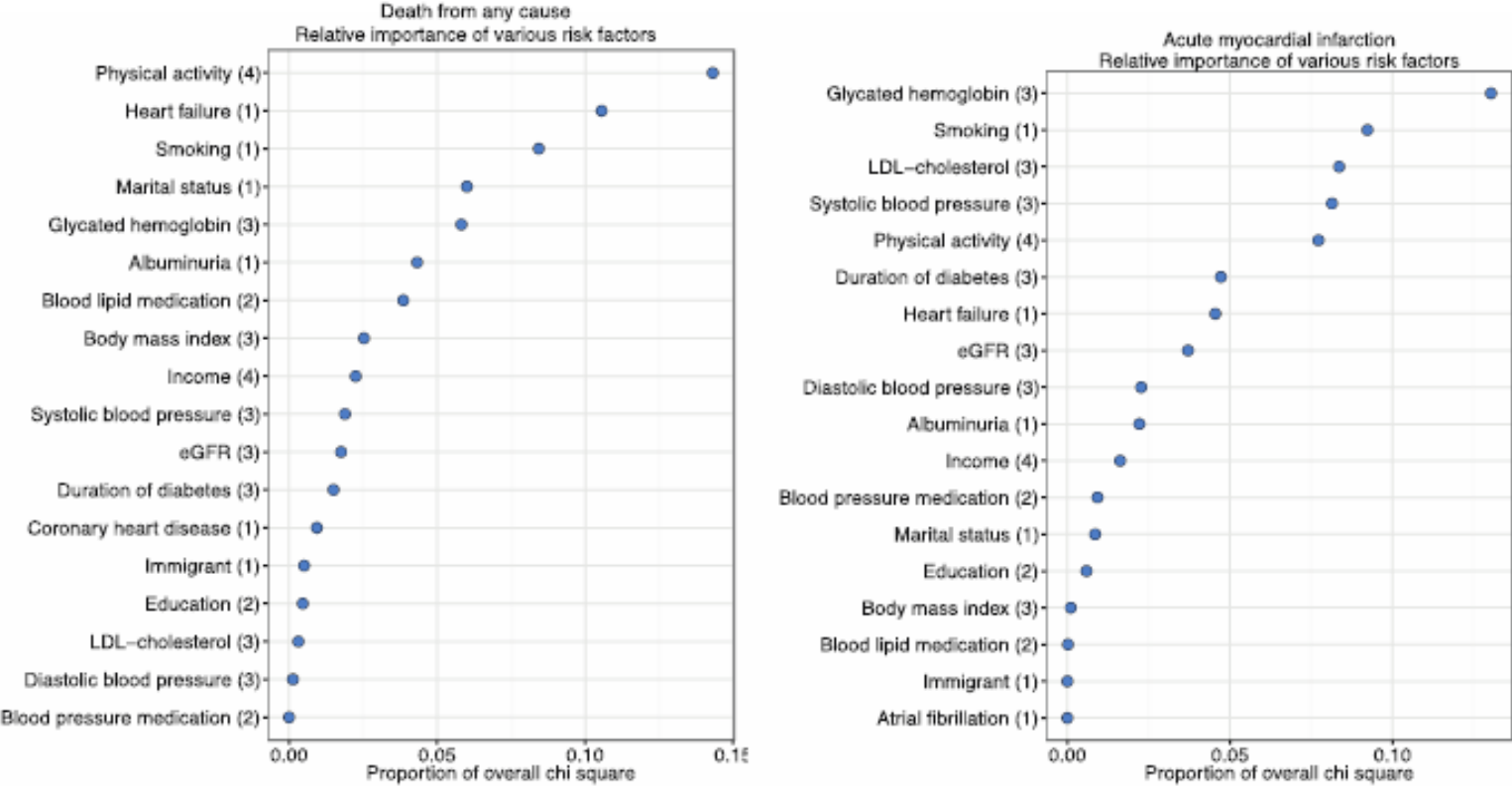
D Heart Failure

