

Treatment patterns in patients with coronary artery disease with and without diabetes

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In collaboration with

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on behalf of the EHS group

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Participating centres

110 centres
from 25 countries

type of centre:

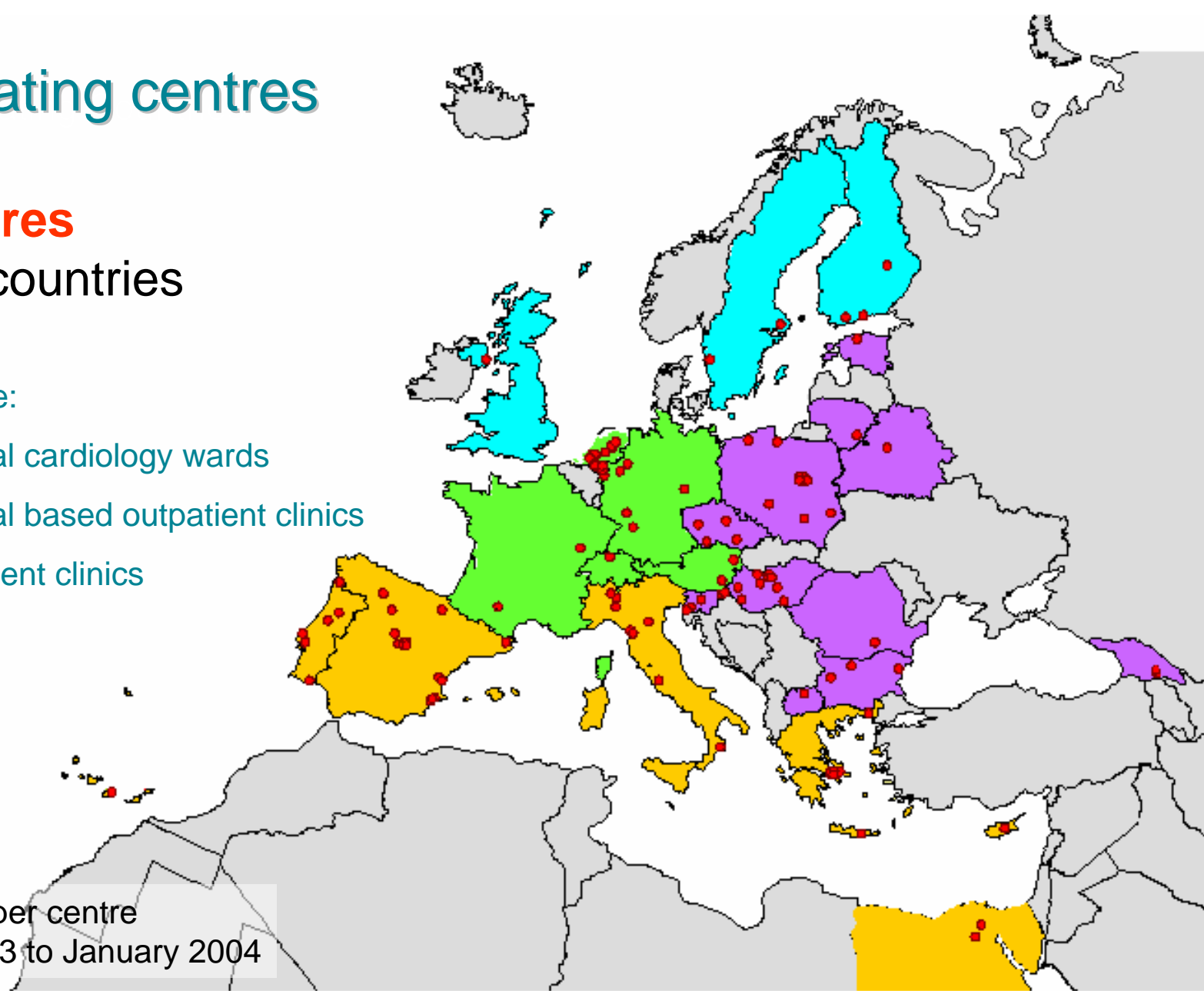
47% hospital cardiology wards

45% hospital based outpatient clinics

8% outpatient clinics

2- 12 weeks per centre

February 2003 to January 2004



Expert committee

- Lars Rydén (SE Chairman)
- Malgorzata Bartnik (PL; Research fellow)
- Roberto Ferrari (IT)
- Klas Malmberg (SE)
- Kalevi Pyörälä (SF)
- Maarten Simoons (NL)
- Jordi Soler-Soler (ES)
- Eberhard Standl (DE; EASD representative)
- John Öhrvik (SE; Biostatistician)

