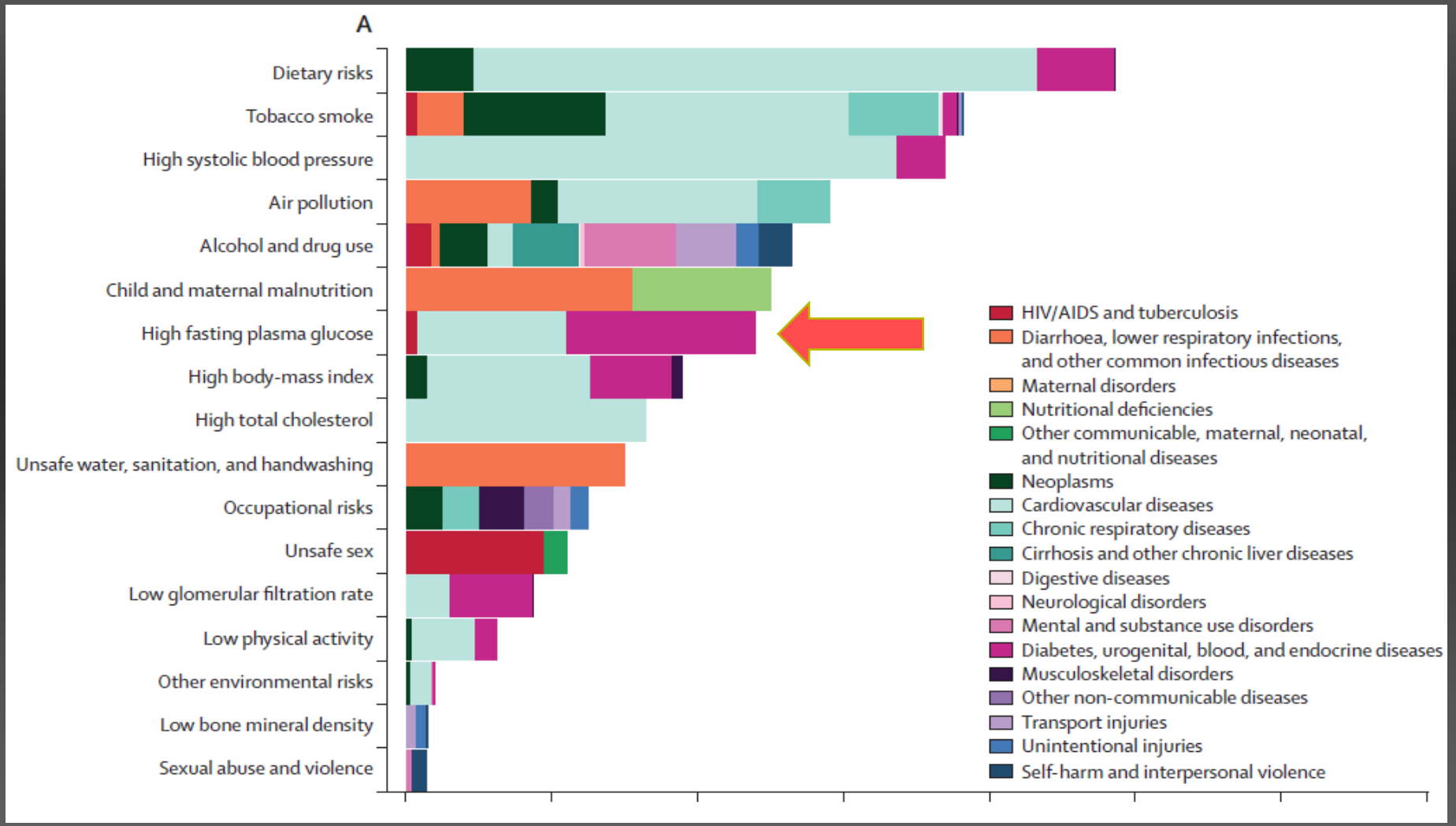
Maladie coronaire du diabétique

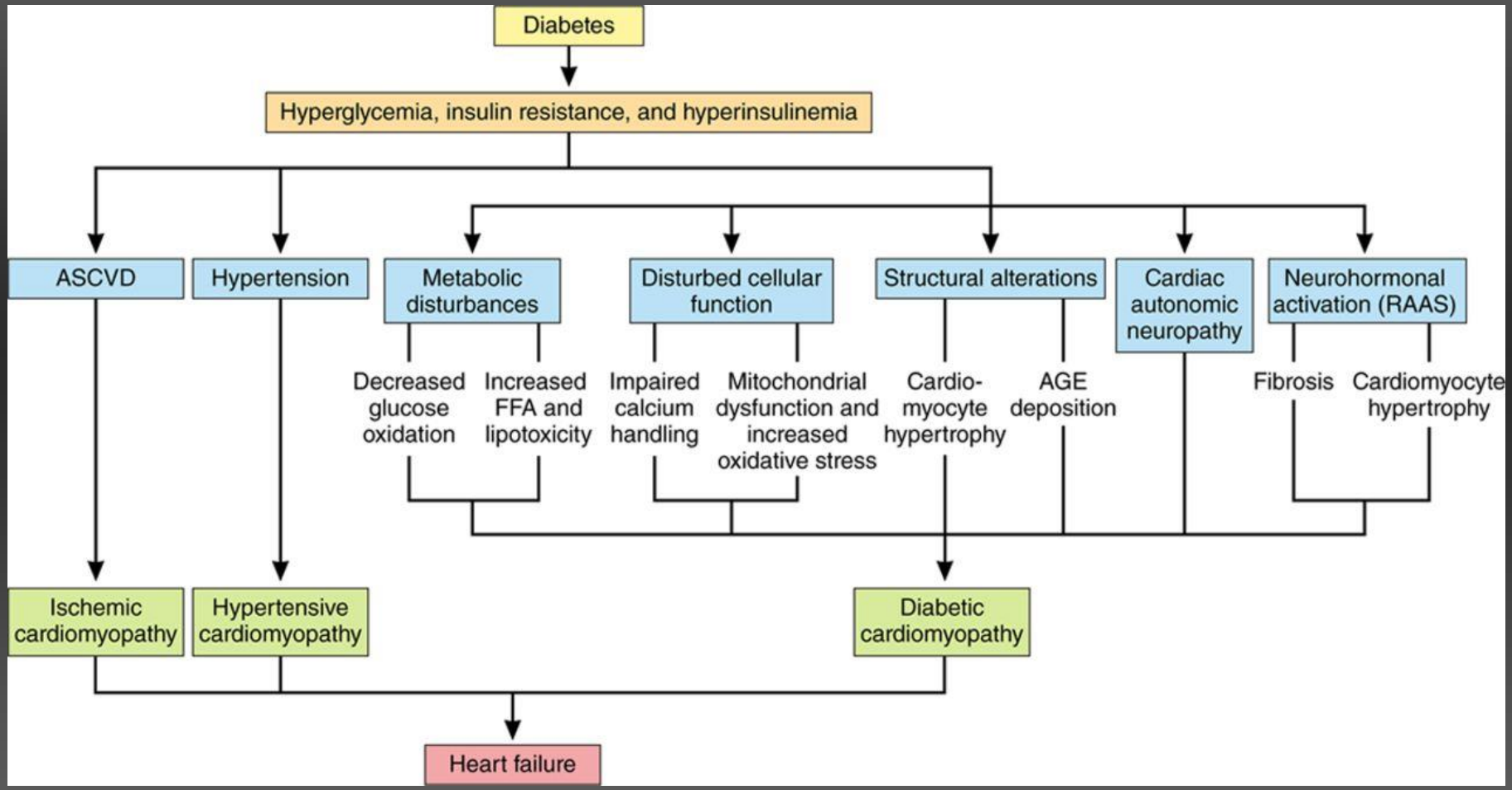
Y. Cottin (Dijon - FR)

Global, regional, and national comparative risk assessment of 79 behavioural, environmental and occupational, and metabolic risks or clusters of risks, 1990–2015: a systematic analysis for the Global Burden of Disease Study 2015



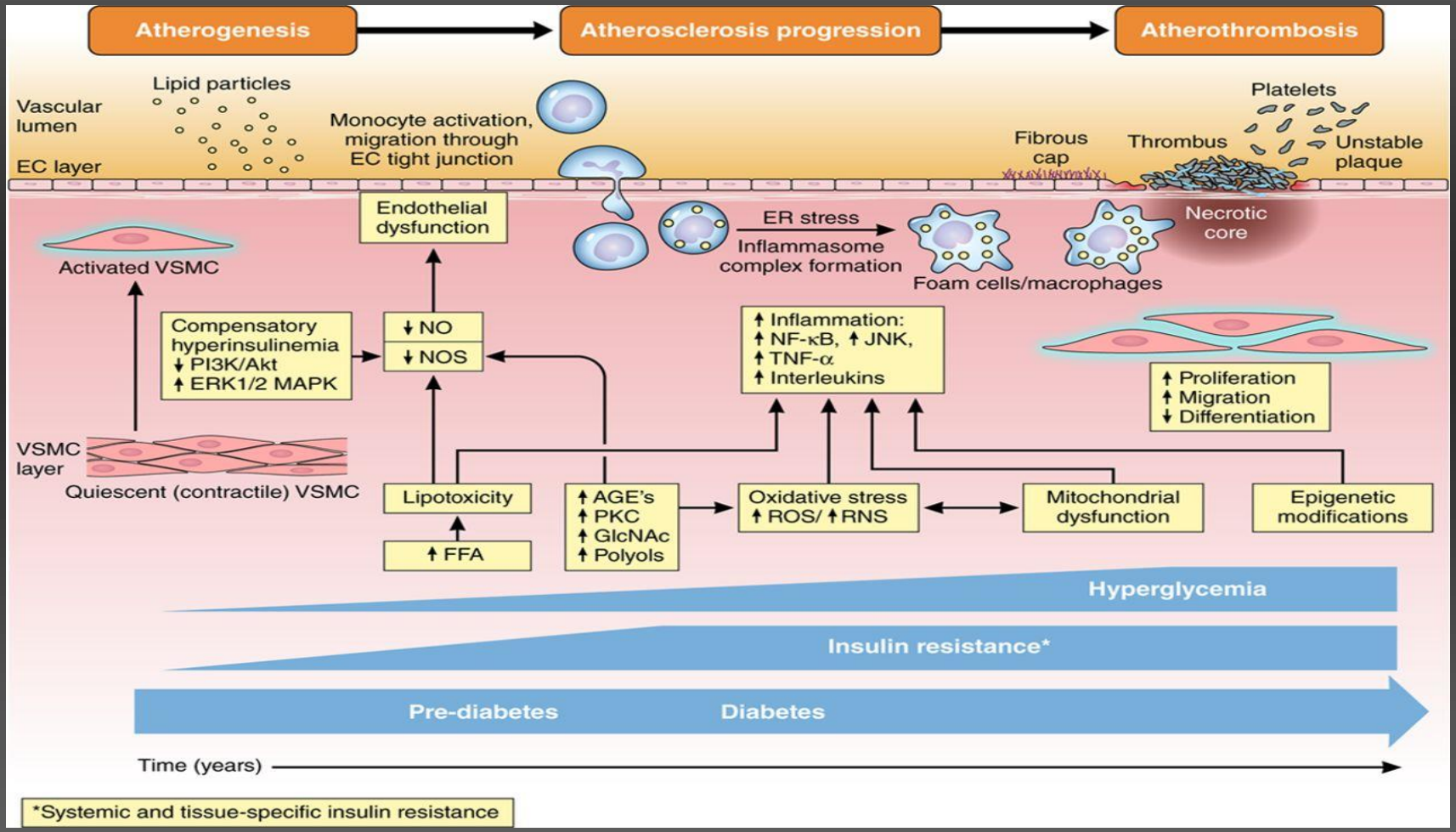
Lancet 2016;388:1659-1724

Pathophysiologic mechanisms of heart failure in diabetes mellitus



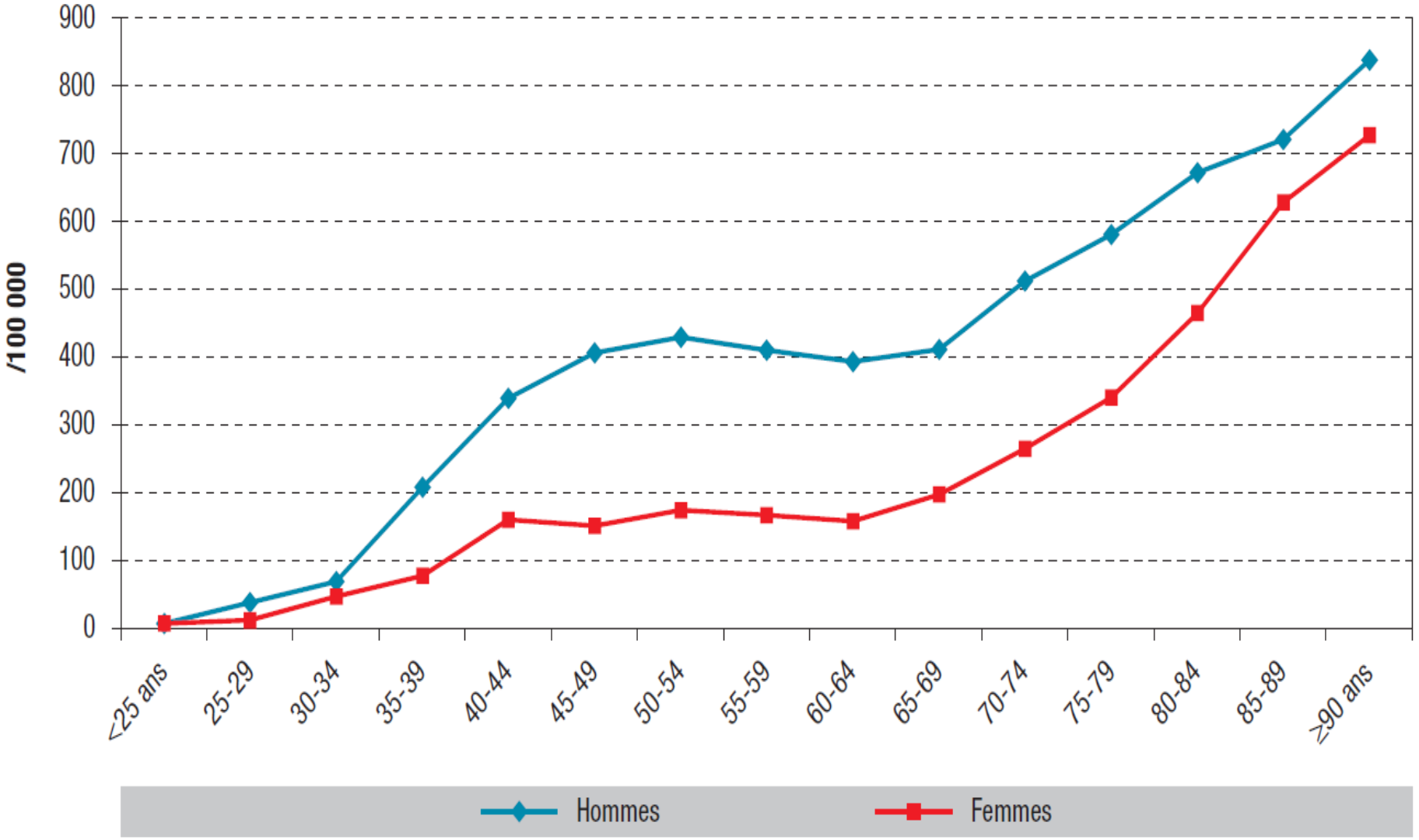
Cecilia C. Low Wang et al. Circulation. 2016;133:2459-2502

Clinical Update: Cardiovascular Disease in Diabetes Mellitus: Atherosclerotic Cardiovascular Disease and Heart Failure in Type 2 Diabetes Mellitus - Mechanisms, Management, and Clinical Considerations



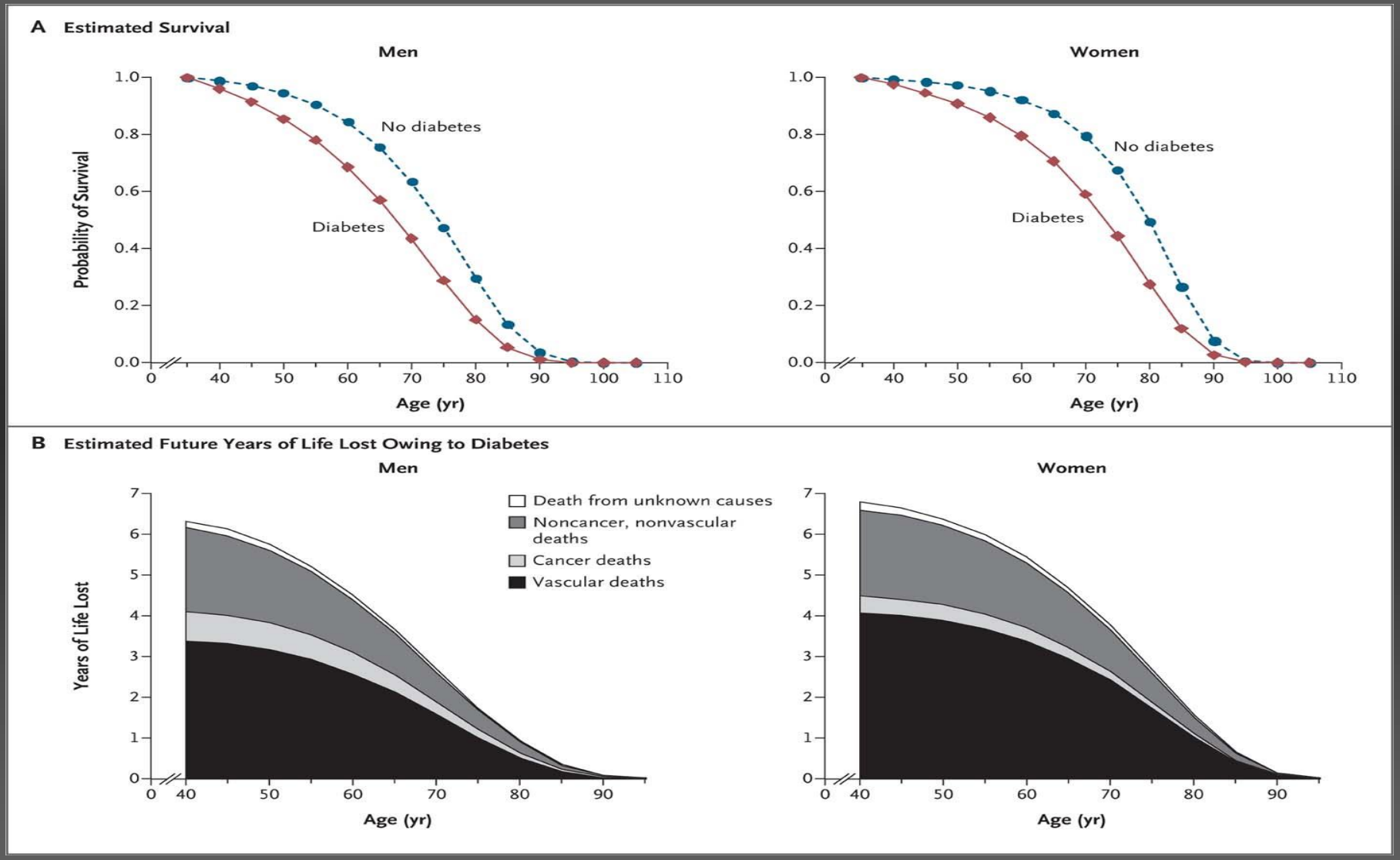
Cecilia C. Low Wang et al. Circulation. 2016;133:2459-2502