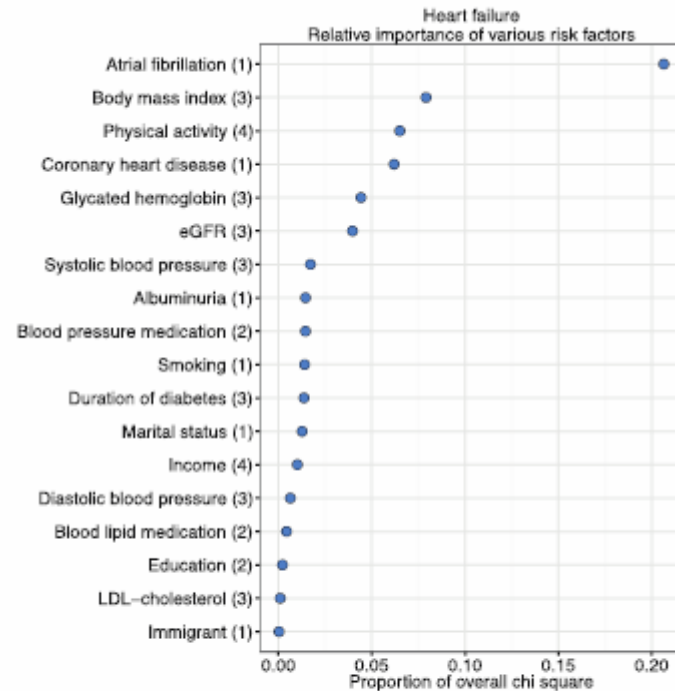
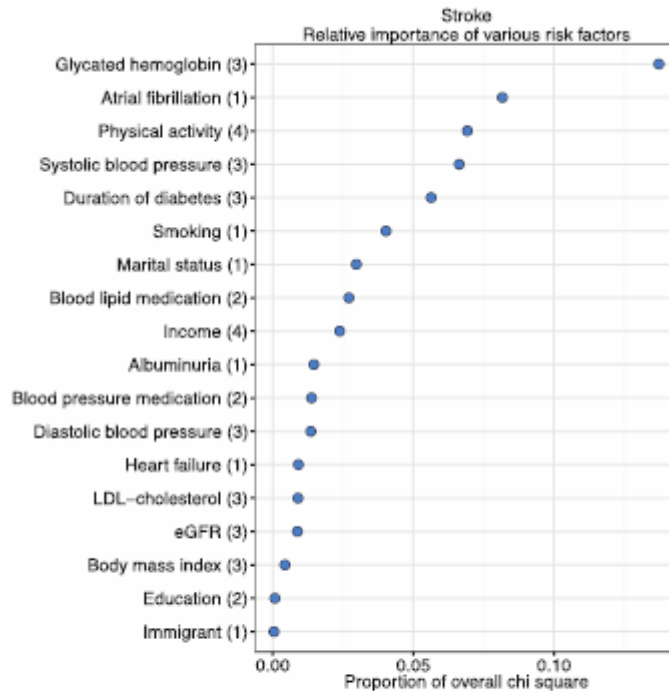