Patients

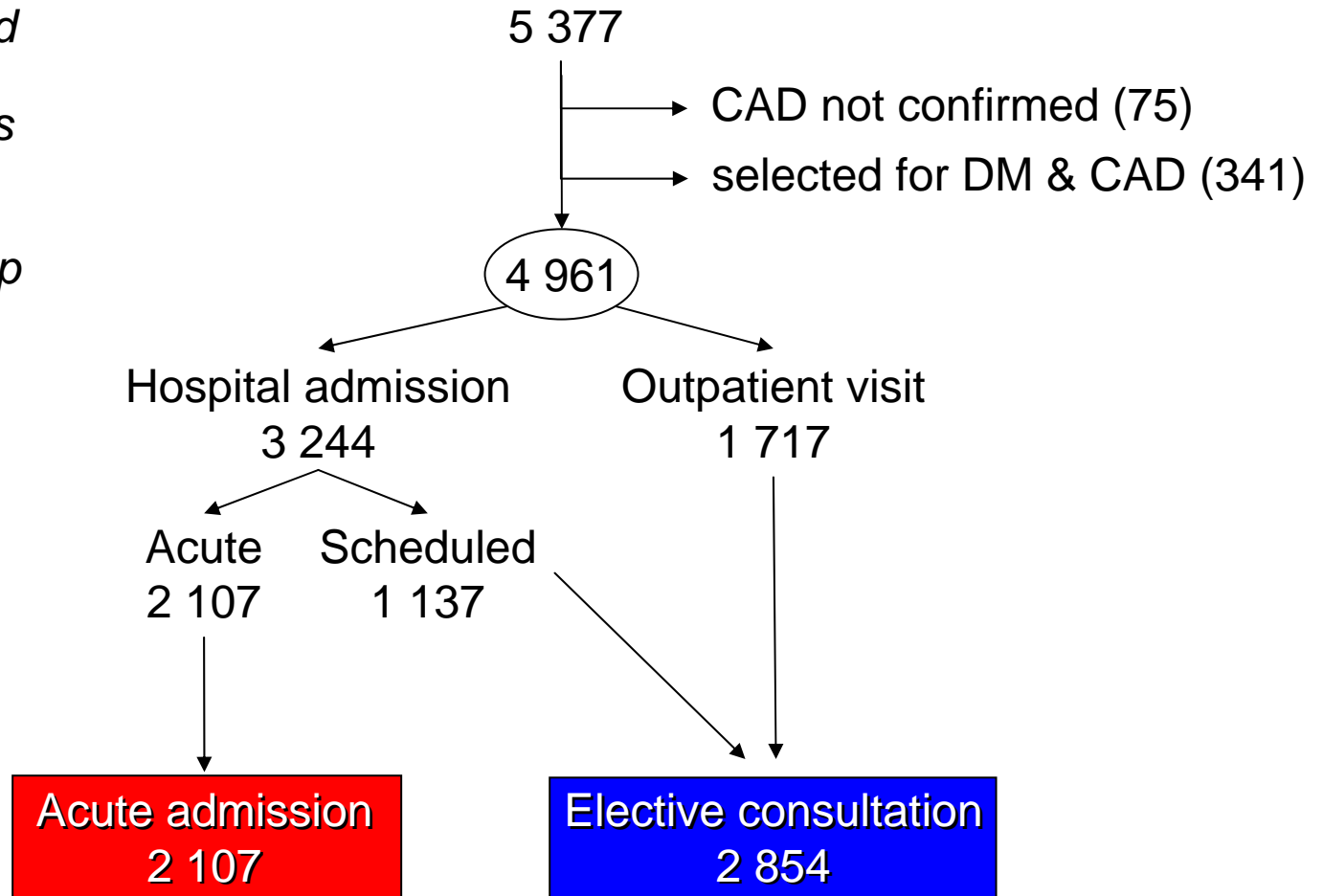
All CRFs collected

Protocol violations

Final patient group

Site of enrolment

Clinical condition



Reason for consultation

Acute admission (n=2 107)	
Acute coronary syndromes	89%
STEMI	36%
NSTEMI	19%
unstable angina	36%
Miscellaneous	11%