Taux de personnes diabétiques traitées pharmacologiquement hospitalisées pour infarctus du myocarde (pour 100 000 personnes diabétiques) selon le sexe et l'âge, France entière, 2013



Fosse-Edorth S, et al. BEH. 2015

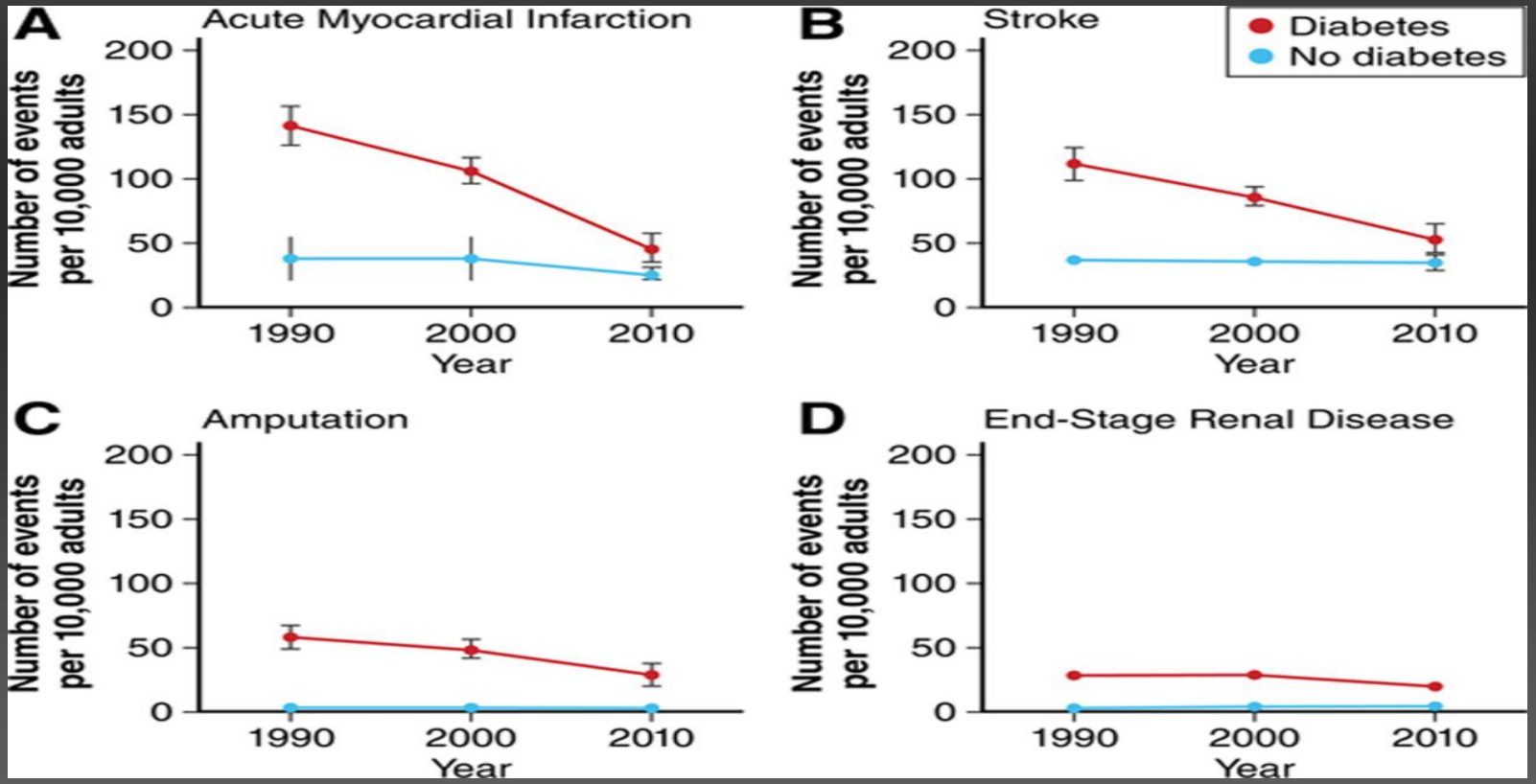
Diabetes Mellitus, Fasting Glucose, and Risk of Cause-Specific Death



The Emerging Risk Factors Collaboration. N Engl J Med 2011; 364:829-841

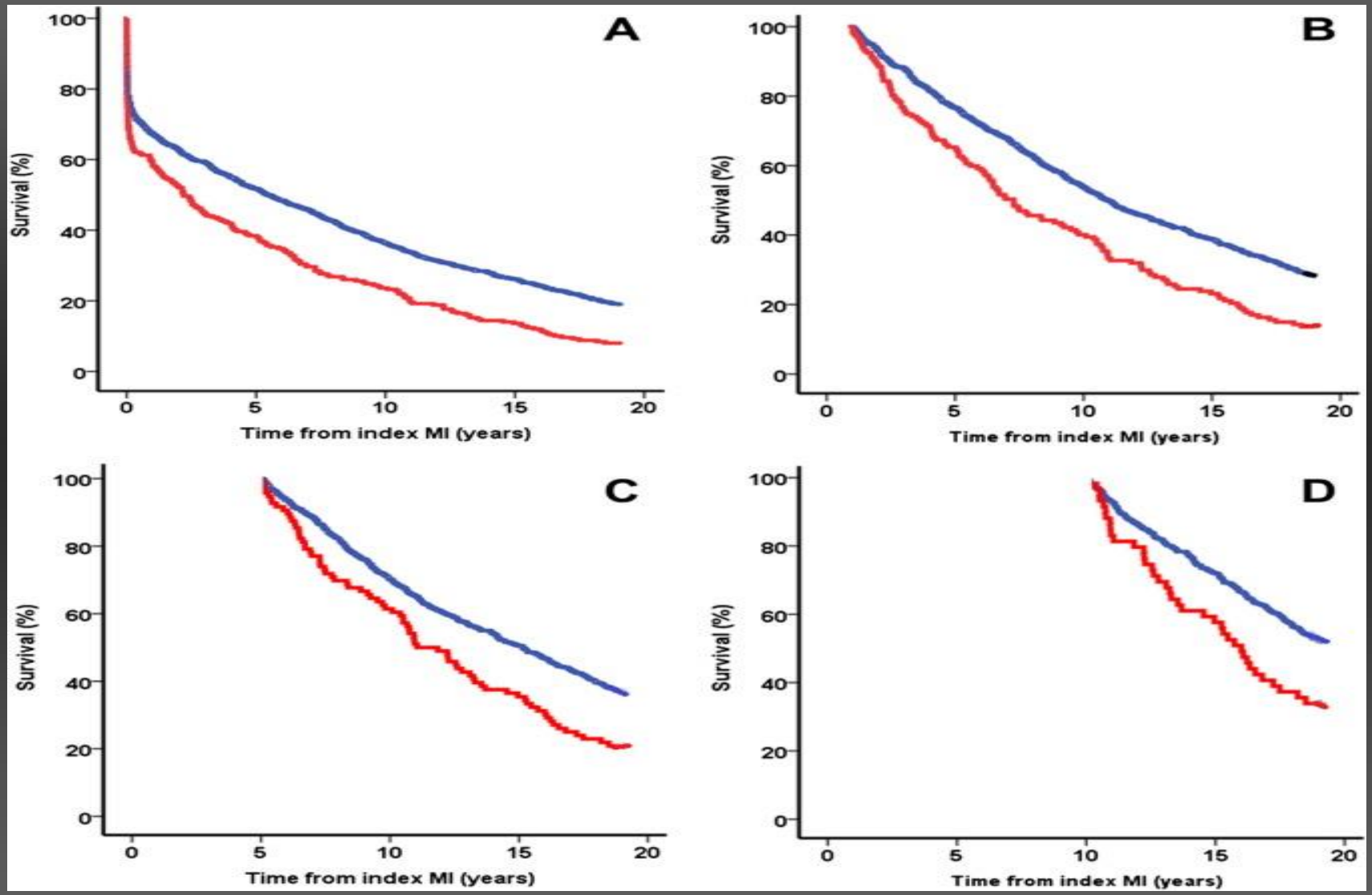
Clinical Update: Cardiovascular Disease in Diabetes Mellitus: Atherosclerotic Cardiovascular Disease and Heart Failure in Type 2 Diabetes Mellitus - Mechanisms, Management, and Clinical Considerations

Rates of vascular diseases are decreasing in persons with diabetes mellitus but are still higher than in persons without diabetes mellitus: 20 years of surveillance.



Cecilia C. Low Wang et al. Circulation. 2016;133:2459-2502

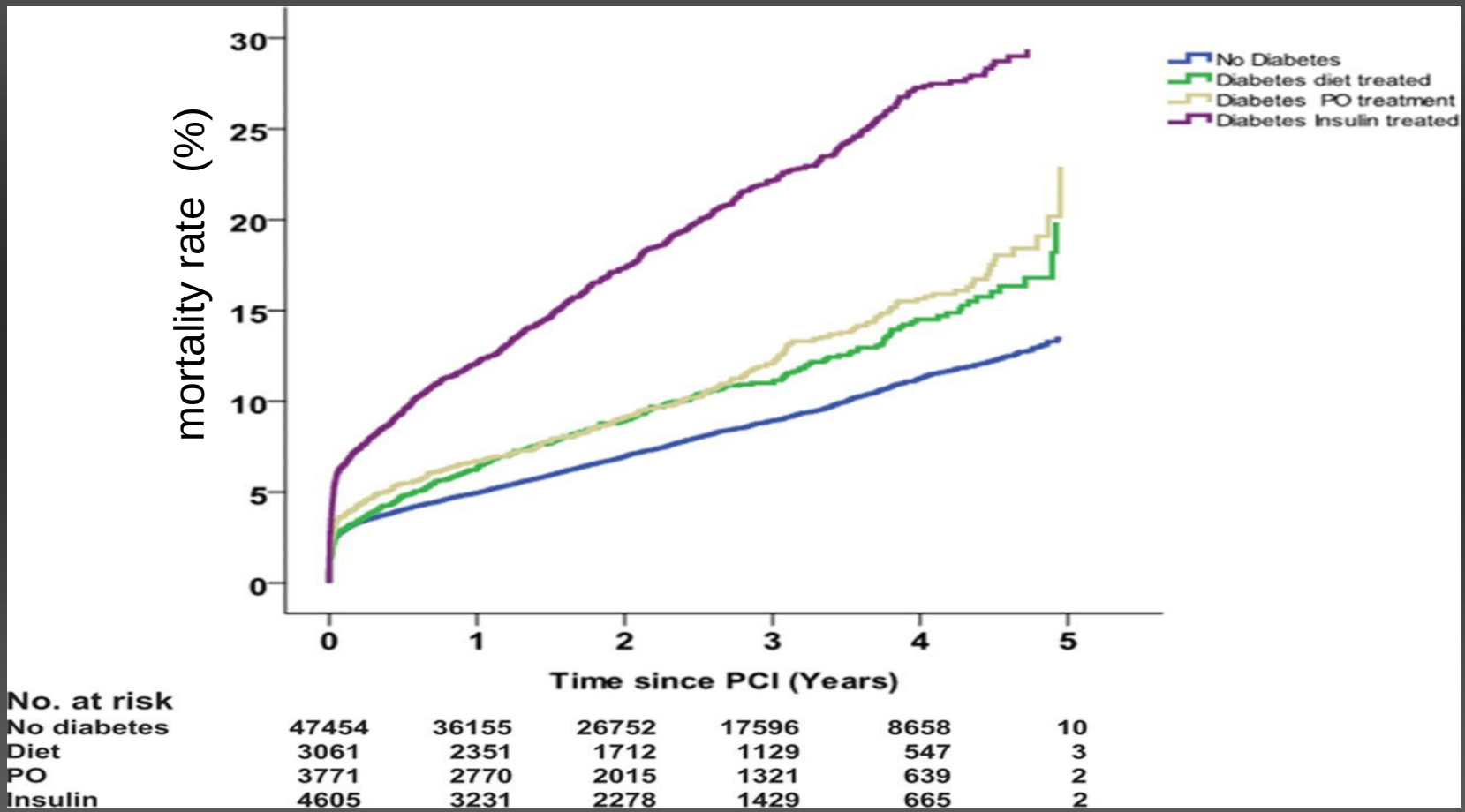
An evaluation of 20 year survival in patients with diabetes mellitus and acute myocardial infarction



Patel PA, et al. Int J of Cardiol. 2016;203:141–144

High Event Rate After a First Percutaneous Coronary Intervention in Patients With Diabetes Mellitus

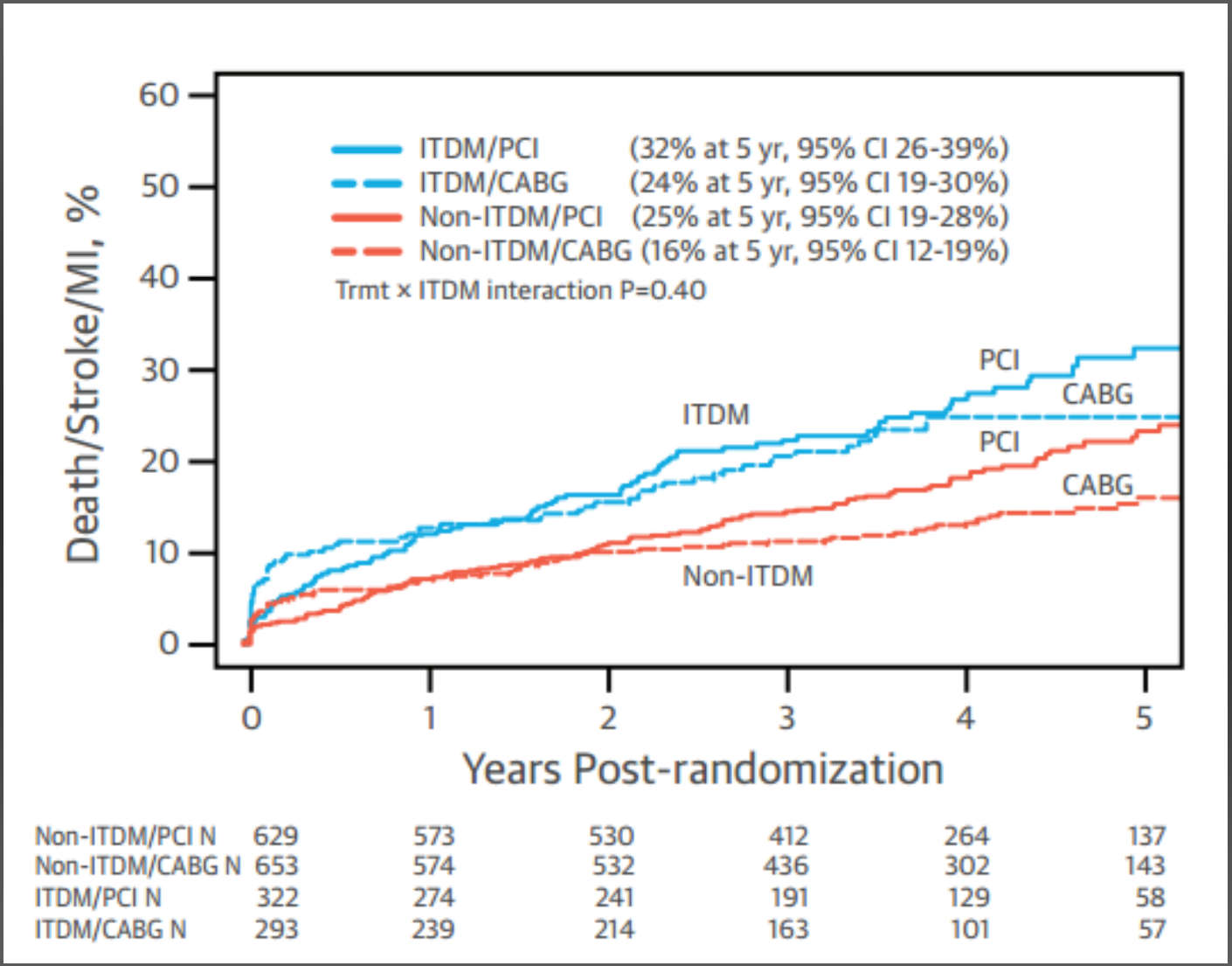
Results From the Swedish Coronary Angiography and Angioplasty Registry



No. at risk						
No diabetes	47454	36155	26752	17596	8658	10
Diet	3061	2351	1712	1129	547	3
PO	3771	2770	2015	1321	639	2
Insulin	4605	3231	2278	1429	665	2

Viveca Ritsinger et al. Circ Cardiovasc Interv. 2015;8:e002328

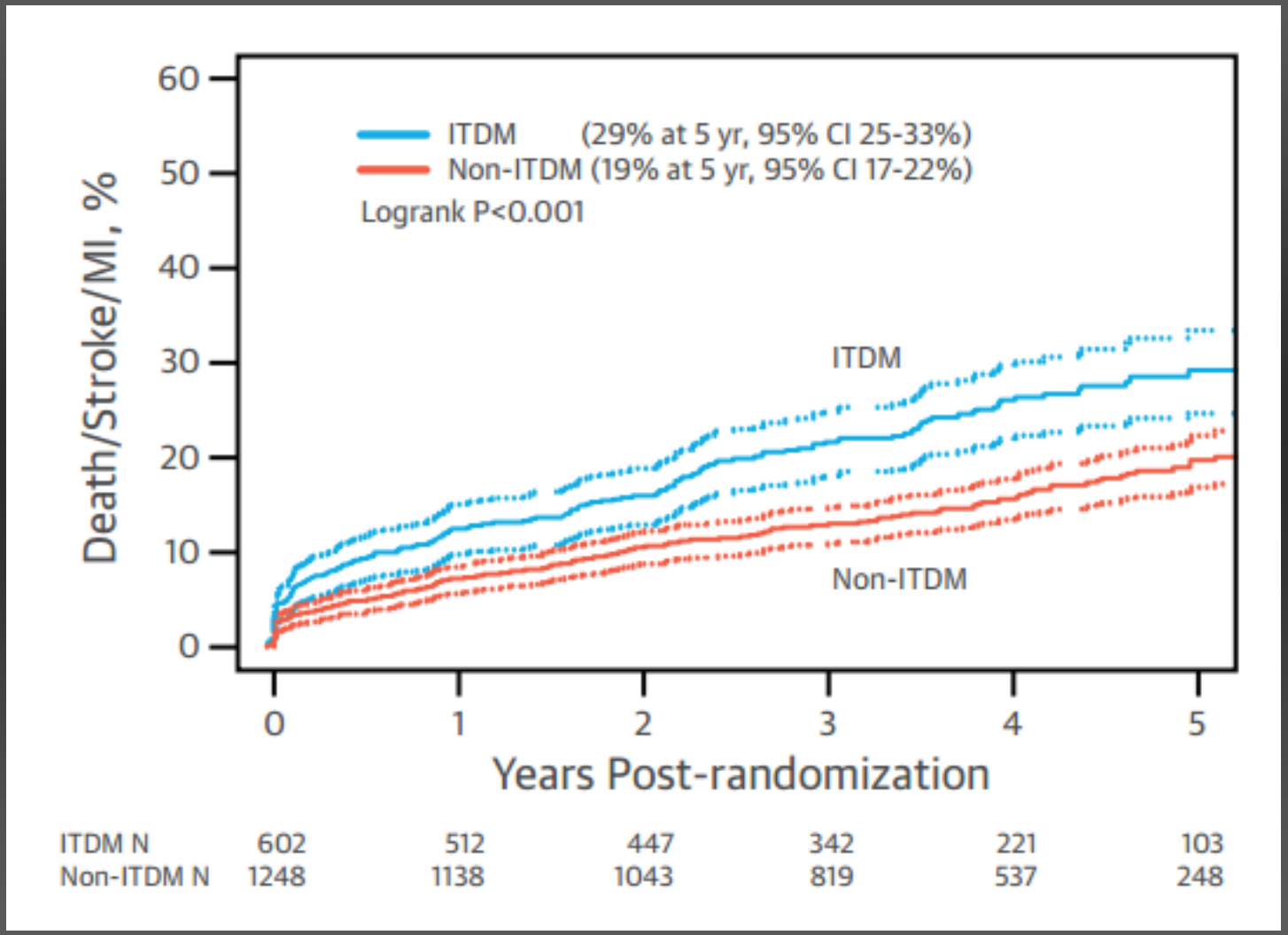
Long-term outcome of PCI versus CABG in insulin and non-insulin-treated diabetic patients: results from the FREEDOM trial



Non-ITDM/PCI N	629	573	530	412	264	137
Non-ITDM/CABG N	653	574	532	436	302	143
ITDM/PCI N	322	274	241	191	129	58
ITDM/CABG N	293	239	214	163	101	57

Dangas GD, et al. J Am Coll Cardiol. 2014;64:1189-97.