心筋梗塞に関してはA1c、血圧、LDLコレステロールの何れも低い方が良いでしょうが、死亡率、脳卒中、心不全はJカーブがありそうです。

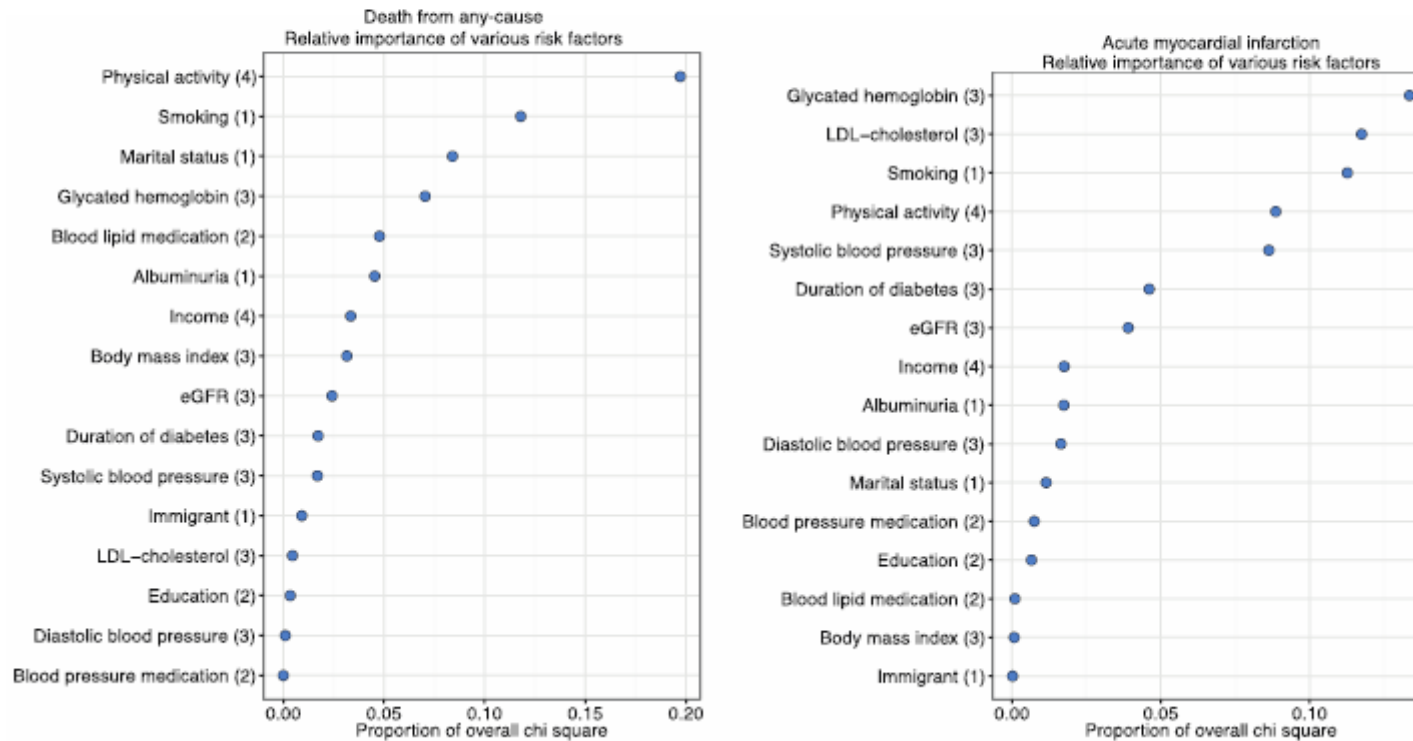
Figure S2. Relative importance of predictors for cardiovascular outcomes and all-cause mortality, by estimation of explained log-likelihood explained by each predictor, in a type 2 diabetes population with prior comorbidites