and/or heart failure	13%

Elective consultation (n=2 854)	
Previous acute admission within 3 months	26%
New CAD diagnosis	11%

Unstable angina	18%
Stable angina	47%
No chest pain	17%

and/or heart failure	26%
and/or peripheral artery disease	20%
and/or cerebrovascular disease	15%

Patient material

All acute admissions

Acute admission
2 107

Reason for consultation
miscellaneous n = 235 (11%)

Final diagnosis

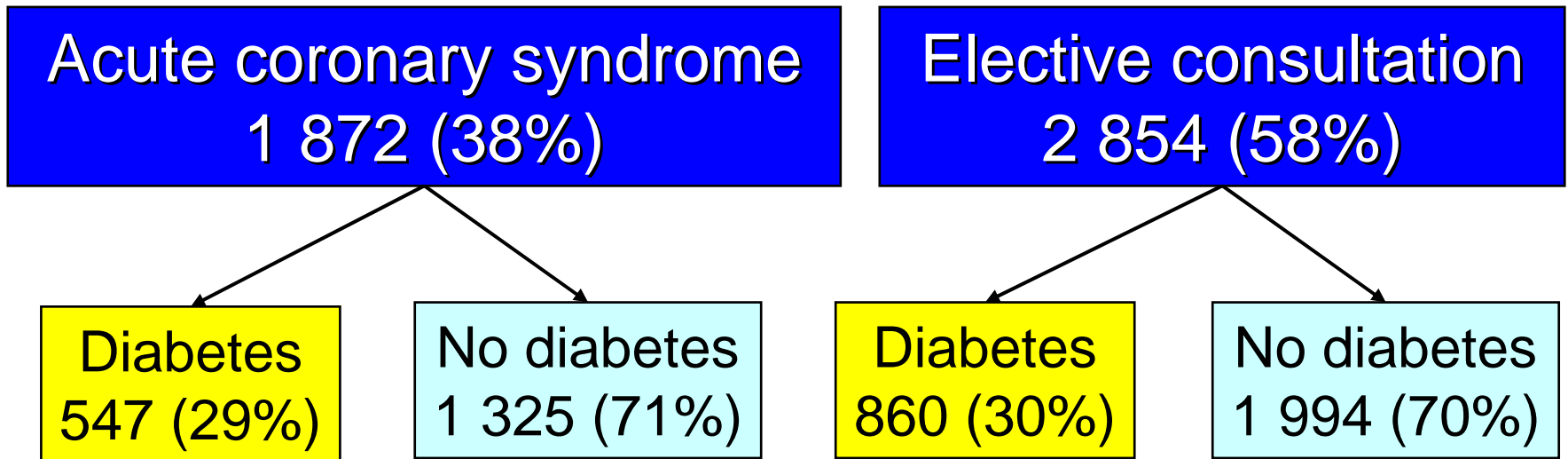
ACS 151 (64%)

Stable angina 84 (36%)

Final acute cohort

Acute coronary syndrome
1 872 (89%)