Long-term outcome of PCI versus CABG in insulin and non-insulin-treated diabetic patients: results from the FREEDOM trial



Dangas GD, et al. J Am Coll Cardiol. 2014;64:1189-97.

Long-term outcome of PCI versus CABG in insulin and non-insulin-treated diabetic patients: results from the FREEDOM trial

TABLE 5 5-Year Kaplan-Meier Estimated Event Rates for the Primary Endpoint (Death/Stroke/MI)

	Non-ITDM			ITDM			Treatment × Insulin Interaction
Group*	PCI	CABG	PCI vs. CABG	PCI	CABG	PCI vs. CABG	p Value
SYNTAX ≤22 (208, 231, 123, 93)	19.7 (13.0-24.4)	14.1 (9.5-20.75)	1.18 (0.71-1.96)	29.7 (20.2-42.3)	26.3 (17.7-38.0)	0.84 (0.47-1.48)	0.39
SYNTAX 23-32 (305, 255, 138, 129)	23.1 (17.8-29.7)	14.3 (10.1-20.0)	1.61 (1.04-2.49)	35.5 (26.8-46.0)	21.8 (15.2-30.7)	1.56 (0.95-2.57)	0.93
SYNTAX ≥33 (114, 125, 64, 54)	30.4 (20.9-42.8)	20.0 (12.8-30.4)	1.58 (0.88-2.81)	28.9 (19.3-42.0)	25.9 (15.3-41.9)	1.27 (0.61-2.64)	0.65

Values are HR (95% CI). The 95% CI and HR are based on adjudicated events for the primary endpoint (death/stroke/MI) using all available follow-up and interaction p value for treatment by insulin dependency status, at each level of angiographic complexity. p Values were derived from Cox regression test of treatment × subgroup interaction using all available follow-up data (i.e., >5 years). *Numbers in parentheses indicate PCI n, CABG n for each stratum.

Dangas GD, et al. J Am Coll Cardiol. 2014;64:1189-97.

Coronary Thrombosis and Major Bleeding After PCI With Drug-Eluting Stents. Risk Scores From PARIS

TABLE 4 Integer Risk Score for Major Bleeding

Parameter	Score
Age, yrs	
<50	0
50–59	+1
60–69	+2
70–79	+3
≥80	+4
BMI, kg/m^2	
<25	+2
25–34.9	0
≥35	+2
Current smoking	
Yes	+2
No	0
Anemia	
Present	+3
Absent	0
CrCl <60 ml/min	
Present	+2
Absent	0
Triple therapy on discharge	
Yes	+2
No	0

Abbreviations as in Table 1.

TABLE 5 Integer Risk Score for Coronary Thrombotic Events

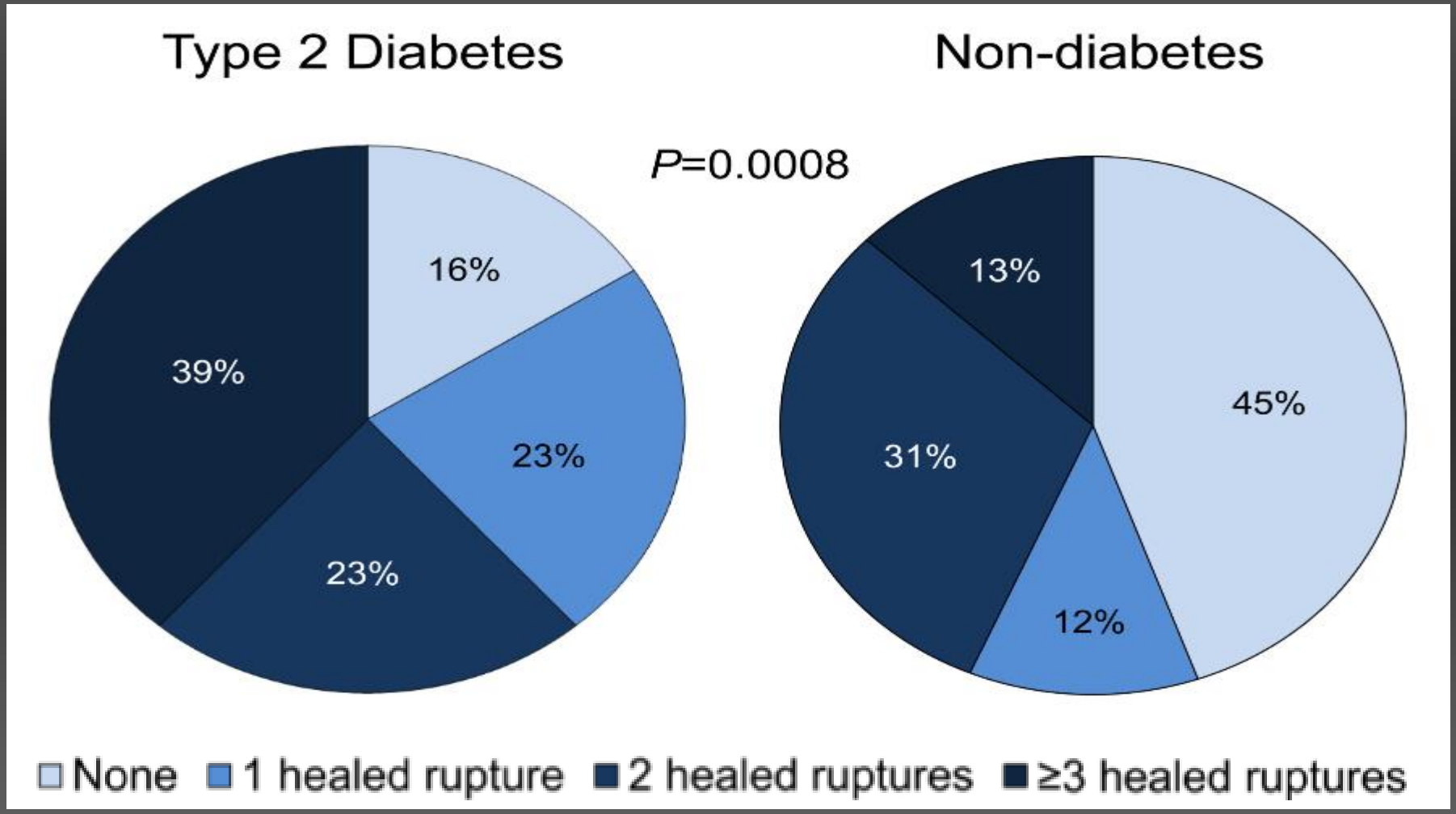
Parameter	Score
Diabetes mellitus	
None	0
Non-insulin-dependent	+1
Insulin-dependent	+3
Acute coronary syndrome	
No	0
Yes, Tn-negative	+1
Yes, Tn-positive	+2
Current smoking	
Yes	+1
No	0
CrCl <60 ml/min	
Present	+2
Absent	0
Prior PCI	
Yes	+2
No	0
Prior CABG	
Yes	+2
No	0

Tn — troponin; other abbreviations as in Table 1.

Baber U, et al. JACC. 2016;67:2224-34.

Pathology of Human Coronary and Carotid Artery Atherosclerosis and Vascular Calcification in Diabetes Mellitus

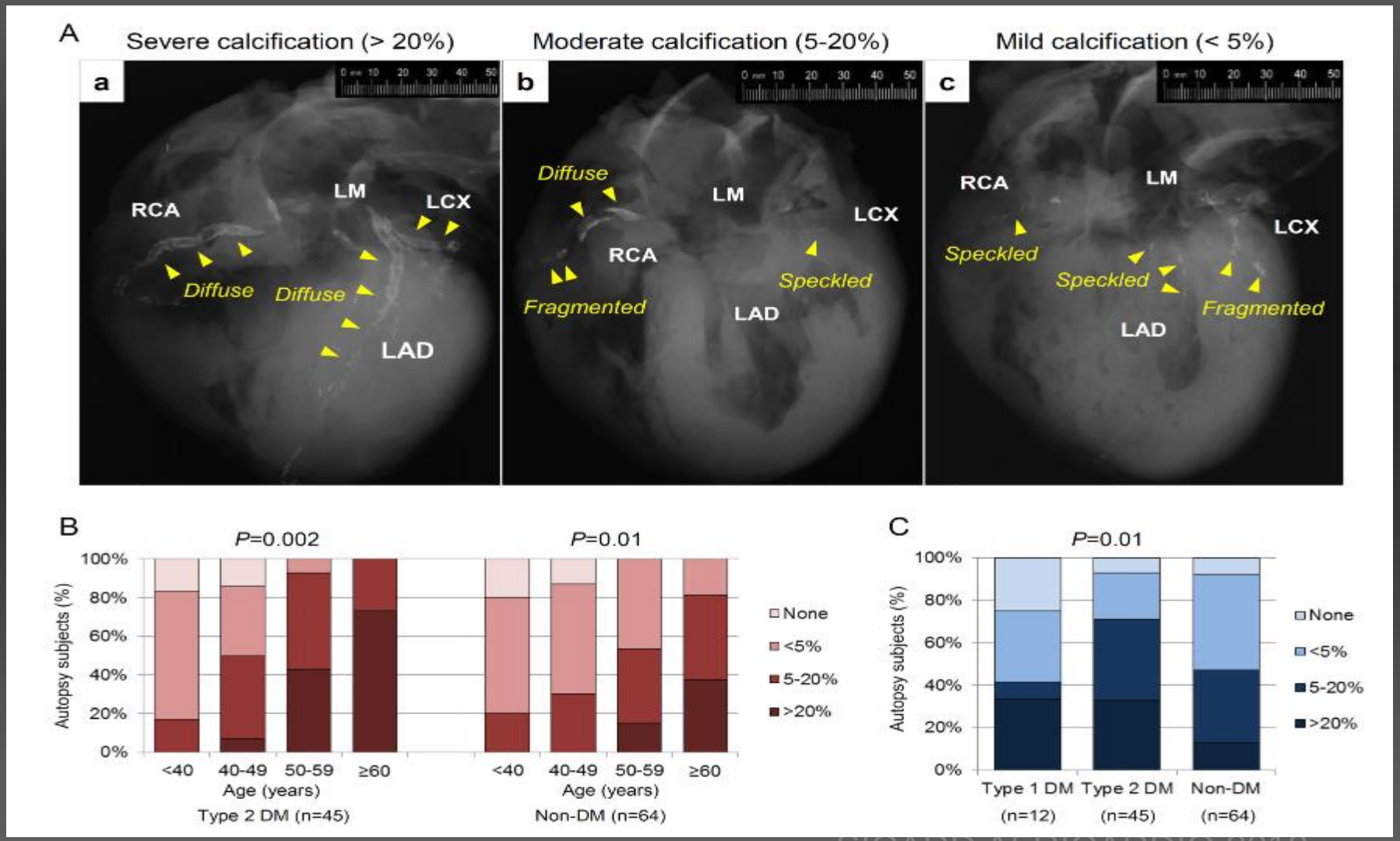
142 sudden coronary death cases



Yahagi K, et al. Arterioscler Thromb Vasc Biol. 2017;37:191-204.

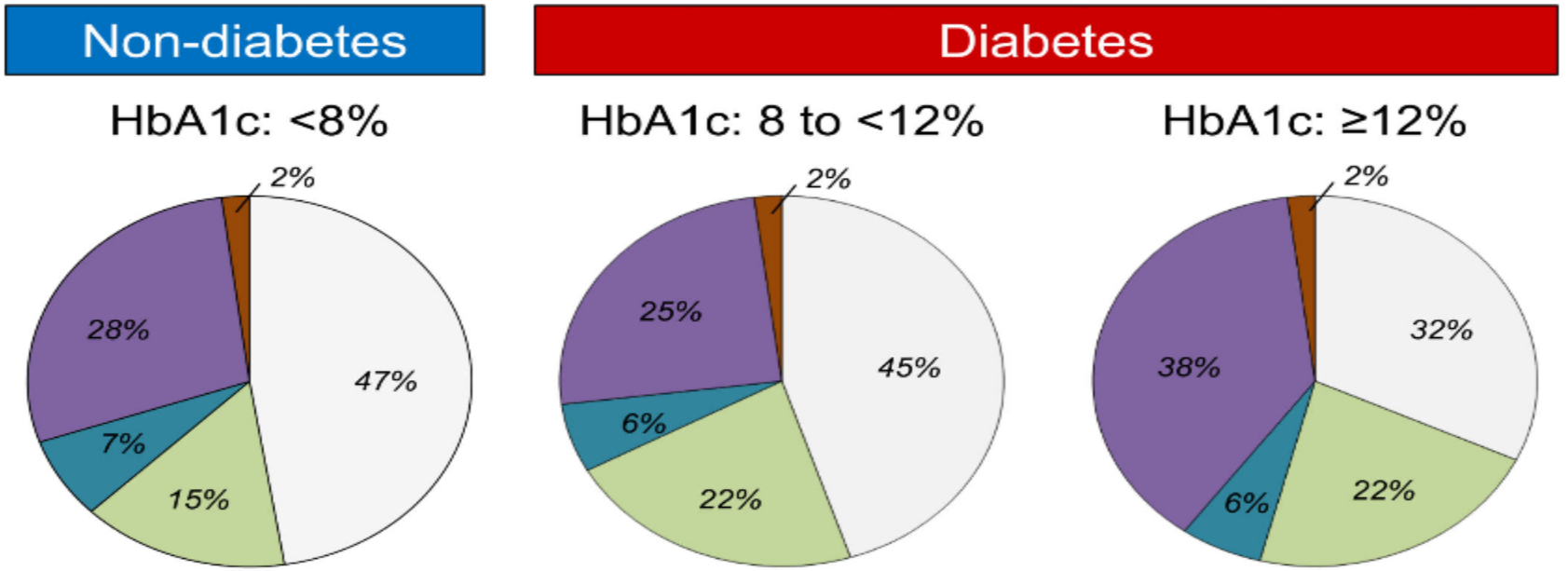
Pathology of Human Coronary and Carotid Artery Atherosclerosis and Vascular Calcification in Diabetes Mellitus

142 sudden coronary death cases



Yahagi K, et al. Arterioscler Thromb Vasc Biol. 2017;37:191-204.

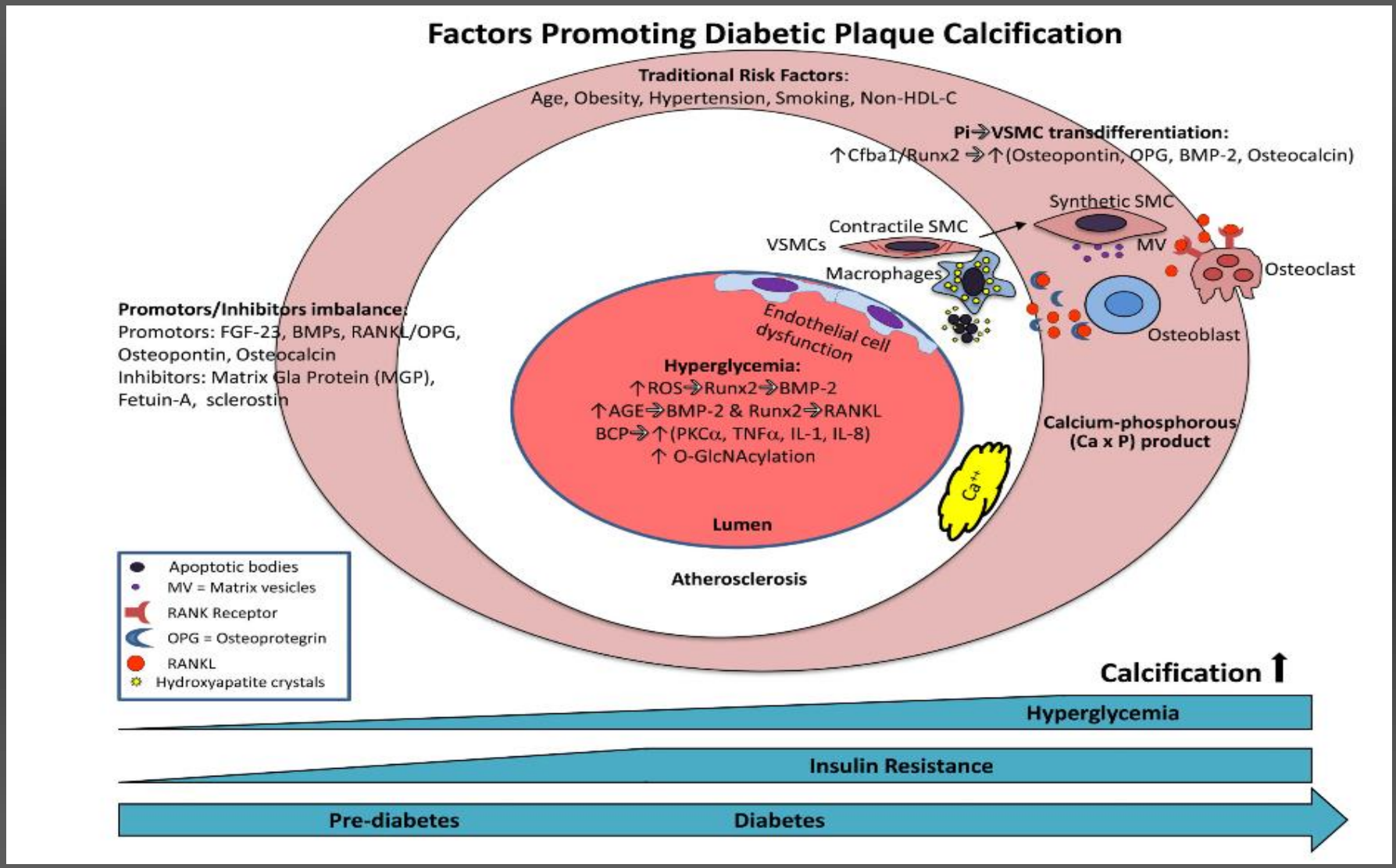
Pathology of Human Coronary and Carotid Artery Atherosclerosis and Vascular Calcification in Diabetes Mellitus



Type of calcification	*P* value
No calcification	<0.0001
Microcalcification	0.002
Fragmented calcification	0.53
Sheet calcification	0.0005
Nodular calcification	0.86