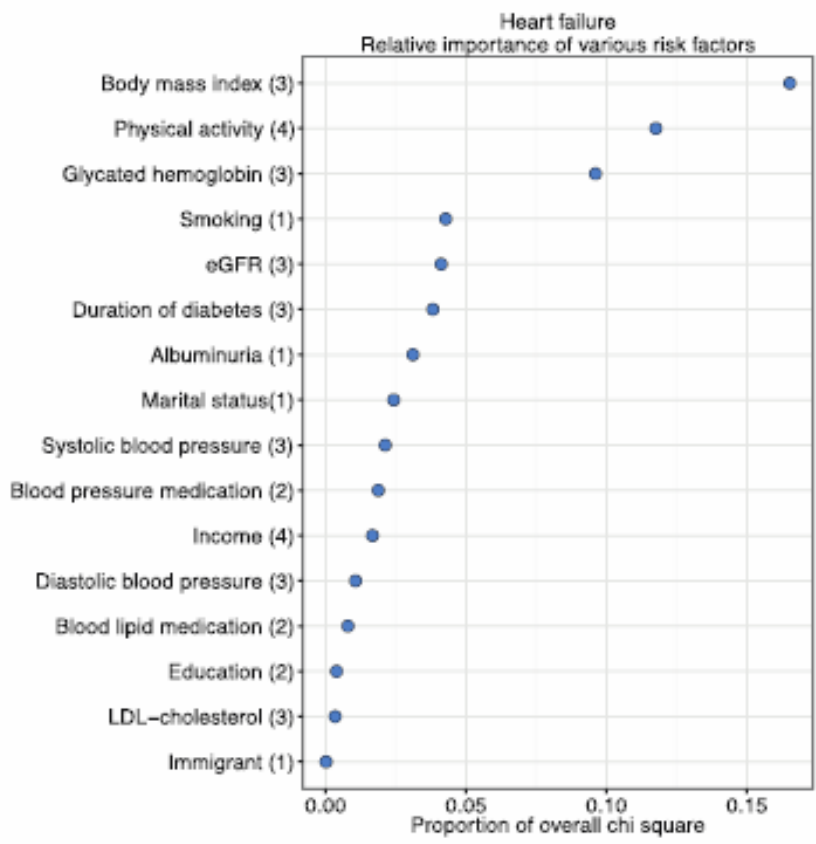
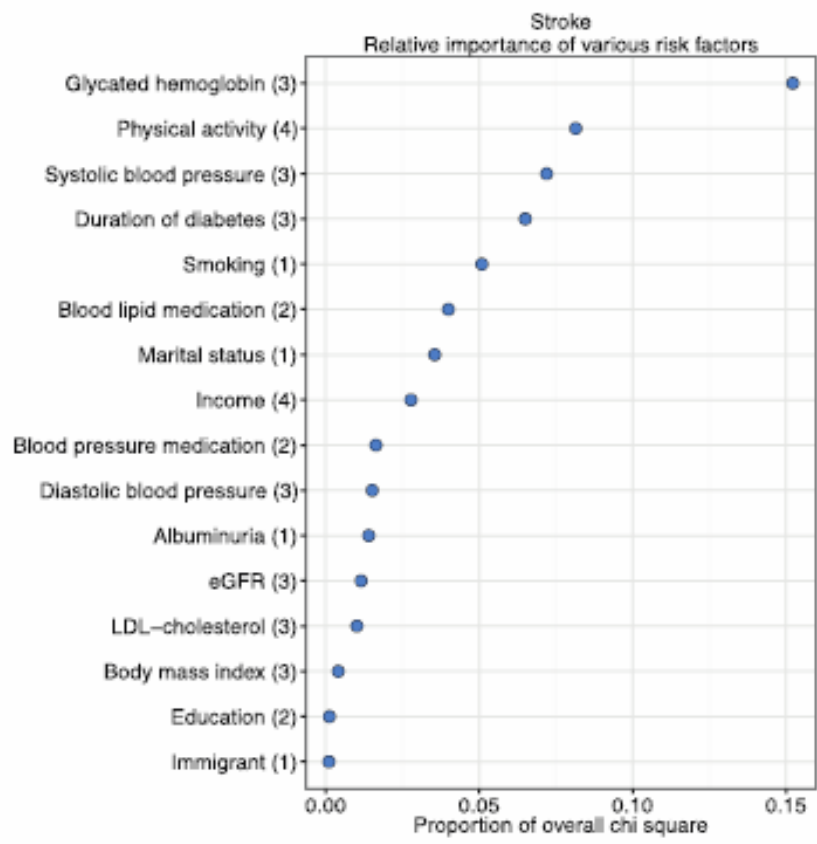




Legend: Relative variable importance was measured by means of explained log-likelihood for each predictor. Predictors was modeled as binary or multinomial categorical variables in the Cox model. The number presented in the parenthesis next to each predictor is the number of degrees of freedom used for each predictor.

Figure S3. Relative importance of predictors for cardiovascular outcomes and all-cause mortality, by estimation of explained log-likelihood explained by each predictor, in a type 2 diabetes population without prior comorbidities.





Legend: Relative variable importance was measured by means of explained log-likelihood for each predictor. Predictors was modeled as binary or multinomial categorical variables in the Cox model. The number presented in the parenthesis next to each predictor is the number of degrees of freedom used for each predictor.