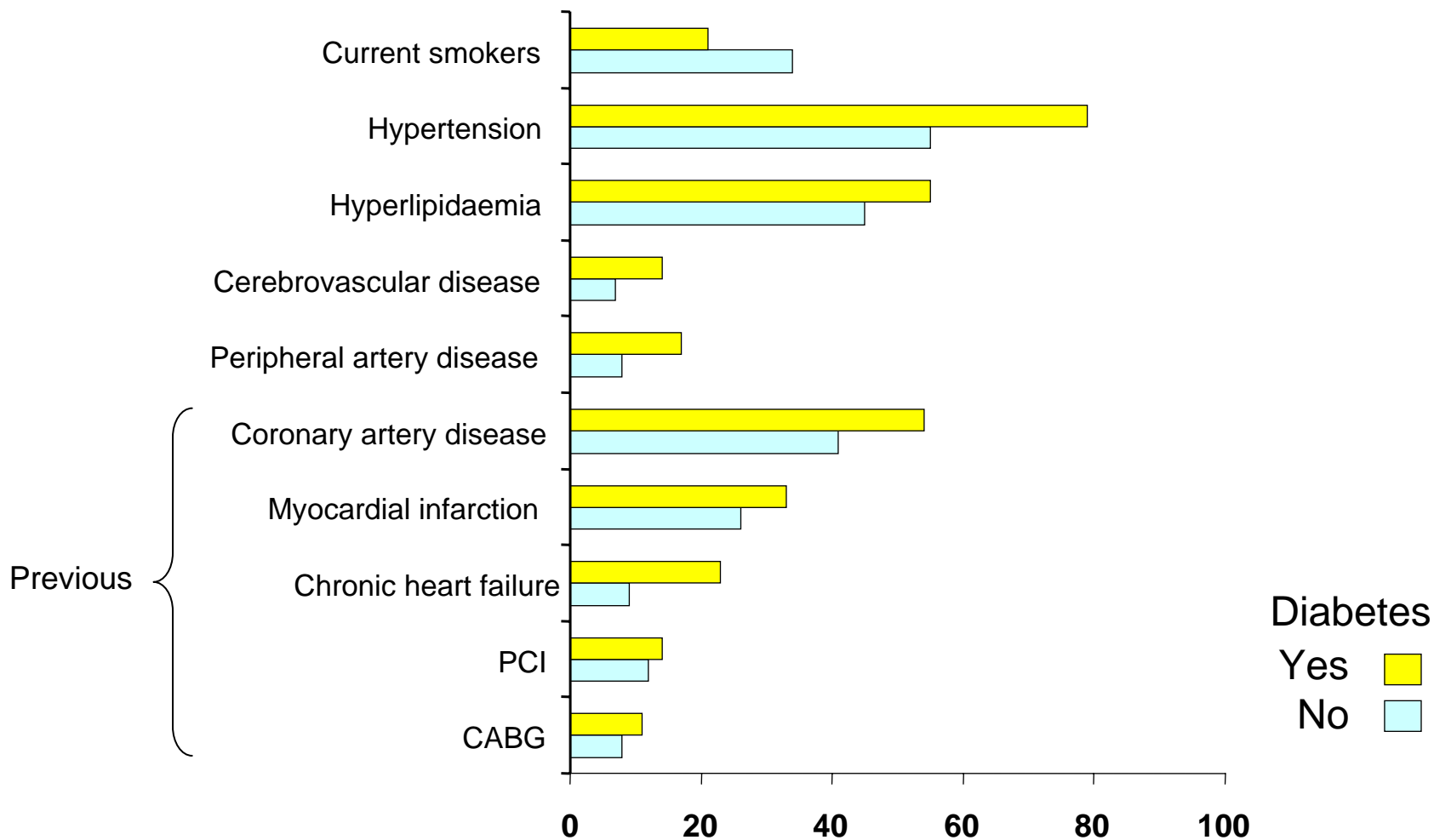
Patient material



Age median yrs	68	65	68	66
Male %	59	74	67	73
BMI kg/m ²	28	27	28	27

Medical history

Acute coronary syndrome (n=1 872)