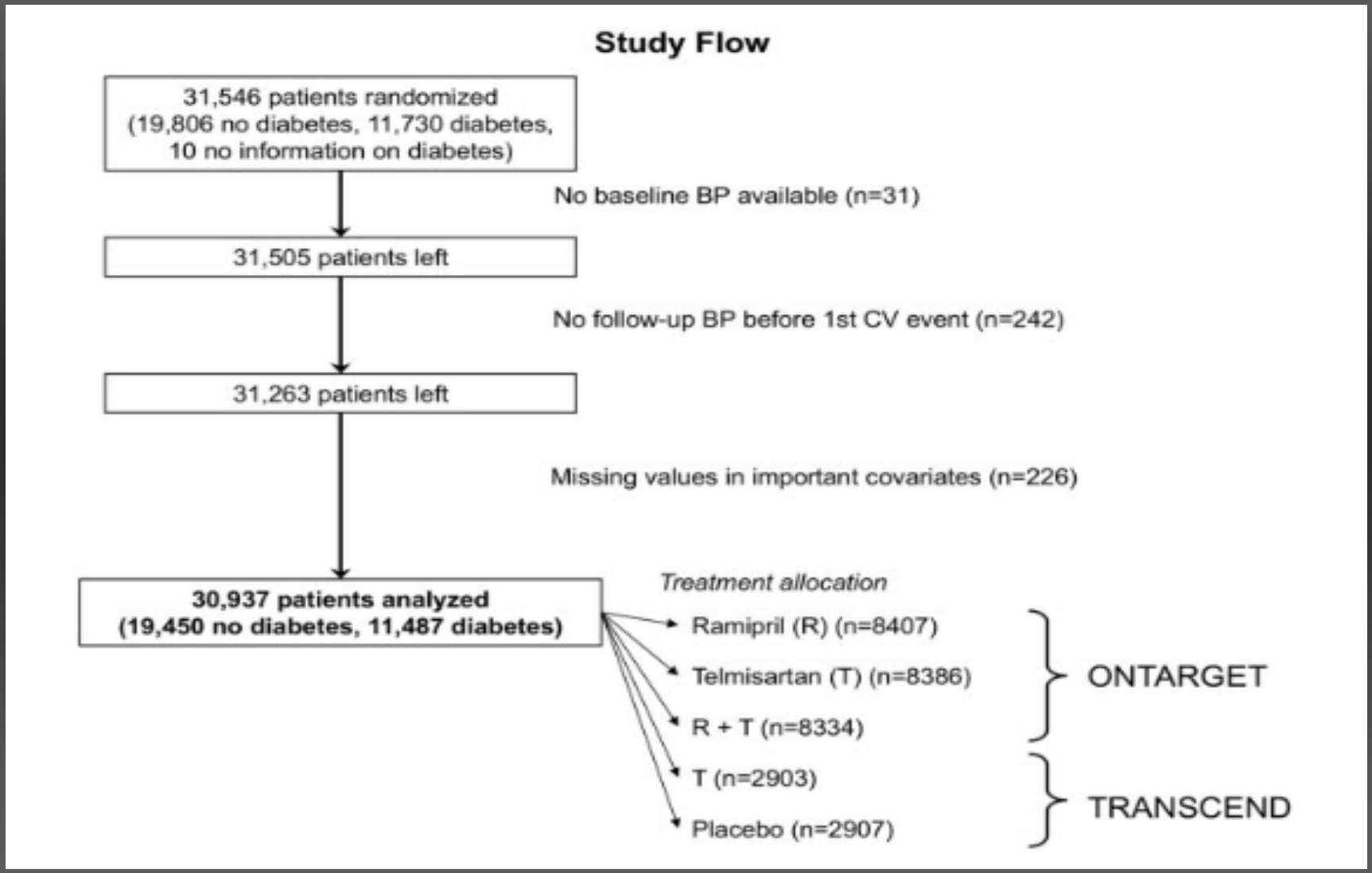
Yahagi K, et al. Arterioscler Thromb Vasc Biol. 2017;37:191-204.

Pathology of Human Coronary and Carotid Artery Atherosclerosis and Vascular Calcification in Diabetes Mellitus



Yahagi K, et al. Arterioscler Thromb Vasc Biol. 2017;37:191-204.

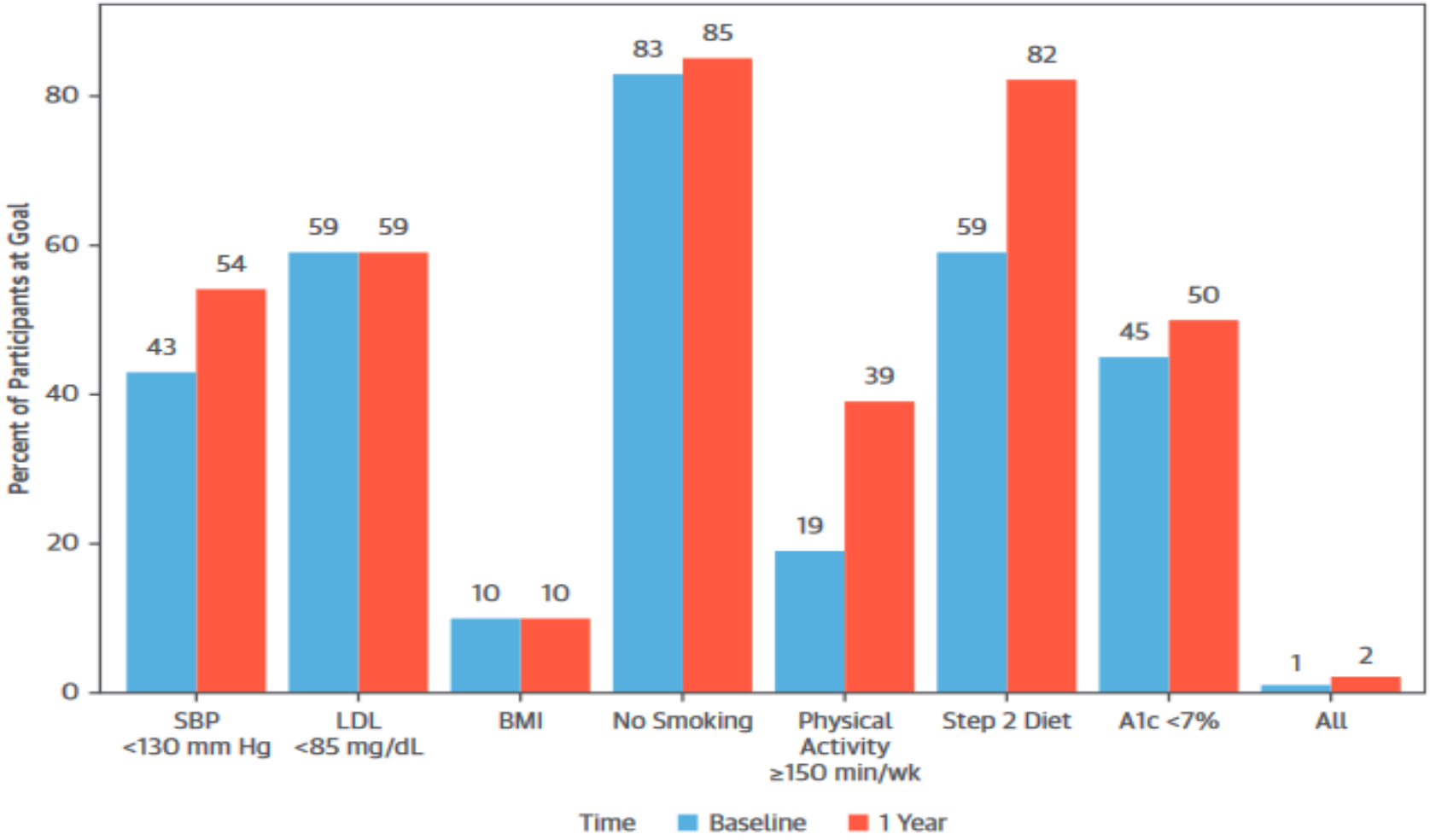
Cardiovascular outcomes and achieved blood pressure in patients with and without diabetes at high cardiovascular risk



Bôhm M, et al. Eur Heart J. 2019, in press.

Lifestyle, Glycosylated Hemoglobin A1c, and Survival Among Patients With Stable Ischemic Heart Disease and Diabetes

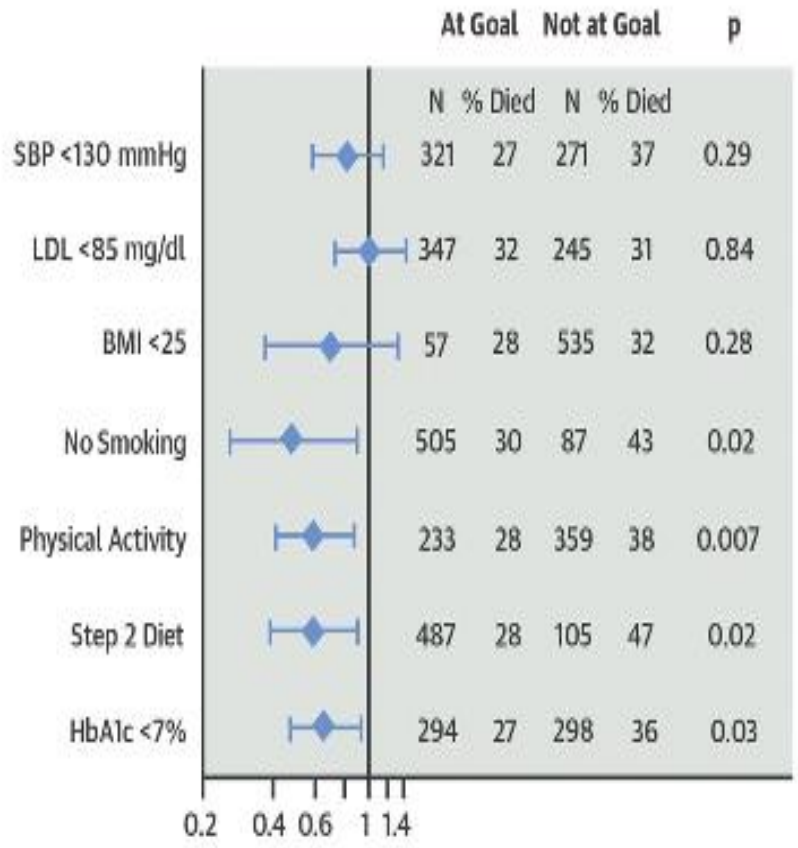
690 patients with DM followed in the COURAGE // a mean follow-up of 7.0 ± 4.2 years

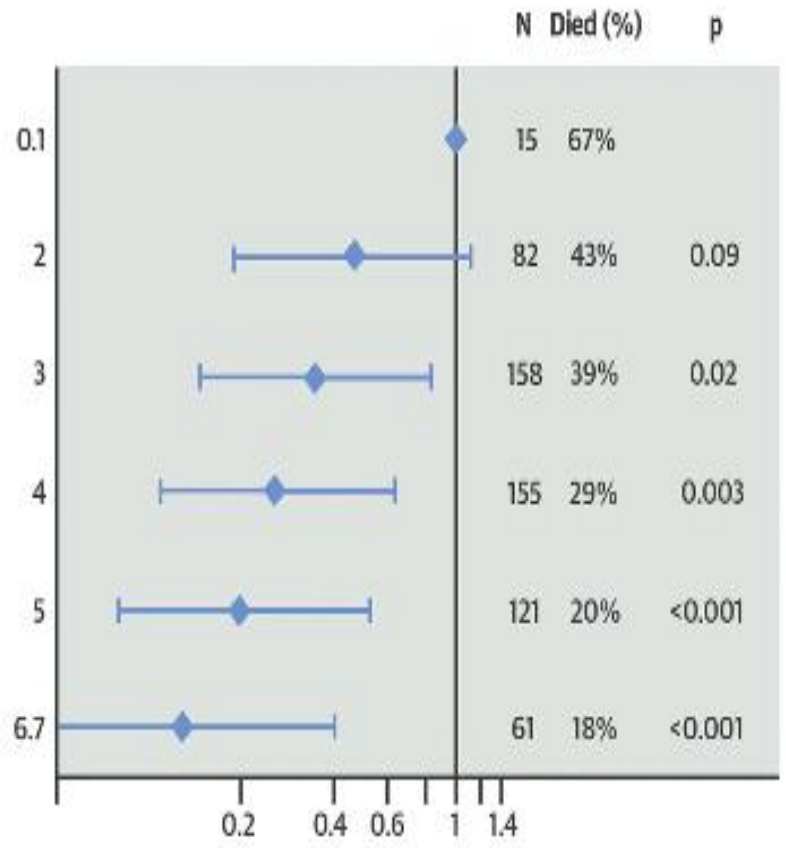


Mancini GFJ, et al. J Am Coll Cardiol. 2019;73:2049-2058.

Lifestyle, Glycosylated Hemoglobin A1c, and Survival Among Patients With Stable Ischemic Heart Disease and Diabetes

Death Rate Associated With Achieving Individual and Number of Goals





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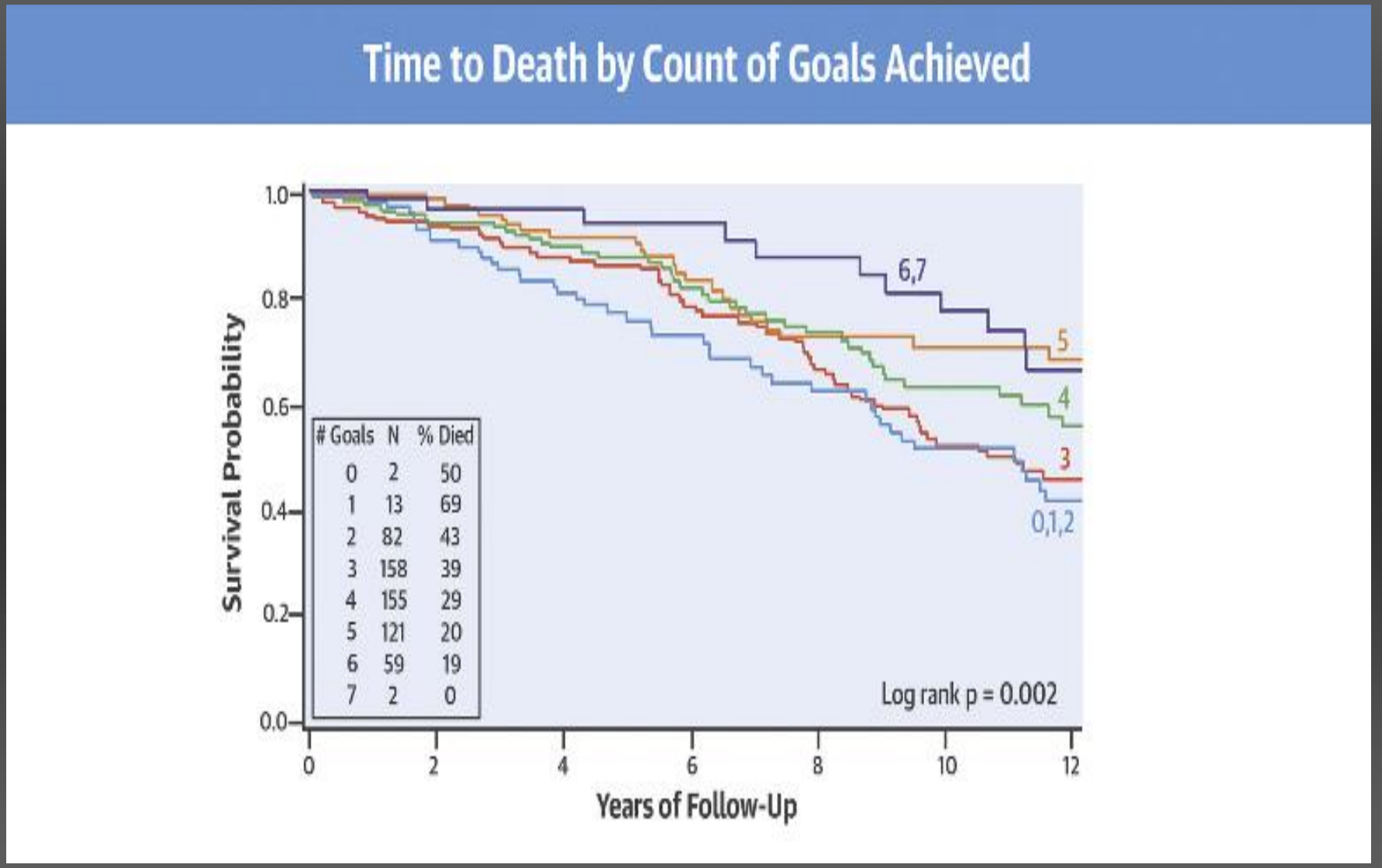
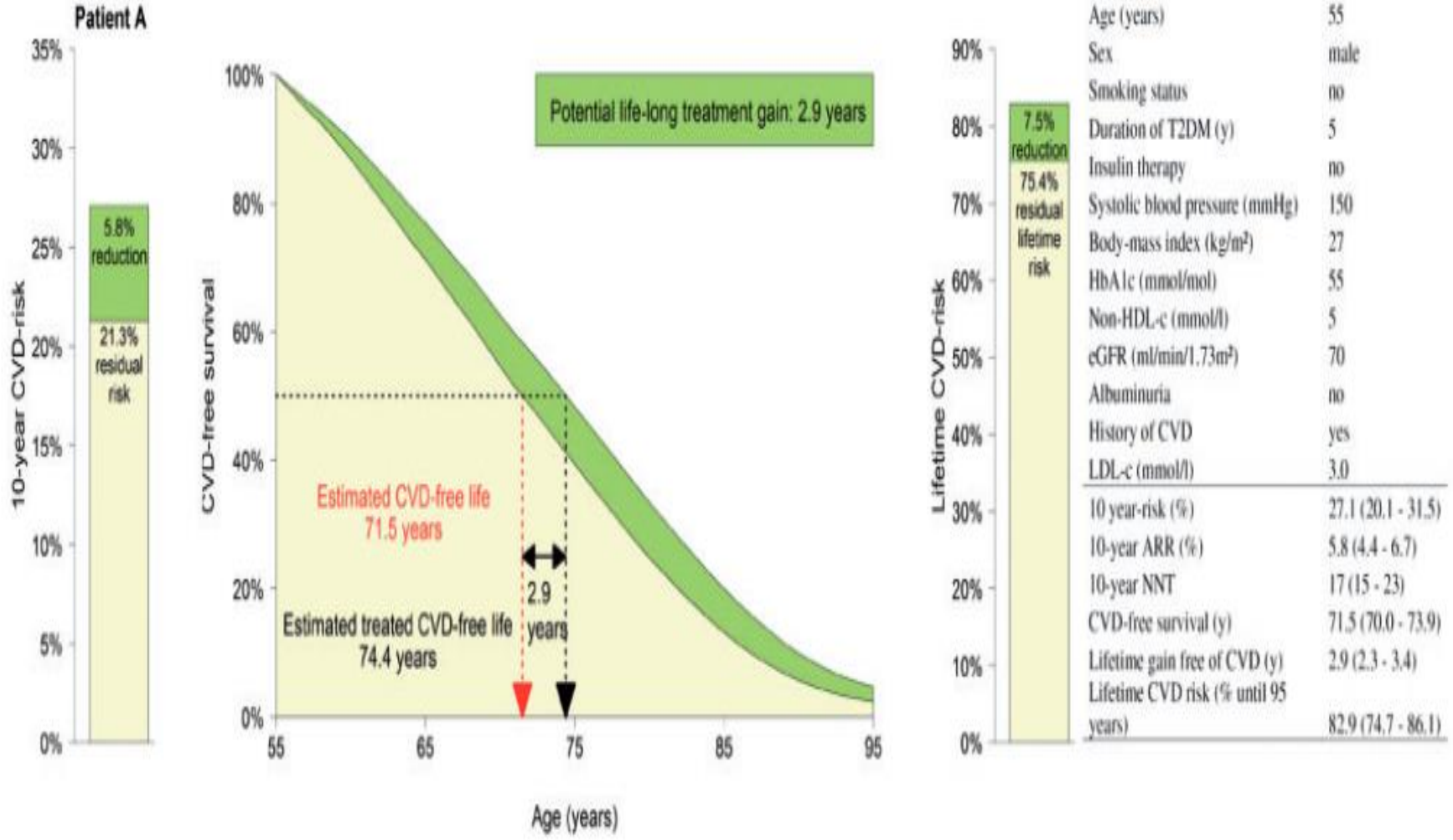
Lifestyle, Glycosylated Hemoglobin A1c, and Survival Among Patients With Stable Ischemic Heart Disease and Diabetes



Mancini GFJ, et al. J Am Coll Cardiol. 2019;73:2049-2058.