Table S4. Complete baseline Characteristics of Patients with Type 2 Diabetes and Matched Controls

	Matched controls	Persons with diabetes with complete data on all five risk factor						
	Overall	Overall	Number of risk factors beyond therapeutic target					
Number of participants			No risk factors	1 risk factors	2 risk factors	3 risk factors	4 risk factors	5 risk factors
n, complete case data set	483,365	96,673	4,852	22,584	39,673	24,341	4,927	296
n, imputed data set 1	1,355,870	271,174	11,612	57,000	107,840	76,325	17,227	1,170
n, imputed data set 2	1,355,870	271,174	11,569	57,033	107,709	76,455	17,213	1,195
n, imputed data set 3	1,355,870	271,174	11,685	57,164	107,521	76,517	17,102	1,185
n, imputed data set 4	1,355,870	271,174	11,669	57,217	107,551	76,431	17,137	1,169
n, imputed data set 5	1,355,870	271,174	11,562	57,246	107,551	76,392	17,219	1,204
Women – no. (%)	238,885 (49.4)	47,777 (49.4)	2,525 (52.0)	11,528 (51.0)	19,799 (49.9)	11,713 (48.1)	2,085 (42.3)	127 (42.9)
Age (years) – mean (SD)§	60.58 (10.89)	60.58 (10.89)	60.96 (12.06)	61.04 (11.23)	60.93 (10.79)	60.00 (10.54)	58.32 (10.06)	57.27 (10.21)
Marital status – no. (%)								
Divorced	82,197 (17.0)	16,540 (17.1)	683 (14.1)	3,517 (15.6)	6,550 (16.5)	4,524 (18.6)	1,186 (24.1)	80 (27.0)
Married	277,842 (57.5)	53,754 (55.6)	2,930 (60.4)	13,131 (58.1)	22,482 (56.7)	12,790 (52.5)	2,296 (46.6)	125 (42.2)
Single	83,295 (17.2)	17,472 (18.1)	804 (16.6)	3,754 (16.6)	6,885 (17.4)	4,837 (19.9)	1,118 (22.7)	74 (25.0)
Widowed	40,001 (8.3)	8,907 (9.2)	435 (9.0)	2,182 (9.7)	3,756 (9.5)	2,190 (9.0)	327 (6.6)	17 (5.7)
Education – no. (%)								
9 years or less (%)	348,899 (73.0)	77,778 (81.7)	3,755 (78.5)	17,617 (79.1)	31,781 (81.3)	20,142 (84.1)	4,223 (87.2)	260 (89.0)
Income quintile – no. (%)								
Income quintile 1 (lowest)	84,831 (17.6)	2,0443 (21.1)	1,030 (21.2)	4,667 (20.7)	8,345 (21.0)	5,294 (21.7)	1,038 (21.1)	69 (23.3)
Income quintile 2	75,027 (15.5)	18,453 (19.1)	957 (19.7)	4,320 (19.1)	7,384 (18.6)	4,698 (19.3)	1,023 (20.8)	71 (24.0)
Income quintile 3	92,811 (19.2)	20,610 (21.3)	1,075 (22.2)	4,782 (21.2)	8,396 (21.2)	5,169 (21.2)	1,126 (22.9)	62 (20.9)
Income quintile 4	114,919 (23.8)	20,808 (21.5)	976 (20.1)	4,785 (21.2)	8,606 (21.7)	5,298 (21.8)	1,080 (21.9)	63 (21.3)
Income quintile 5 (highest)	115,747 (23.9)	16,359 (16.9)	814 (16.8)	4,030 (17.8)	6,942 (17.5)	3,882 (15.9)	660 (13.4)	31 (10.5)
Immigrants – no. (%)	60,147 (12.4)	17,310 (17.9)	869 (17.9)	3,909 (17.3)	6,800 (17.1)	4,591 (18.9)	1,065 (21.6)	76 (25.7)

ベースラインを表示

Table S4. Complete baseline Characteristics of Patients with Type 2 Diabetes and Matched Controls