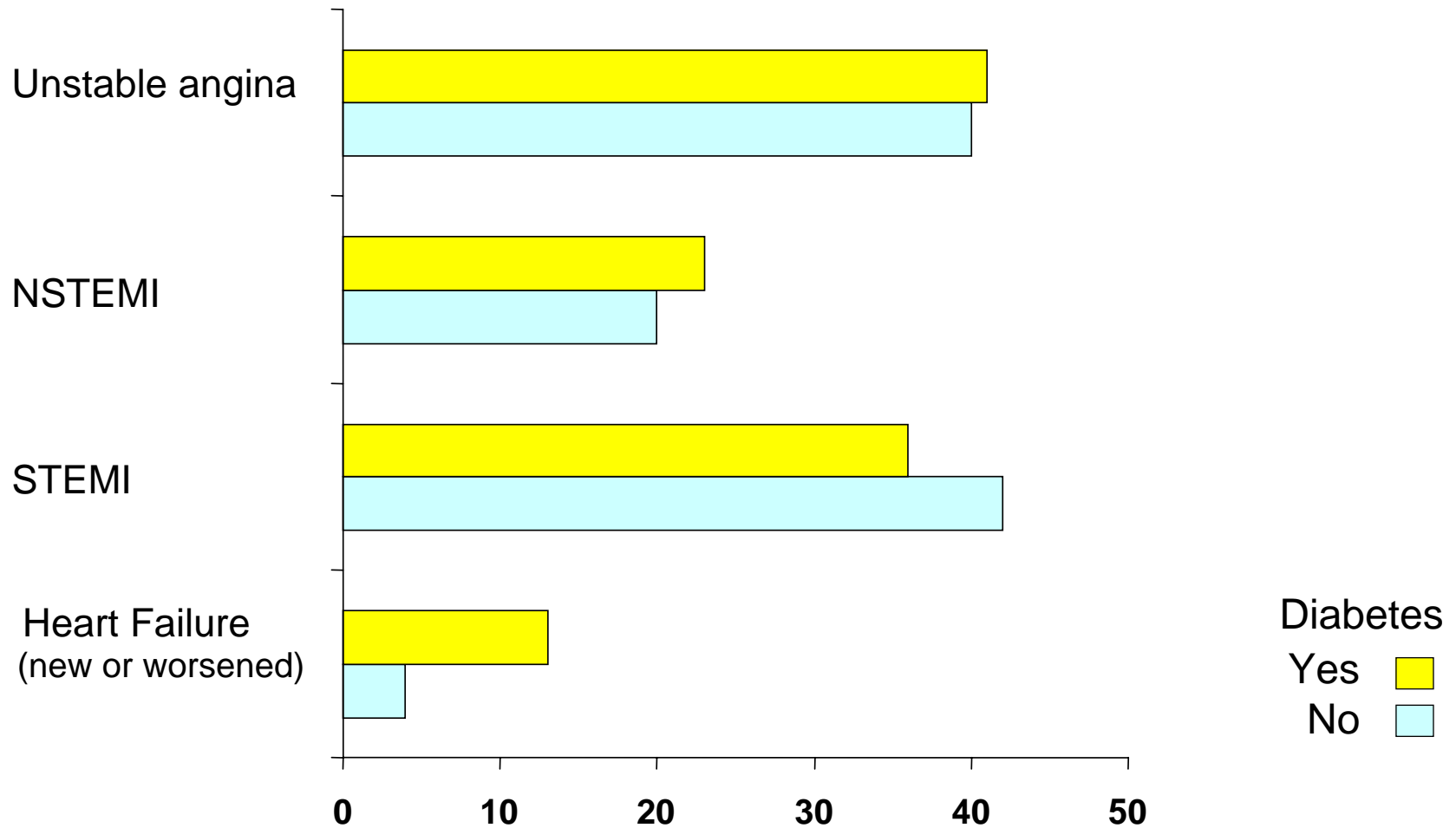


Characteristics of patient with vs. those without DM

- ♥ Higher age
- ♥ Less male gender (still >50%) and smokers
- ♥ More hypertension and hyperlipidaemia
- ♥ More heart failure, coronary artery disease and myocardial infarction
- ♥ More often previous PCI and CABG

Diagnosis at admission

Acute coronary syndrome (n=1 872)