Prediction of individual life-years gained without cardiovascular events from lipid, blood pressure, glucose, and aspirin treatment based on data of more than 500 000 patients with Type 2 diabetes mellitus



Berkelmans G, et al. Eur Heart J. 2019. in press

Prediction of individual life-years gained without cardiovascular events from lipid, blood pressure, glucose, and aspirin treatment based on data of more than 500 000 patients with Type 2 diabetes mellitus

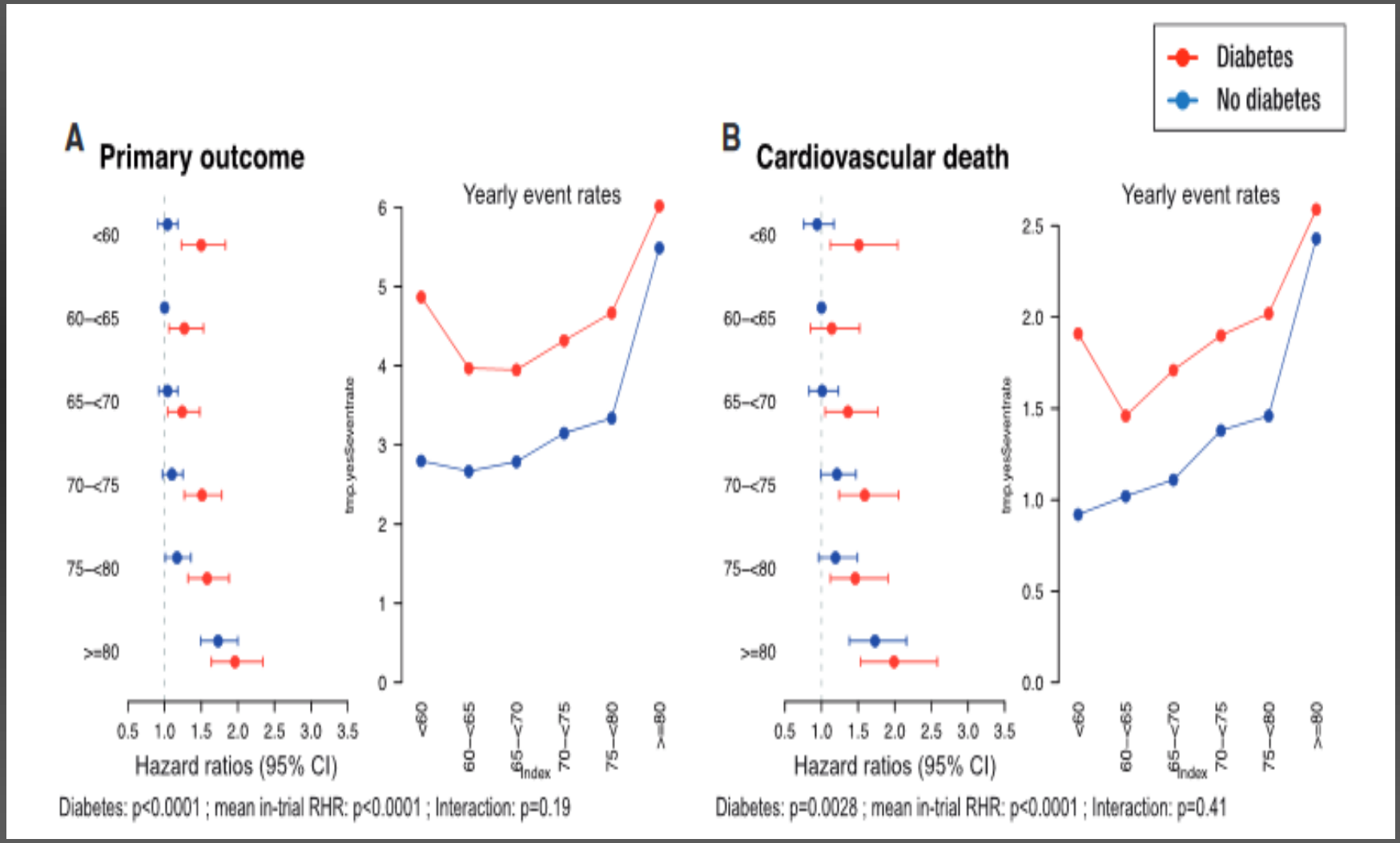
Table 2 Hazard ratios derived from a multi-variable model used in the Diabetes Lifetime-perspective prediction model

	Cox proportional hazard function A (vascular events), HR (95% CI)	Cox proportional hazard function B (non-vascular mortality), HR (95% CI)
Male sex[a]	0.91 (0.88–0.94)[a]	0.89 (0.87–0.91)[a]
Current smoking[a]	1.04 (1.00–1.09)[a]	1.46 (1.43–1.50)[a]
Duration of T2DM (years)	1.02 (1.01–1.02)	1.01 (1.01–1.01)
Insulin therapy[a]	1.02 (0.98–1.06)[a]	1.04 (1.01–1.07)[a]
Systolic blood pressure (mmHg)[b]	1.06 (0.95–1.17)[b]	1.01 (0.93–1.10)[b]
Body mass index (kg/m^2)[b]	0.88 (0.81–0.97)[b]	0.89 (0.84–0.95)[b]
HbA1c (mmol/L)[b]	1.15 (1.05–1.26)[b]	1.00 (1.00–1.00)
Non-HDL-c (mmol/L)[b]	1.16 (1.10–1.23)[b]	0.96 (0.92–1.00)[b]
eGFR (mL/min/1.73 m^2)[b]	0.64 (0.60–0.69)[b]	0.99 (0.99–0.99)
Micro-albuminuria	1.18 (1.14–1.22)	1.17 (1.14–1.20)
Macro-albuminuria	1.23 (1.18–1.28)	1.24 (1.20–1.28)
History of cardiovascular disease	9.99 (9.63–10.36)[a]	0.25 (0.24–0.26)[a]

[a]Age-dependent variables. Hazard ratios are shown for the median age of 65 years.
[b]Transformed variables. Hazard ratios are shown for the 75th percentile vs. the 25th percentile (systolic blood pressure: 150 mmHg vs. 128 mmHg; body mass index: 33 kg/m^2 vs. 26 kg/m^2; HbA1c: 59 mmol/L vs. 44 mmol/L; eGFR: 96 mL/min vs. 68 mL/min; and non-HDL-c: 4.5 mmol/L vs. 3.0 mmol/L).

Berkelmans G, et al. Eur Heart J. 2019. in press

Resting heart rate and cardiovascular outcomes in diabetic and non-diabetic individuals at high cardiovascular risk analysis from the ONTARGET/TRANSCEND trials



Bôhm M, et al. Eur Heart J. 2019, in press.

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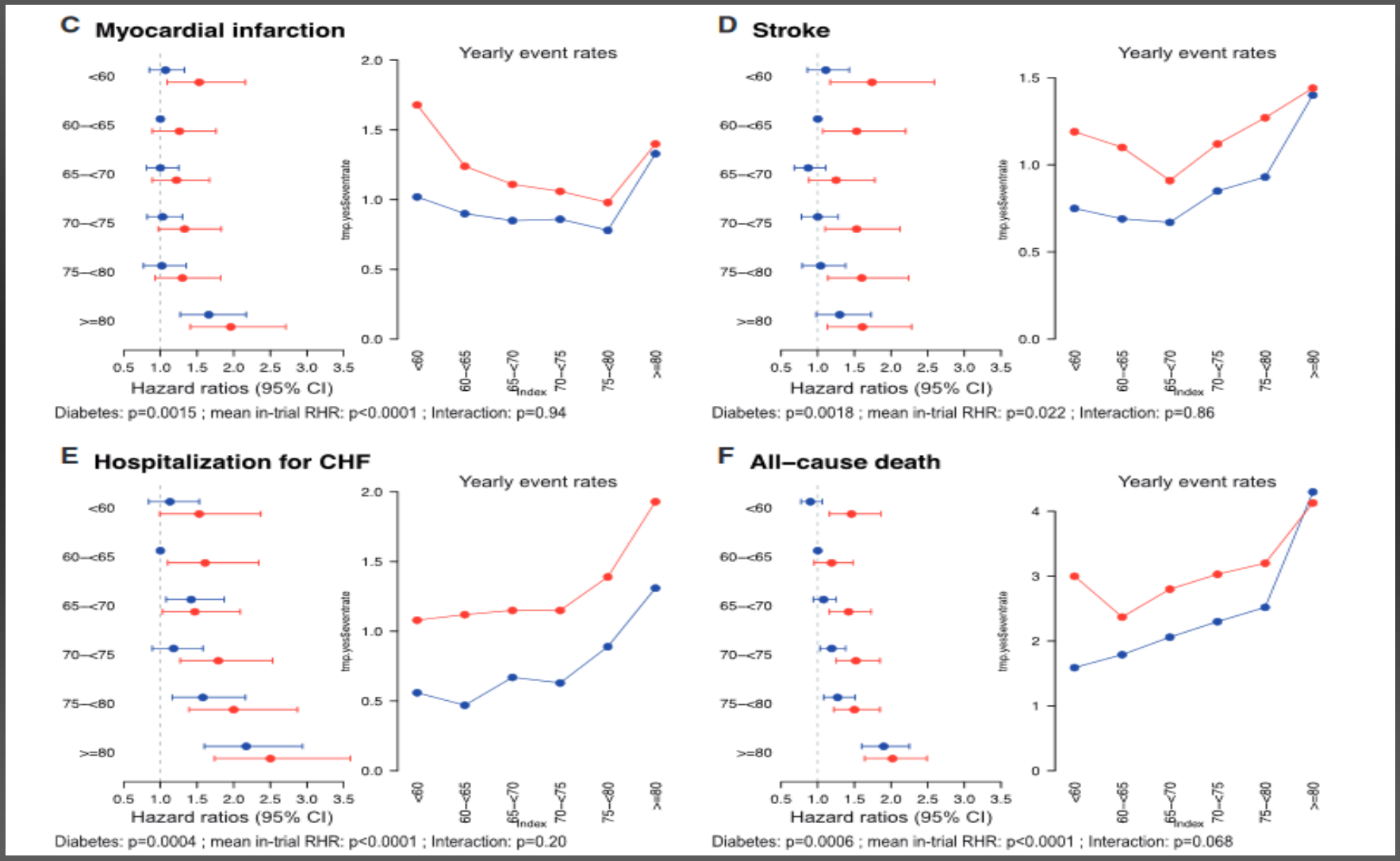

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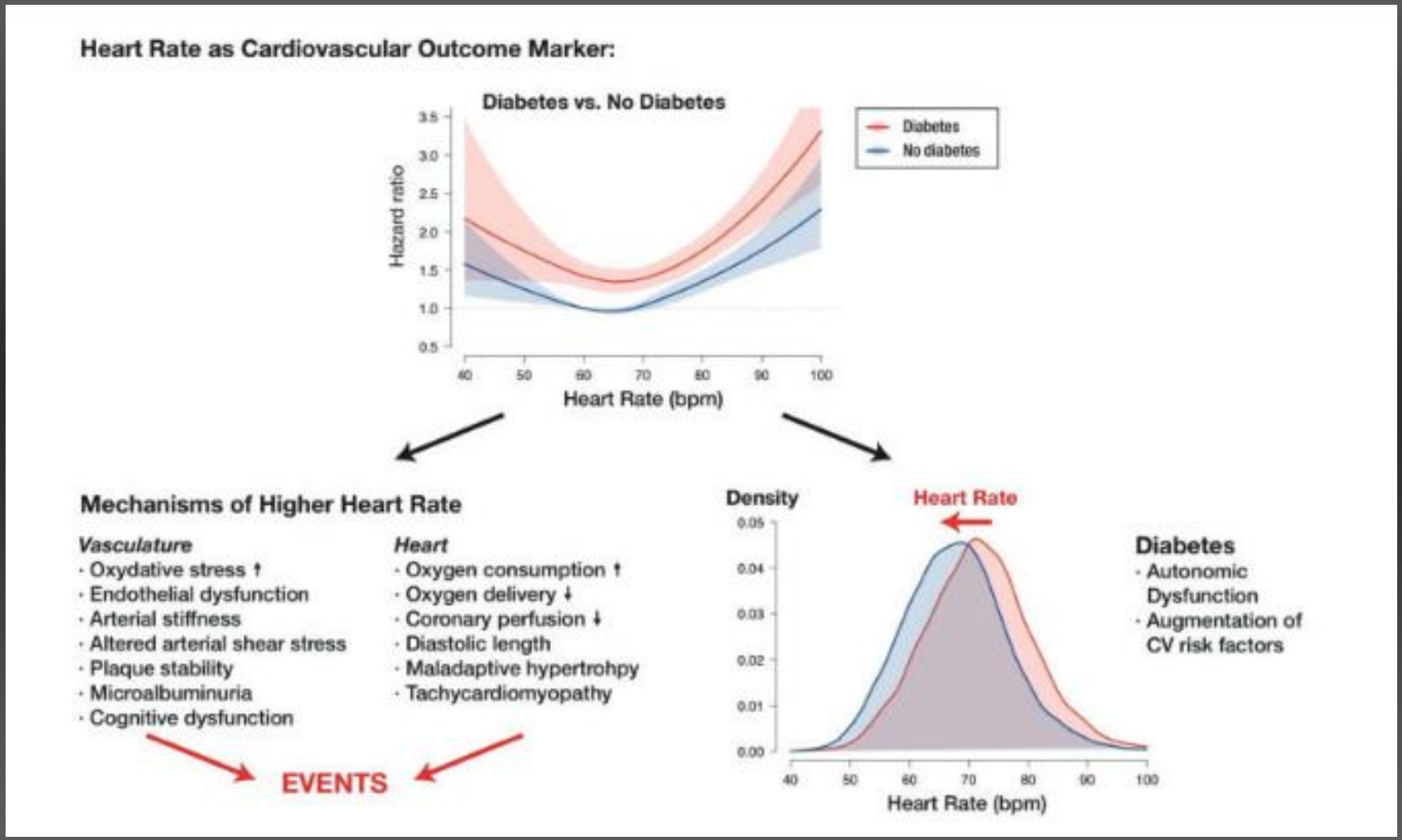
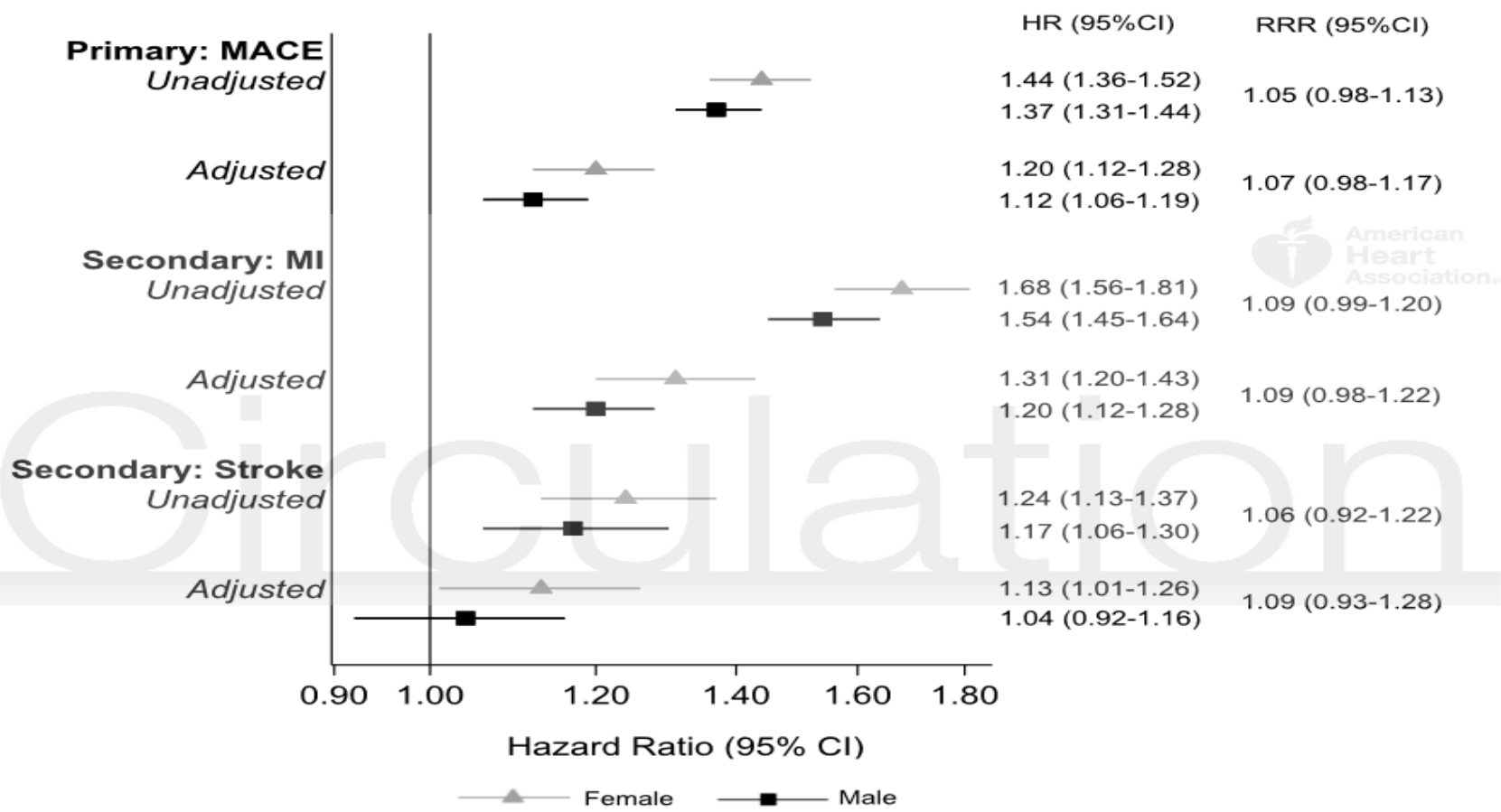


Bôhm M, et al. Eur Heart J. 2019, in press.