	Matched controls	Persons with diabetes with complete data on all five risk factor						
	Overall	Overall	Number of risk factors beyond therapeutic target					
Number of participants			No risk factors	1 risk factors	2 risk factors	3 risk factors	4 risk factors	5 risk factors
Coexisting conditions – no. (%)†								
Atrial fibrillation – no. (%)	11,294 (2.3)	3,672 (3.8)	292 (6.0)	1,047 (4.6)	1,423 (3.6)	777 (3.2)	125 (2.5)	8 (2.7)
Coronary heart disease – no. (%)	14,127 (2.9)	6,433 (6.7)	636 (13.1)	1,905 (8.4)	2,403 (6.1)	1,220 (5.0)	253 (5.1)	16 (5.4)
Heart failure – no. (%)	4,619 (1.0)	2,320 (2.4)	214 (4.4)	609 (2.7)	880 (2.2)	500 (2.1)	110 (2.2)	7 (2.4)
Information in the National Diabetes Register								
Duration of diabetes – mean (SD)		4.53 (5.75)	4.09 (5.28)	4.08 (5.35)	4.29 (5.61)	5.19 (6.18)	5.51 (6.41)	6.09 (6.60)
Age at onset of diabetes – mean (SD)		56.09 (11.11)	56.84 (12.20)	56.97 (11.44)	56.69 (11.02)	54.87 (10.64)	52.76 (10.20)	51.34 (11.11)
Glycated hemoglobin – mean (SD)								
Millimoles per mole‡		53.22 (13.96)	44.31 (5.14)	46.75 (8.67)	51.10 (12.32)	61.58 (15.25)	66.28 (15.01)	70.51 (15.45)
Percent*		7.02 (± 1.28)	6.21 (± 0.47)	6.43 (± 0.79)	6.83 (± 1.13)	7.79 (± 1.39)	8.22 (± 1.37)	8.60 (± 1.41)
LDL cholesterol – mmol/l (SD)		3.00 (0.95)	1.98 (0.39)	2.55 (0.87)	3.09 (0.92)	3.38 (0.85)	3.50 (0.84)	3.65 (0.81)
LDL cholesterol – mg/dl (SD)		116.0 (36.7)	76.5 (15.1)	98.6 (33.6)	119.5 (35.5)	130.7 (32.8)	135.3 (32.4)	141.1 (31.3)
Total cholesterol – mean (SD)		5.11 (1.05)	4.04 (0.58)	4.64 (0.95)	5.20 (1.01)	5.51 (0.97)	5.67 (0.98)	5.88 (0.99)
Smoker – no. (%)		16486 (17.1)	0 (0.0)	886 (3.9)	4268 (10.8)	7125 (29.3)	3911 (79.4)	296 (100.0)
Body Mass Index – mean (SD)		30.36 (5.53)	29.53 (5.48)	29.85 (5.37)	30.40 (5.48)	30.85 (5.68)	30.74 (5.67)	30.85 (5.86)
Systolic blood pressure – mean (SD)		137.94 (17.01)	123.02 (9.38)	131.58 (15.38)	139.37 (16.63)	142.96 (16.63)	144.84 (17.17)	147.79 (18.71)
Diastolic blood pressure – mean (SD)		79.16 (9.57)	69.54 (5.88)	75.08 (8.89)	80.08 (9.17)	82.35 (8.88)	83.89 (8.92)	84.53 (9.88)
Macroalbuminuria – no. (%)		4695 (4.9)	0 (0.0)	177 (0.8)	908 (2.3)	1802 (7.4)	1512 (30.7)	296 (100.0)
eGFR – mean (SD)**		84.19 (21.52)	82.29 (20.71)	83.01 (20.59)	83.43 (20.94)	85.90 (22.39)	88.76 (24.72)	91.93 (29.16)
Treatment – no. (%)								
Statin – no (%)		57,945 (61.5)	2,907 (61.5)	13,312 (60.4)	24,206 (62.6)	14,449 (61.0)	2,862 (59.8)	209 (73.1)
Antihypertensive – no (%)		40,553 (42.4)	2,934 (61.0)	11,035 (49.3)	15,839 (40.4)	8,809 (36.7)	1,823 (37.6)	113 (38.4)

§ Plus-minus values are means ± SD. Controls were matched for age, sex, and county.

† Diagnostic codes for the conditions listed are from the International Classification of Diseases, 9th Revision and 10th Revision.

‡ Concentrations of glycated hemoglobin were based on values from the International Federation of Clinical Chemistry and Laboratory Medicine.

* Percentages for the glycated hemoglobin level were based on values from the National Glycohemoglobin Standardization Program.

** The GFR was estimated with the use of the Modification of Diet in Renal Disease equation.