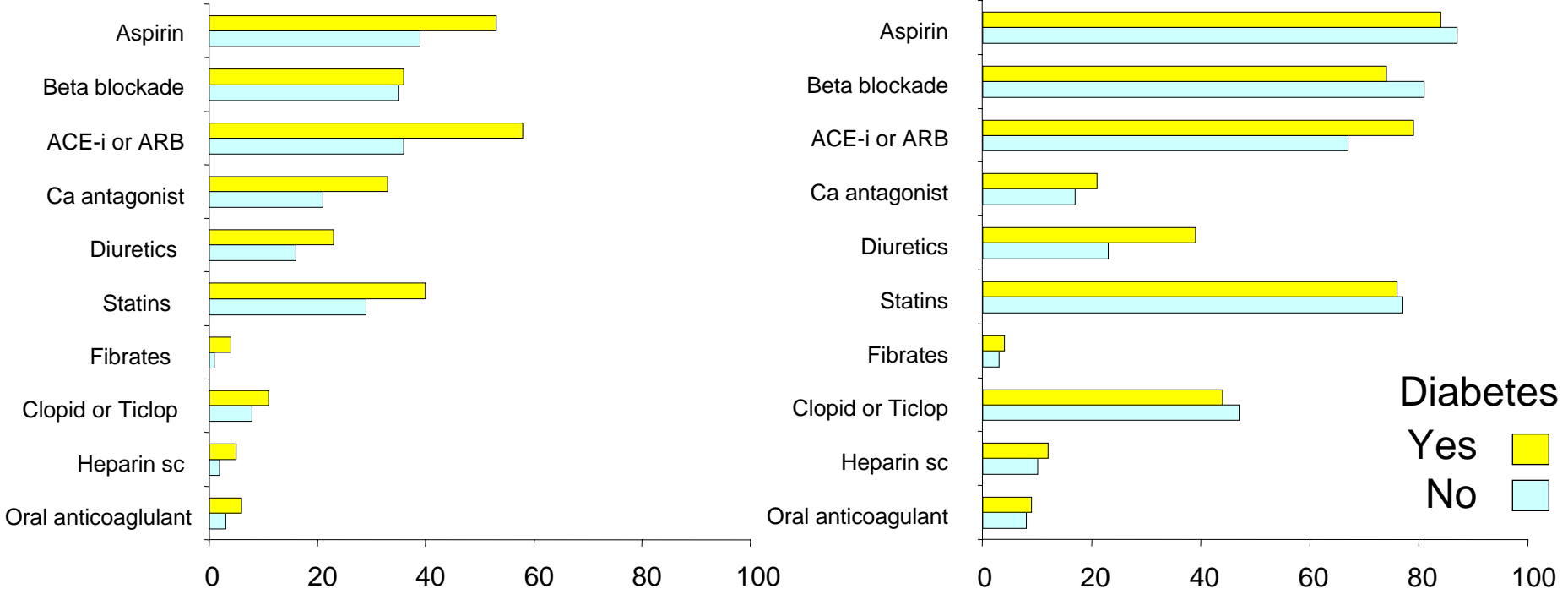


Treatment at baseline and discharge

Acute coronary syndrome (n=1 872)