Cardiovascular Risk and Risk Factor Management in Type 2 Diabetes: A Population-Based Cohort Study Assessing Sex Disparities

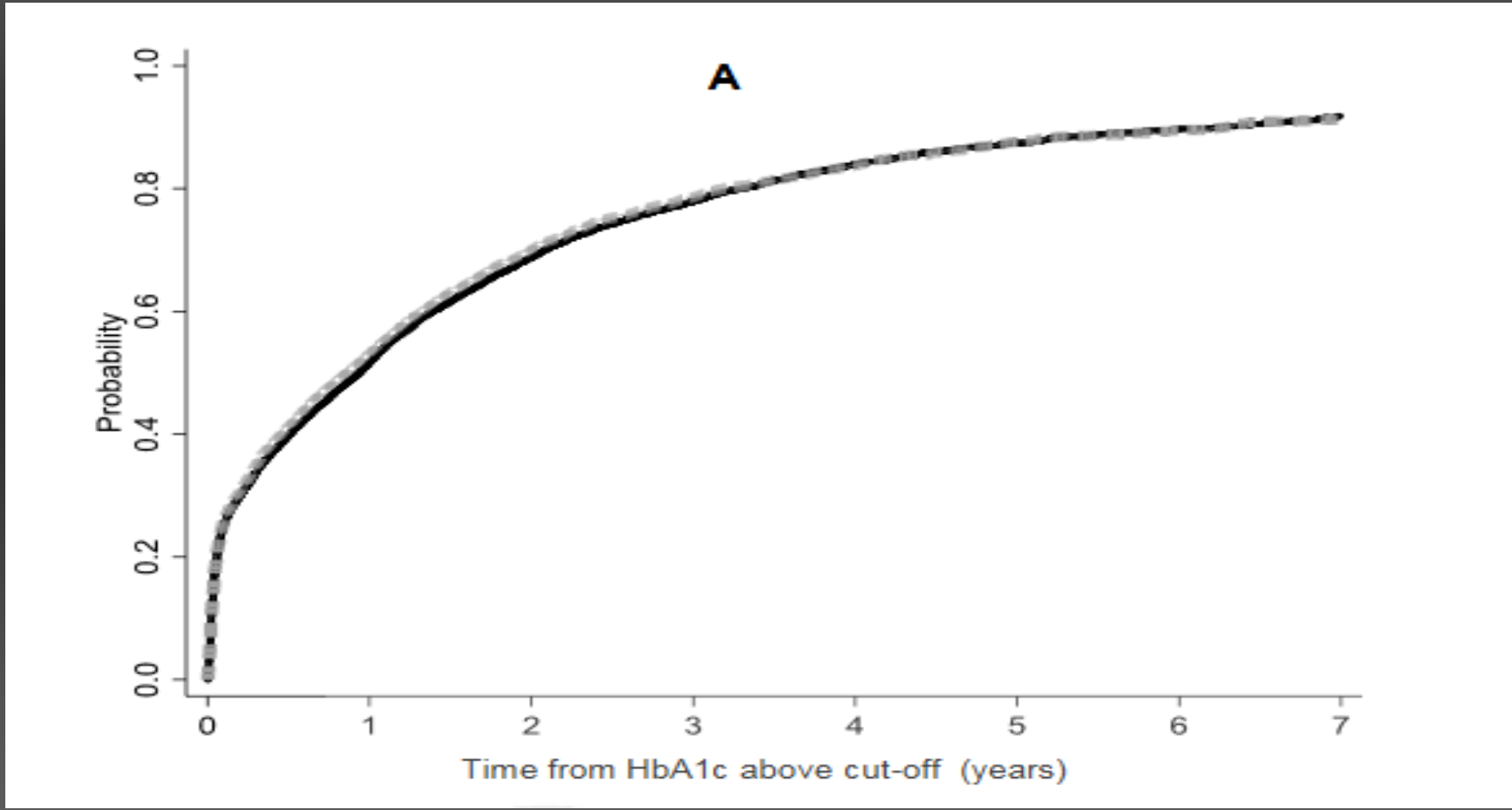
Type 2 diabetes (N=63,718; 29,348 (46.1%) women and 34,370 (53.9%) men)
And Controls (N=277,176; 130,524 (47.1%) women and 146,652 (52.9%) men



Wright Ak, et al. Circulation. 2019. in press

Cardiovascular Risk and Risk Factor Management in Type 2 Diabetes: A Population-Based Cohort Study Assessing Sex Disparities

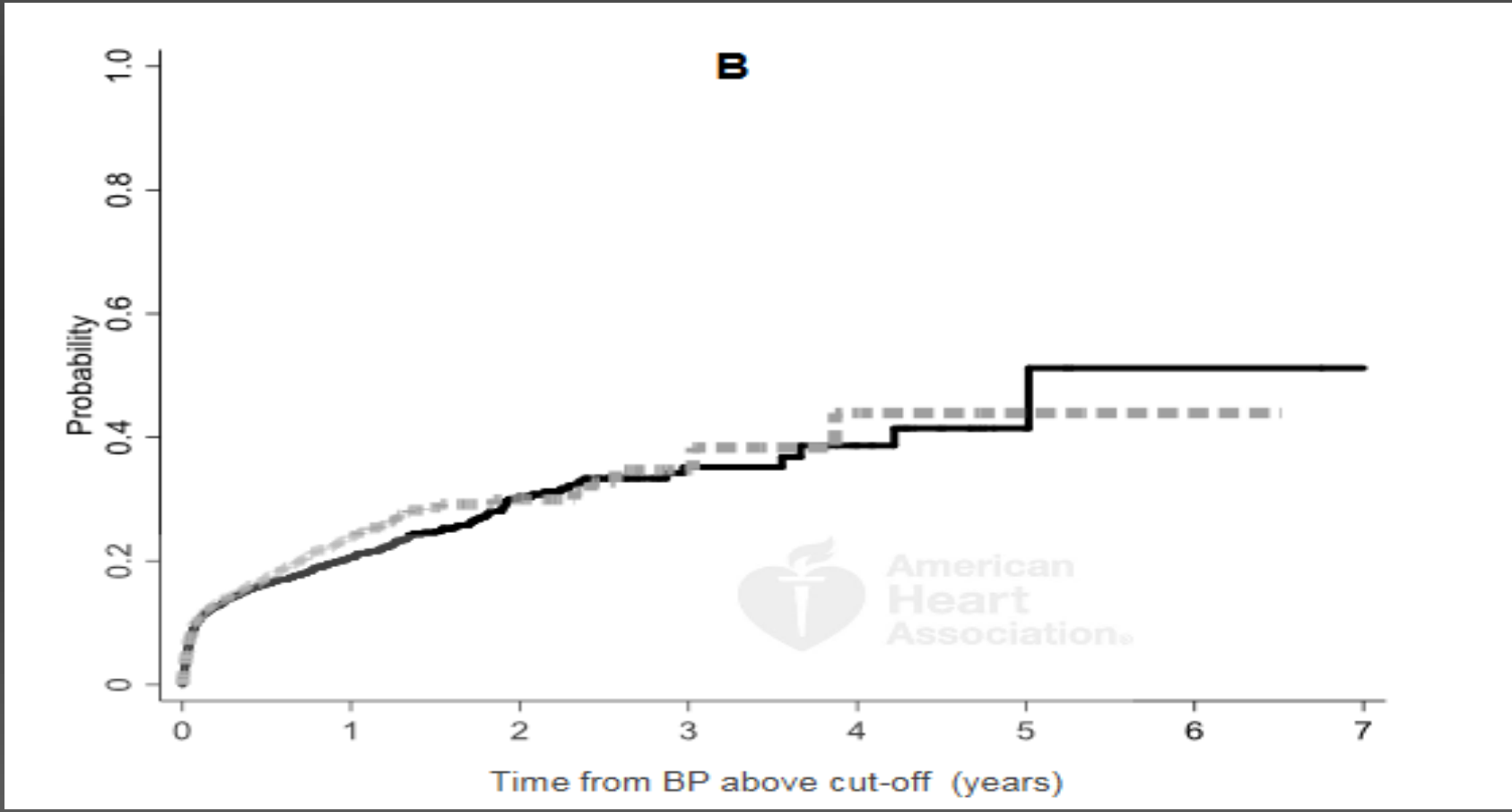
Comparison of the proportion of men and women undergoing intensification of drug regimens in relation to the time that their risk factors : HbA1c >7%



Wright Ak, et al. Circulation. 2019. in press

Cardiovascular Risk and Risk Factor Management in Type 2 Diabetes: A Population-Based Cohort Study Assessing Sex Disparities

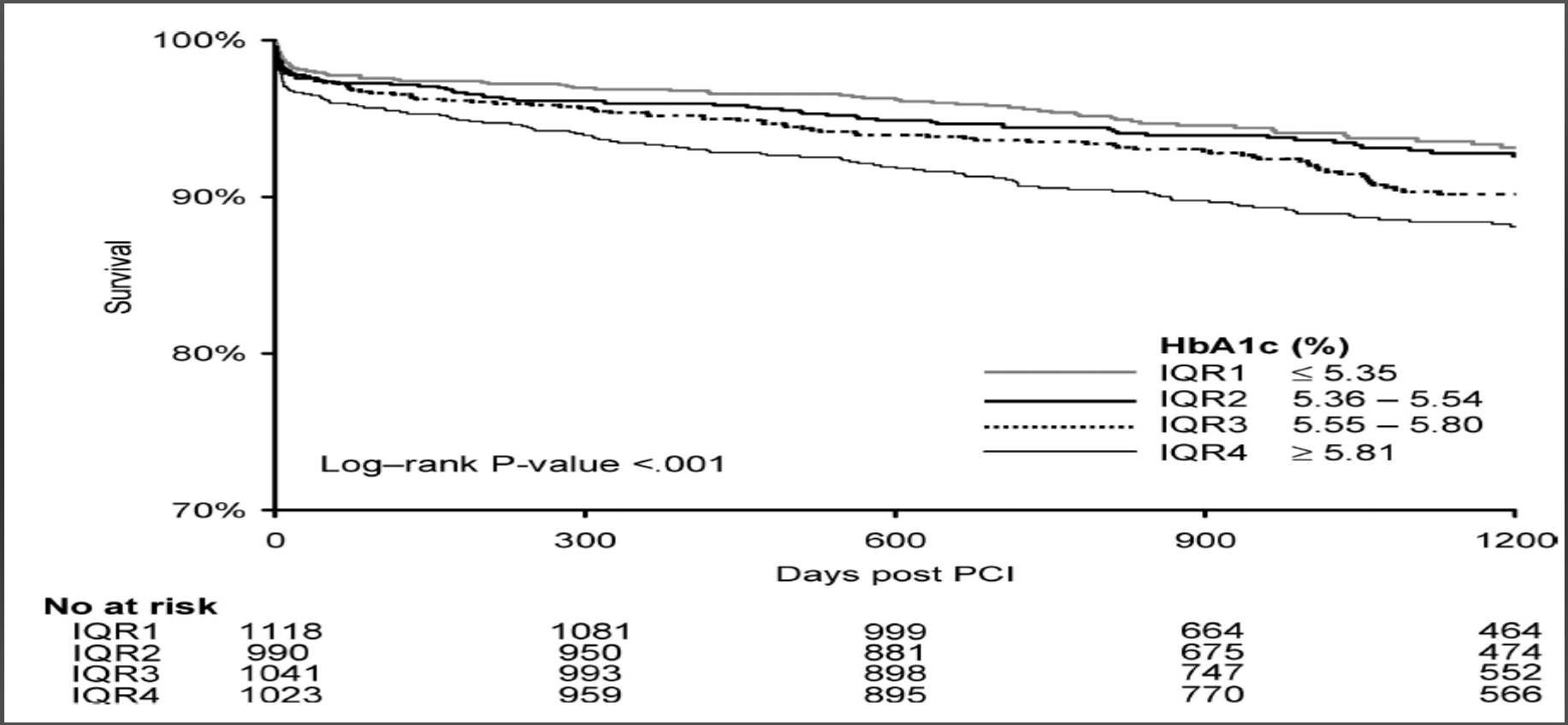
Comparison of the proportion of men and women undergoing intensification of drug regimens in relation to the time that their risk factors : BP >140/80 mmHg



Wright Ak, et al. Circulation. 2019. in press

Prognostic value of admission glycosylated hemoglobin and glucose in nondiabetic patients with ST-segment-elevation myocardial infarction treated with percutaneous coronary intervention

4176 patients non diabétiques STEMI

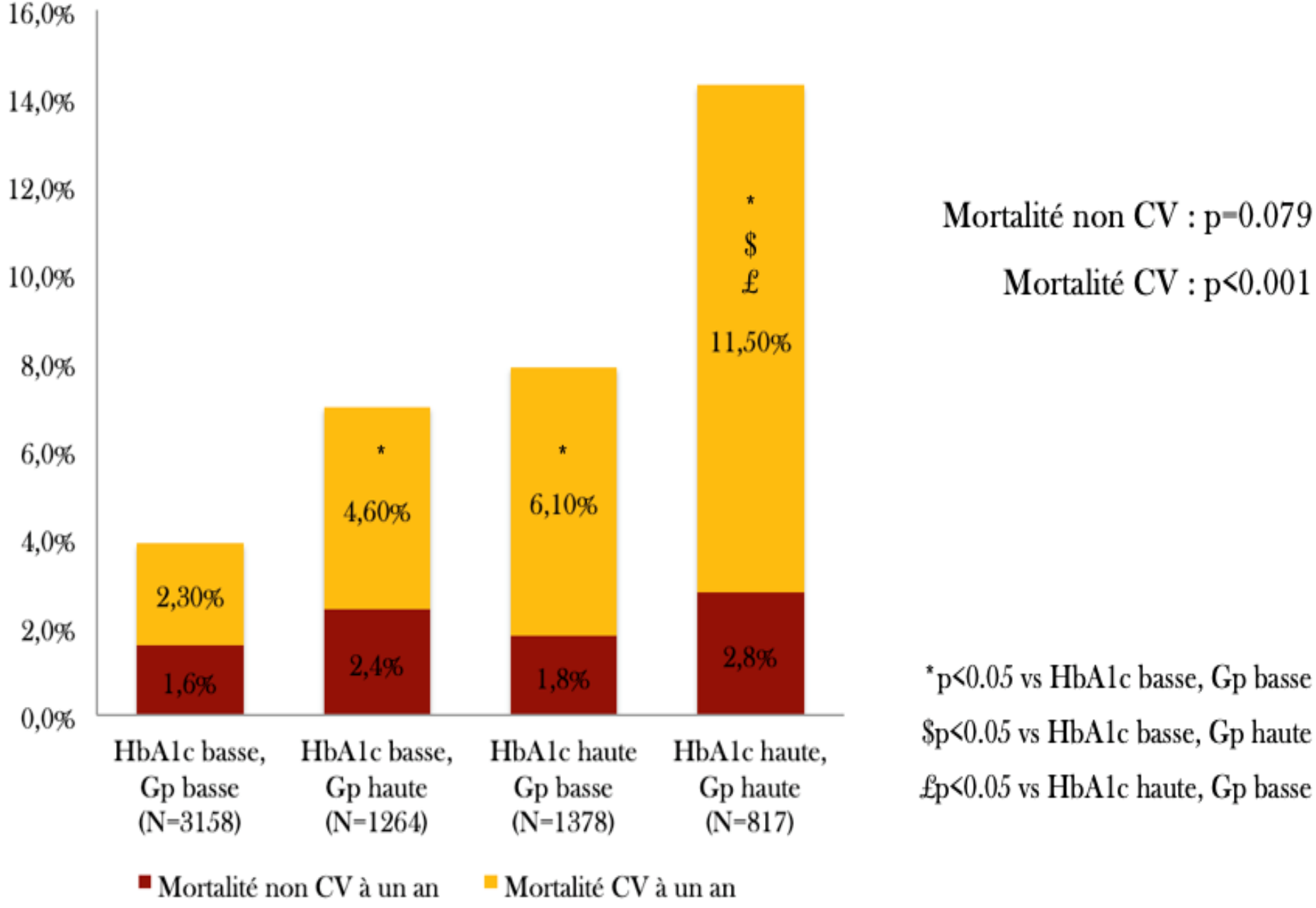


HbA1c élevée → facteur prédictif de mortalité à long terme (suivi : 3 ans)

→ y compris en multivariée OR (IC95%) 1.2 (1.0-1.3) ; p<0.01

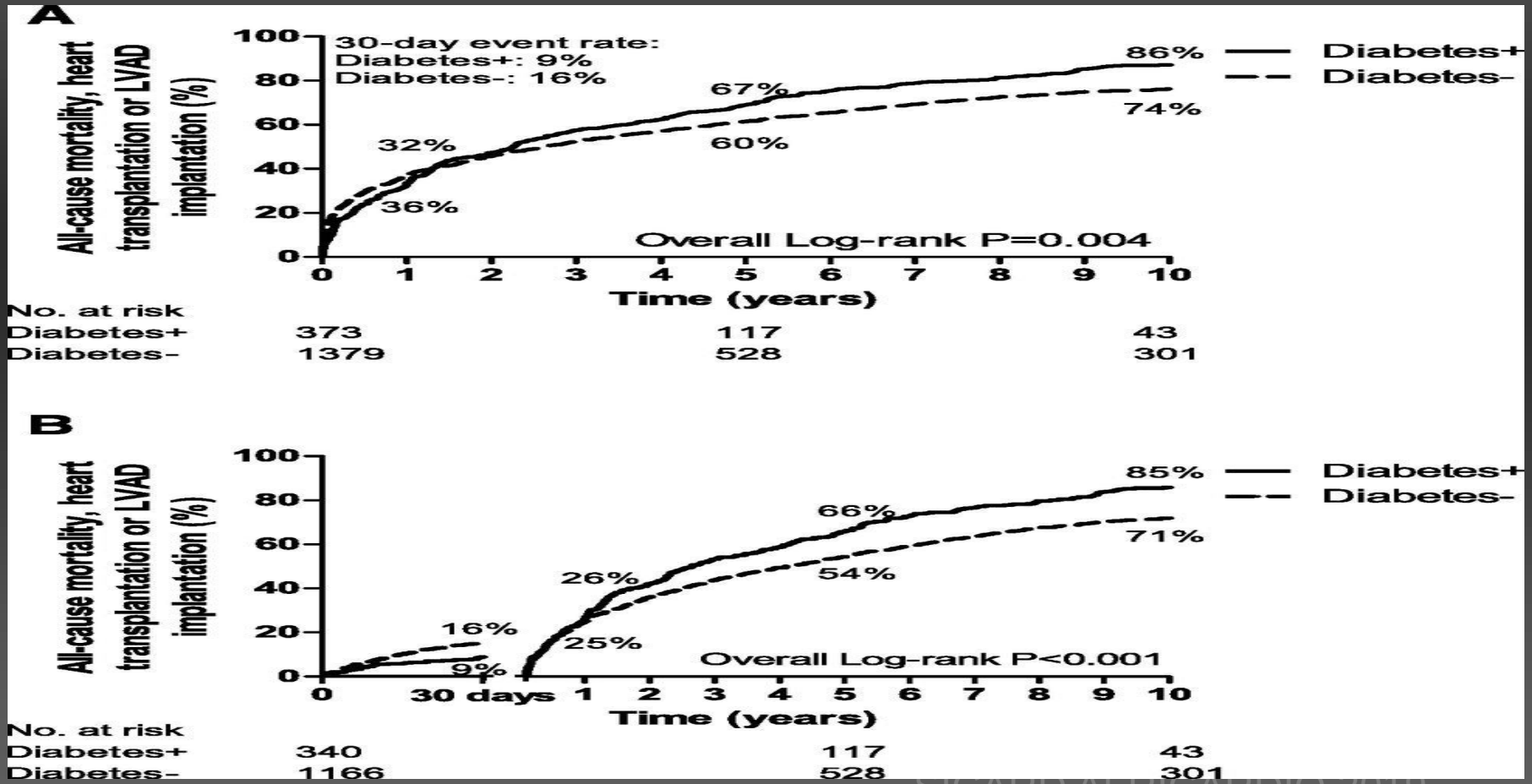
Timmer JR, et al. Circulation. 2011;124:704-711.

Figure 3. *Mortalité toutes causes et CV à an.*



Short- and long-term prognosis of patients with acute heart failure with and without diabetes: changes over the last three decades

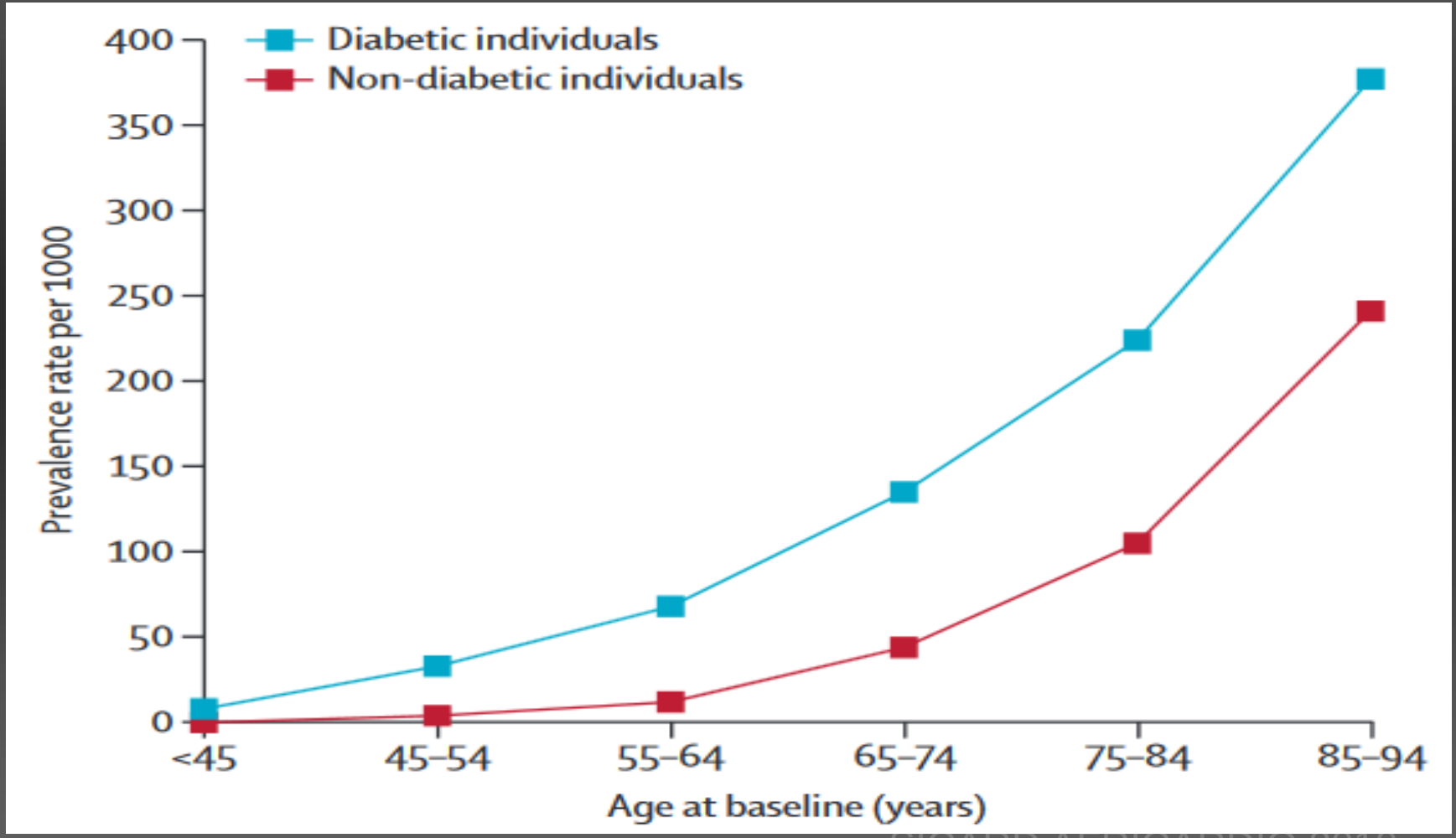
This prospective registry included all consecutive patients aged 18 years and older admitted to the Intensive Coronary Care Unit with acute HF in the period of 1985-2008. A total of 1,810 patients were included; 384 patients (21%) had diabetes



van den Berge JC, et al. Diabetes Care. 2018 ; 41:143-149

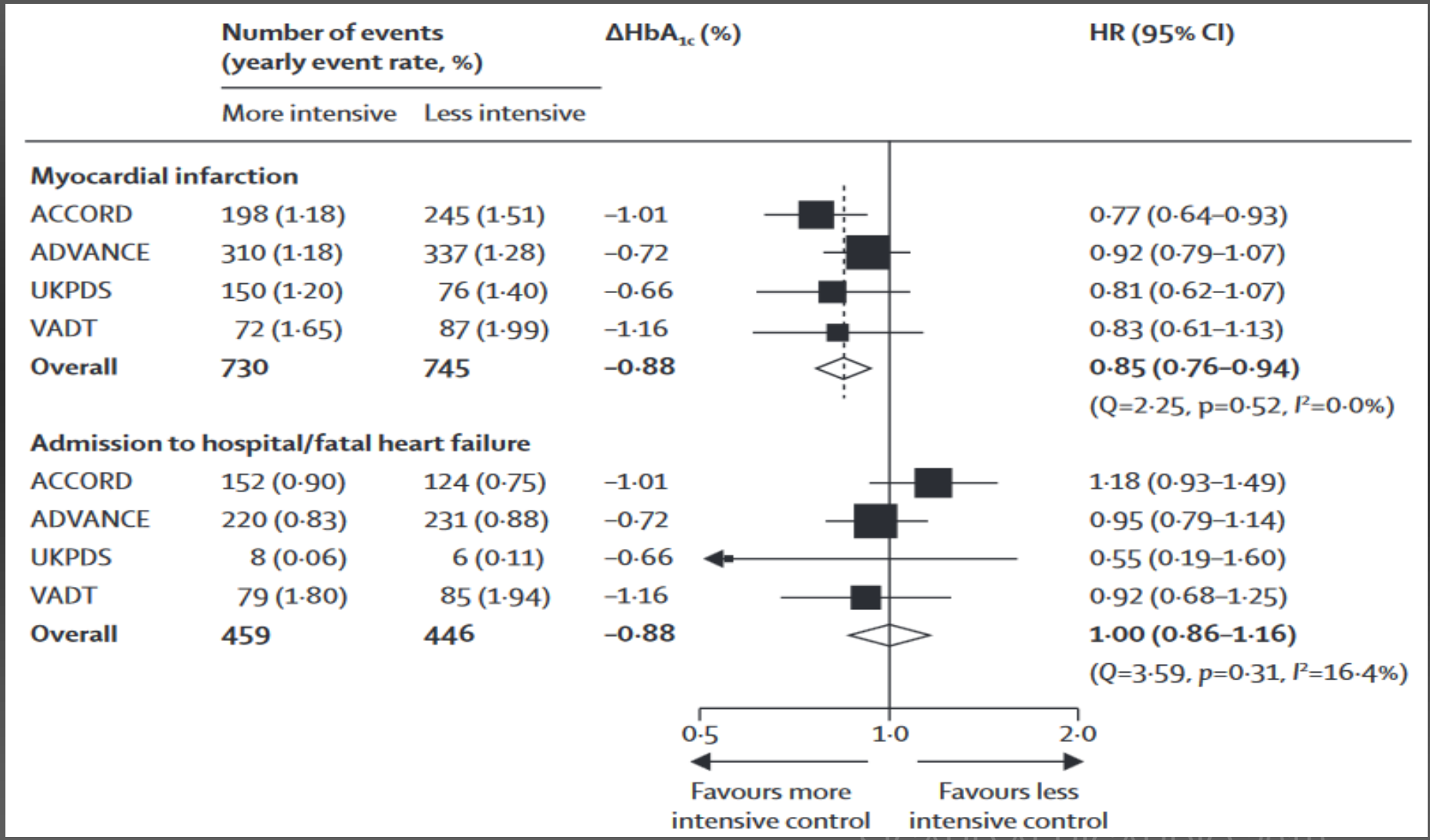
Heart failure in diabetes: effects of anti-hyperglycaemic drug therapy

Age-associated prevalence of heart failure in diabetic and non-diabetic individuals

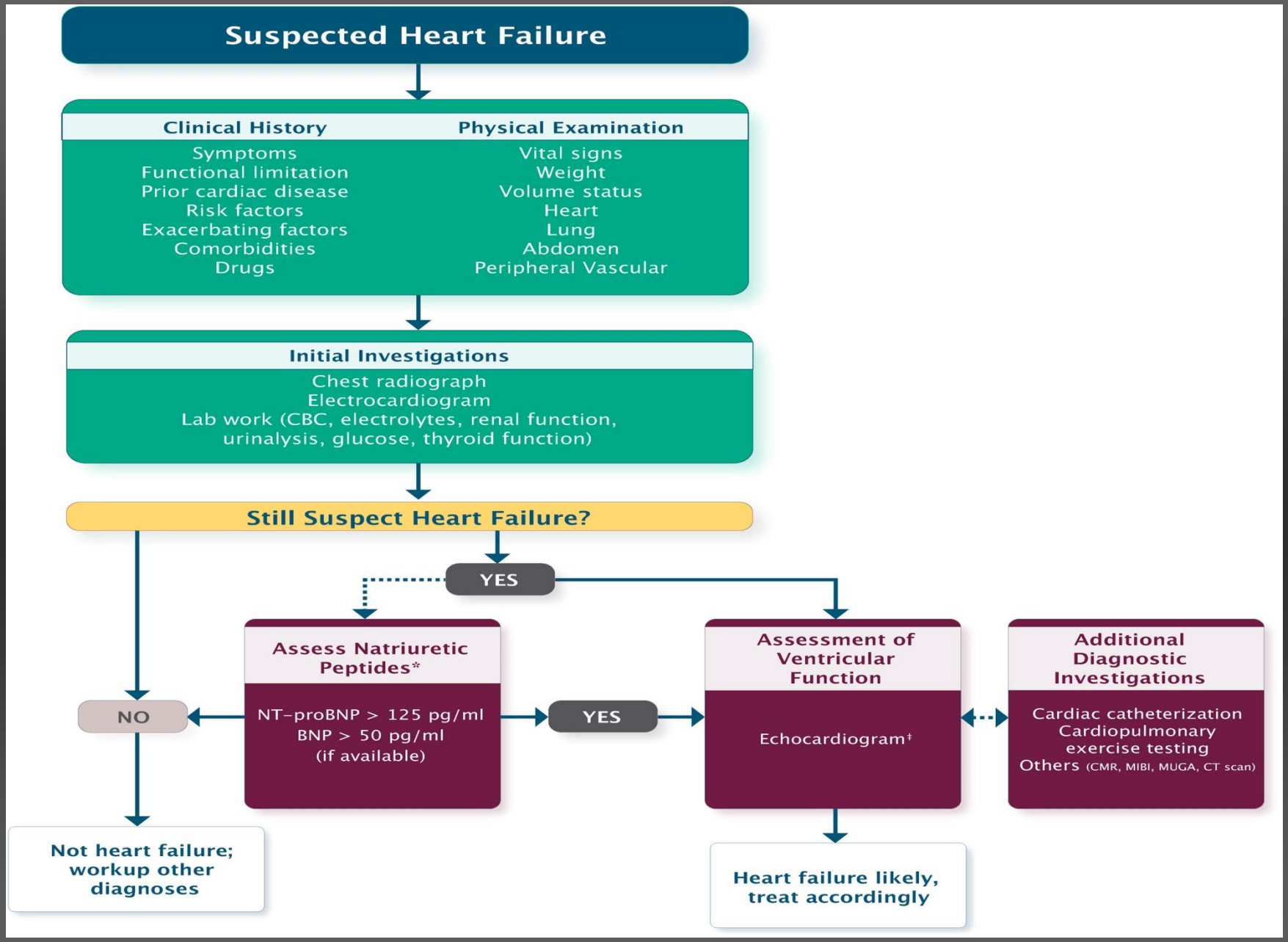


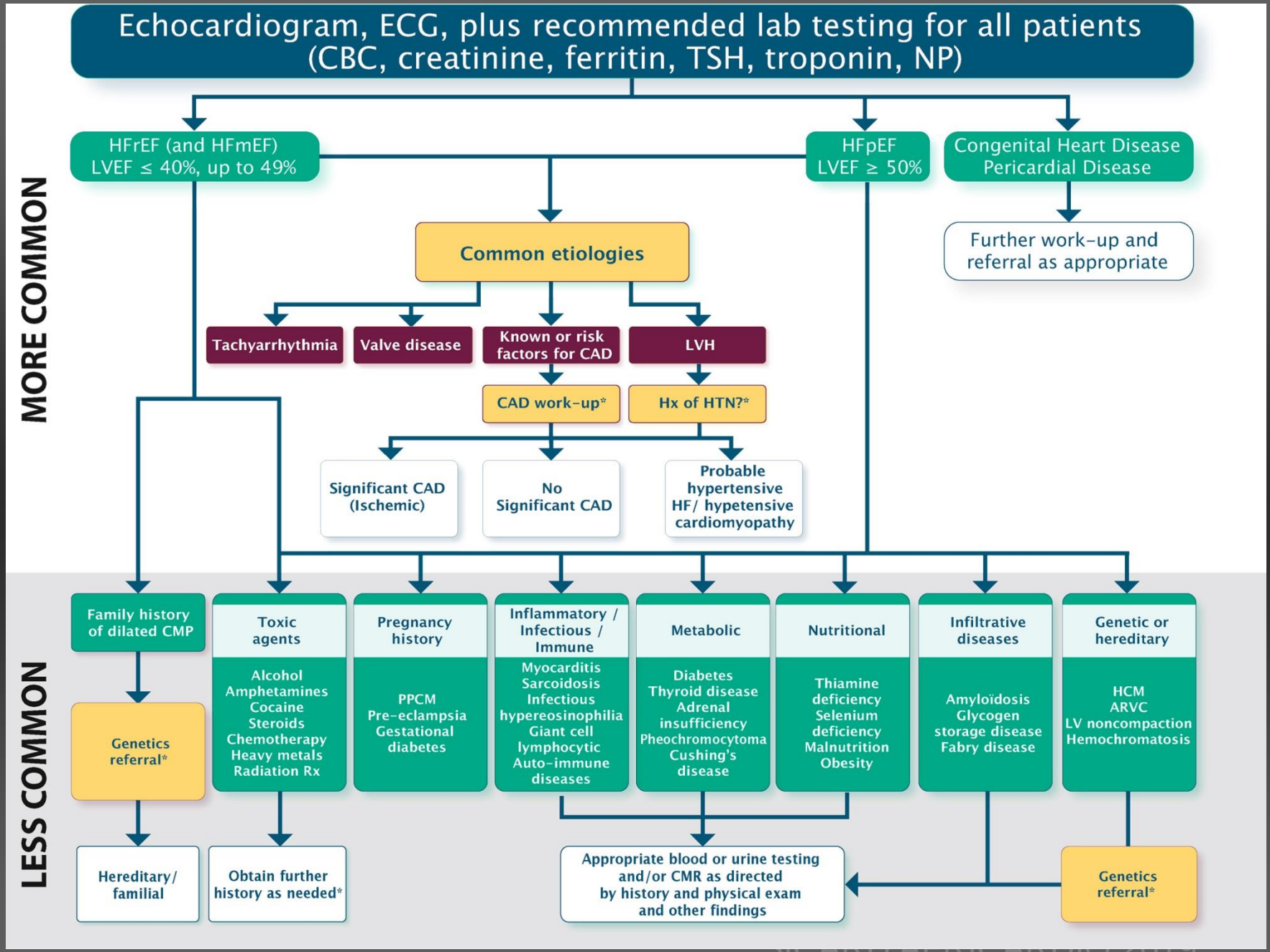
Gilbert RE, et al. Lancet, 2015;385:2107-2117

Heart failure in diabetes: effects of anti-hyperglycaemic drug therapy

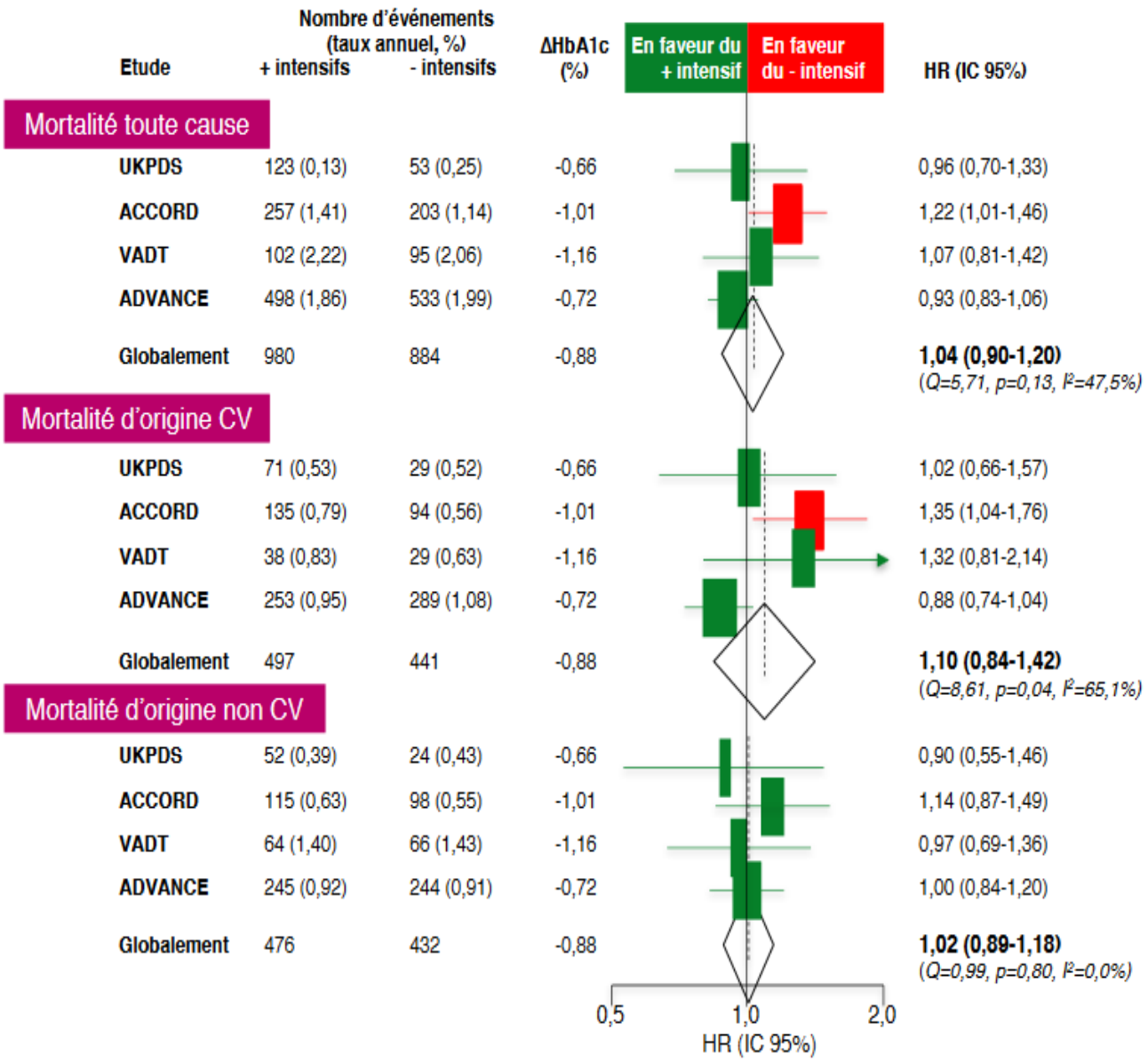


Gilbert RE, et al. Lancet, 2015;385:2107-2117



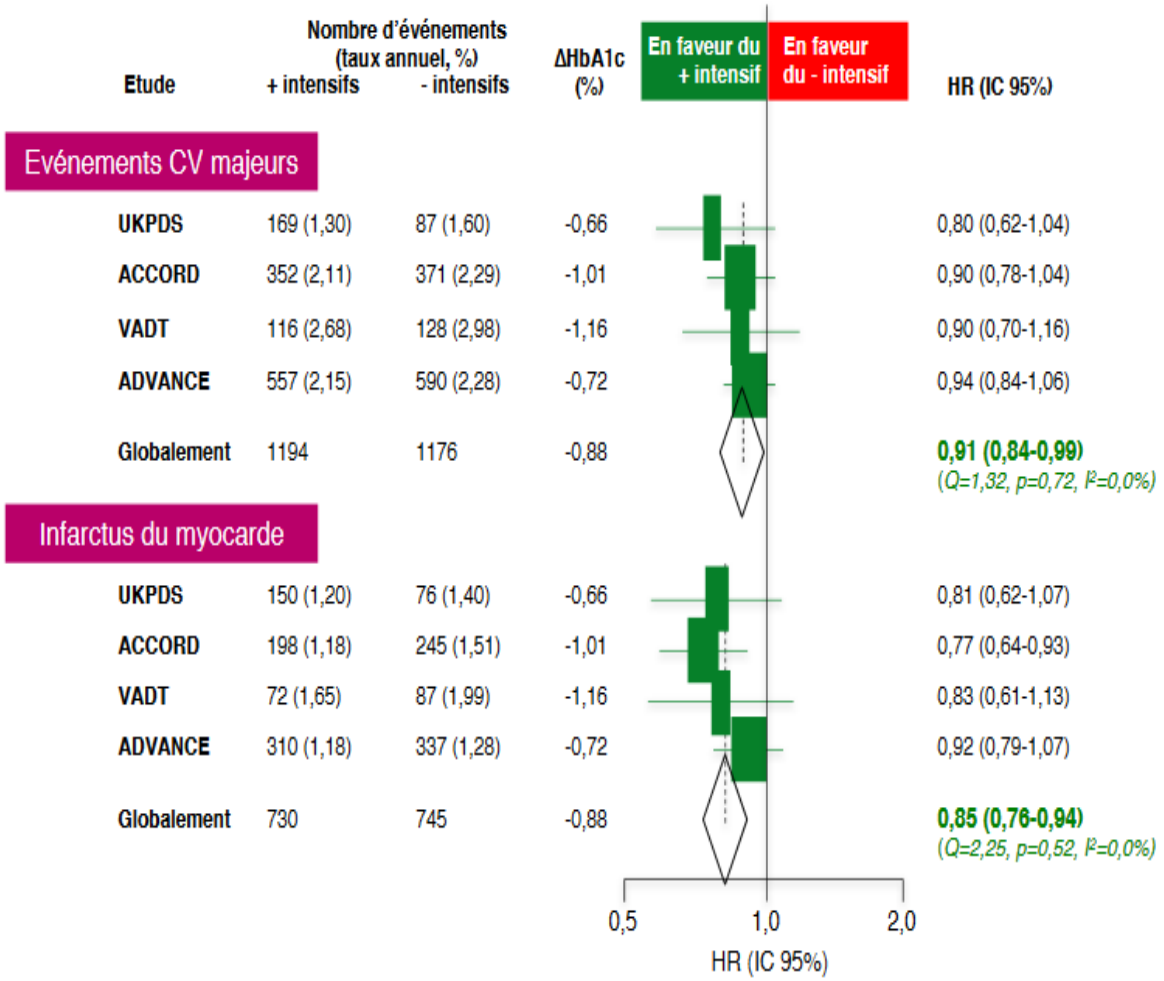


Diabète de type 2 : contrôle glycémique et mortalité



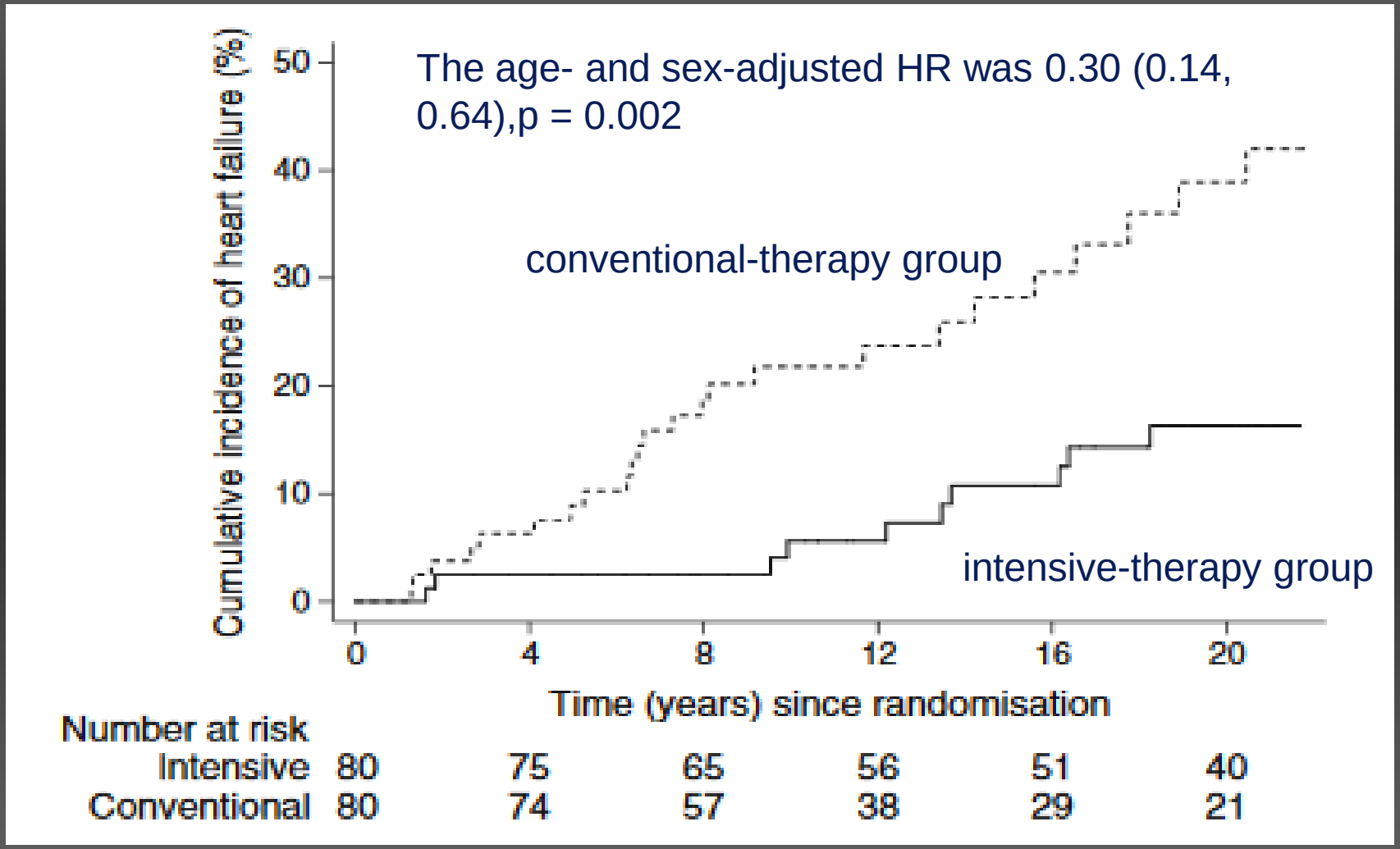
Turnbull FM et al. Diabetologia 2009;52:2288–98.

Diabète de type 2 : contrôle glycémique et événements cardiovasculaires



Turnbull FM et al. Diabetologia 2009;52:2288–98.

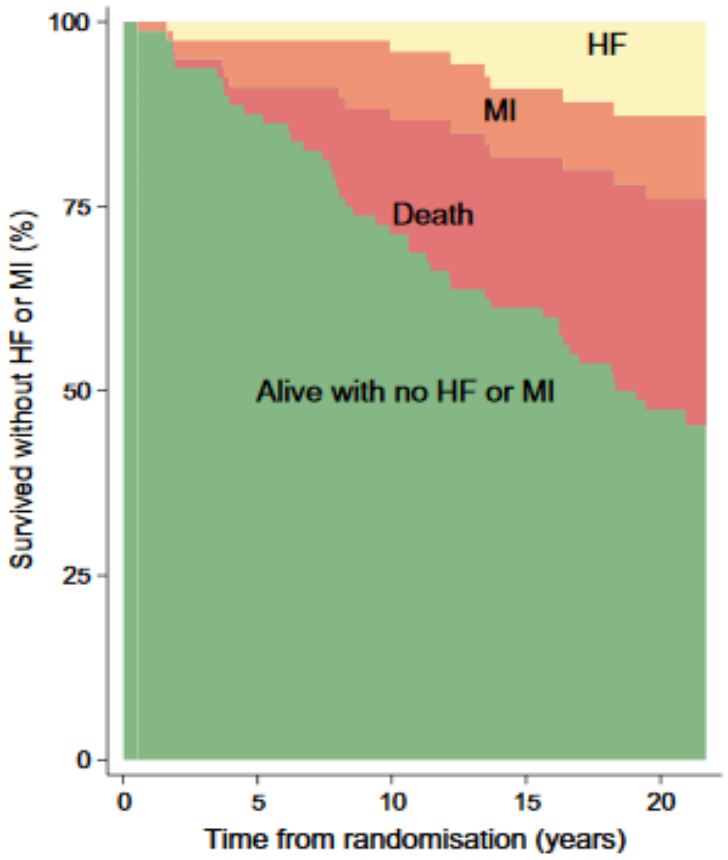
Reduced risk of heart failure with intensified multifactorial intervention in individuals with type 2 diabetes and microalbuminuria: 21 years of follow-up in the randomised Steno-2 study



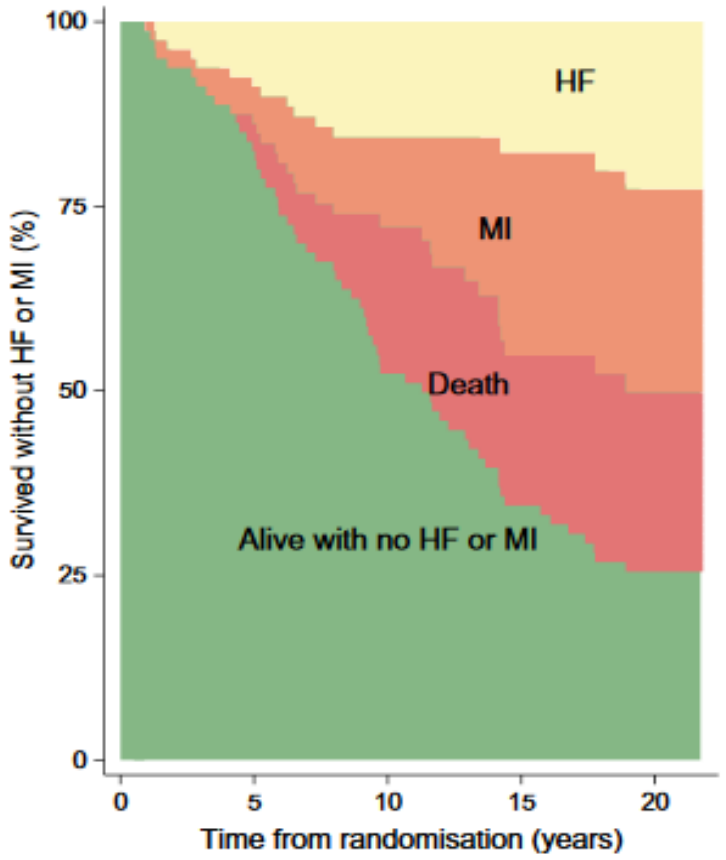
Oellgaard J, et al. Diabetologia. 2018;61:1724–1733.

Reduced risk of heart failure with intensified multifactorial intervention in individuals with type 2 diabetes and microalbuminuria: 21 years of follow-up in the randomised Steno-2 study

intensive-therapy group

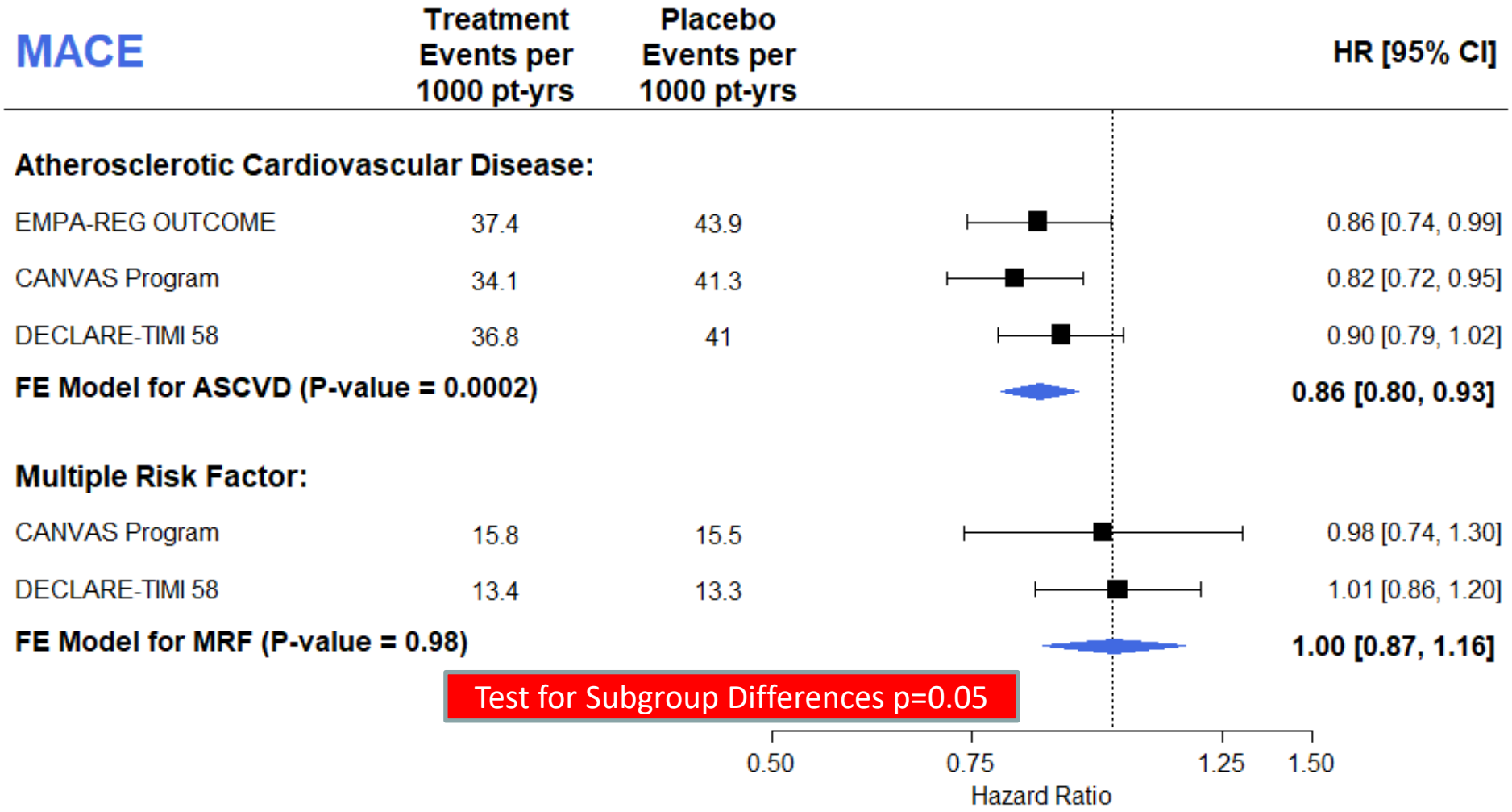


conventional-therapy group



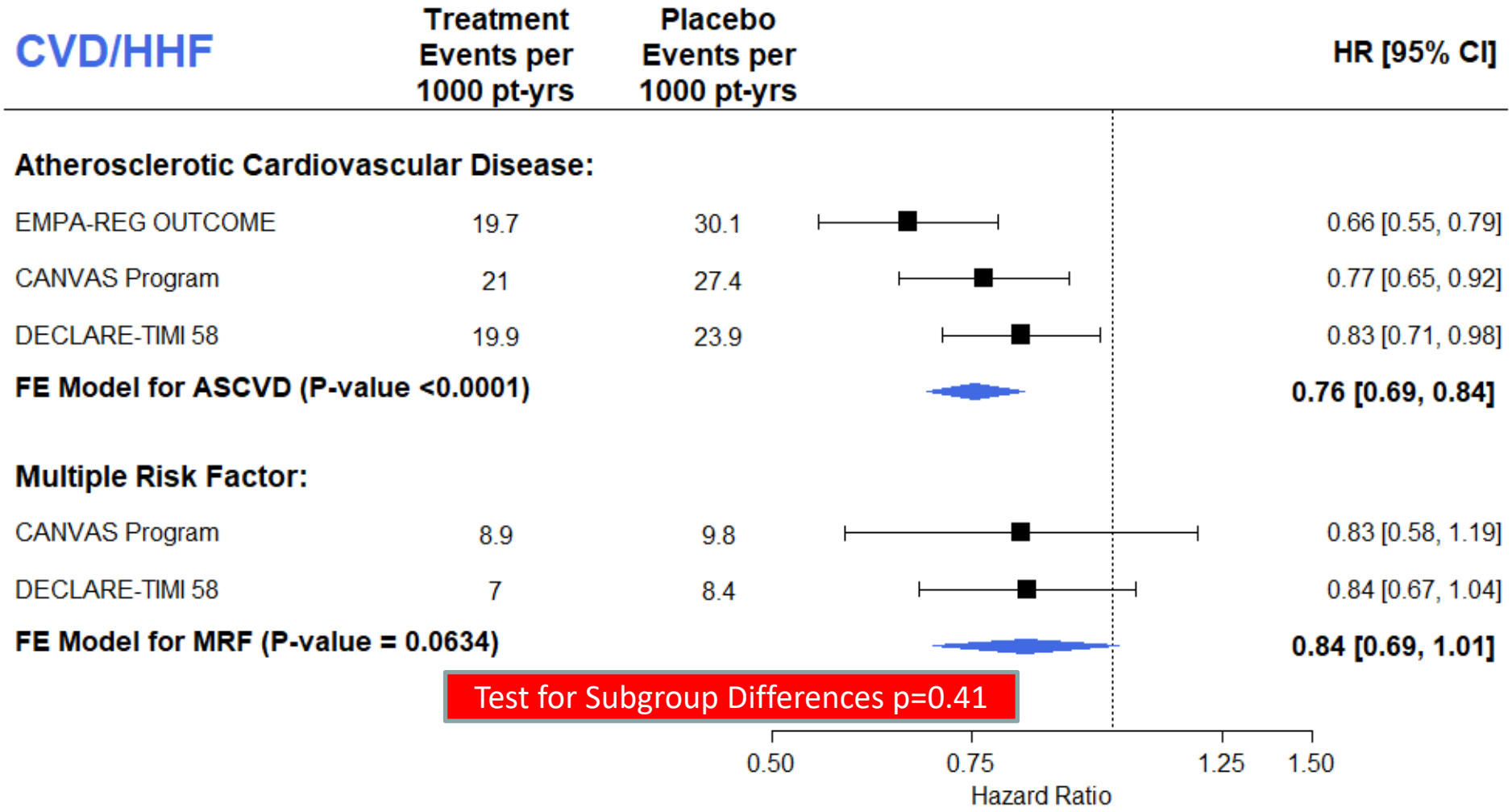
Oellgaard J, et al. Diabetologia. 2018;61:1724–1733.

Meta-Analysis of CVOTs: MACE by Presence of ASCVD



Zelniker TA, et al. Lancet 2018, in press

Meta-Analysis of CVOTs: CVD/HHF by Presence of ASCVD



Zelniker TA, et al. Lancet 2018, in press

Post-SCA

Contrôle des Facteurs de risque
Education Thérapeutique

Optimisation pharmacologique
IEC/ARA II-Bétabloquants-Statine

Réduire le Risque Résiduel

Individualisation du risque

Anti-aggrégation Anticoagulation

Prolongation :
- de Bithérapie anti-aggrégante
- Ticagrelor ?

Introduction AOD :
Rivaroxaban

Lipides

LDL-Cs :
- Ezetrol
- PCSK9

Hpertrigycléridémie :
- Icosapent éthyle

Lp (a) :
-inhibiteur LP (a)

Diabétique

Agonistes :
- GLP-1

Inhibiteurs :
- SGLT-2

Voie Inflammatoire CRP us

Canakinumab