Admission

Discharge

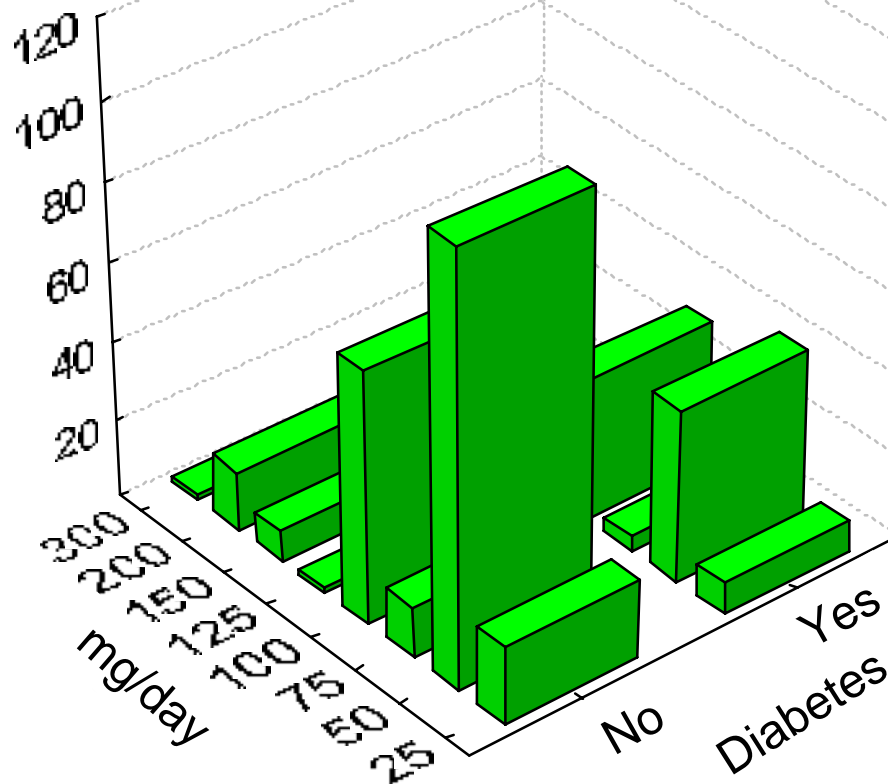


Adjustments in therapy at consultation	Diabetes	No diabetes	Diff
	11 %	8 %	p<0.01

Dosage of metoprolol at admission

(The most commonly prescribed betablocker)

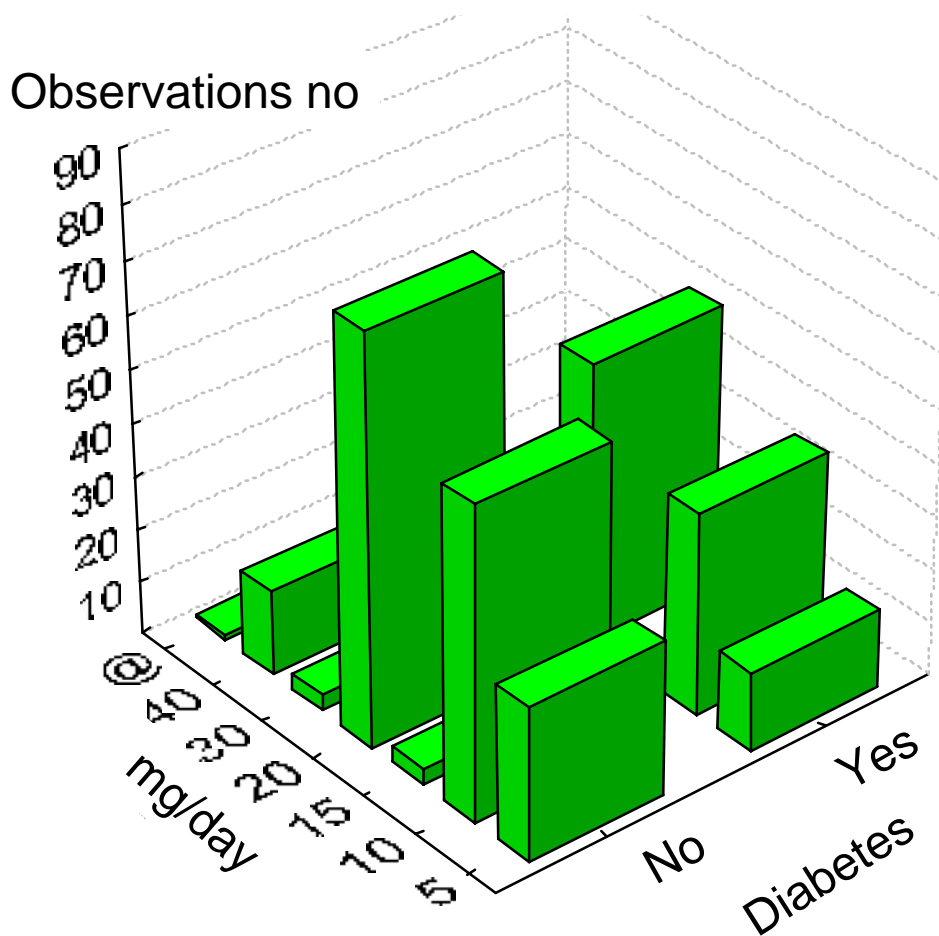
Observations no



Betablocker at admission (%)	DM	No DM
Metoprolol	17	17
Atenolol	6	8
Bisoprolol	7	5
Carvedilol	7	4

Dosage of enalapril at admission

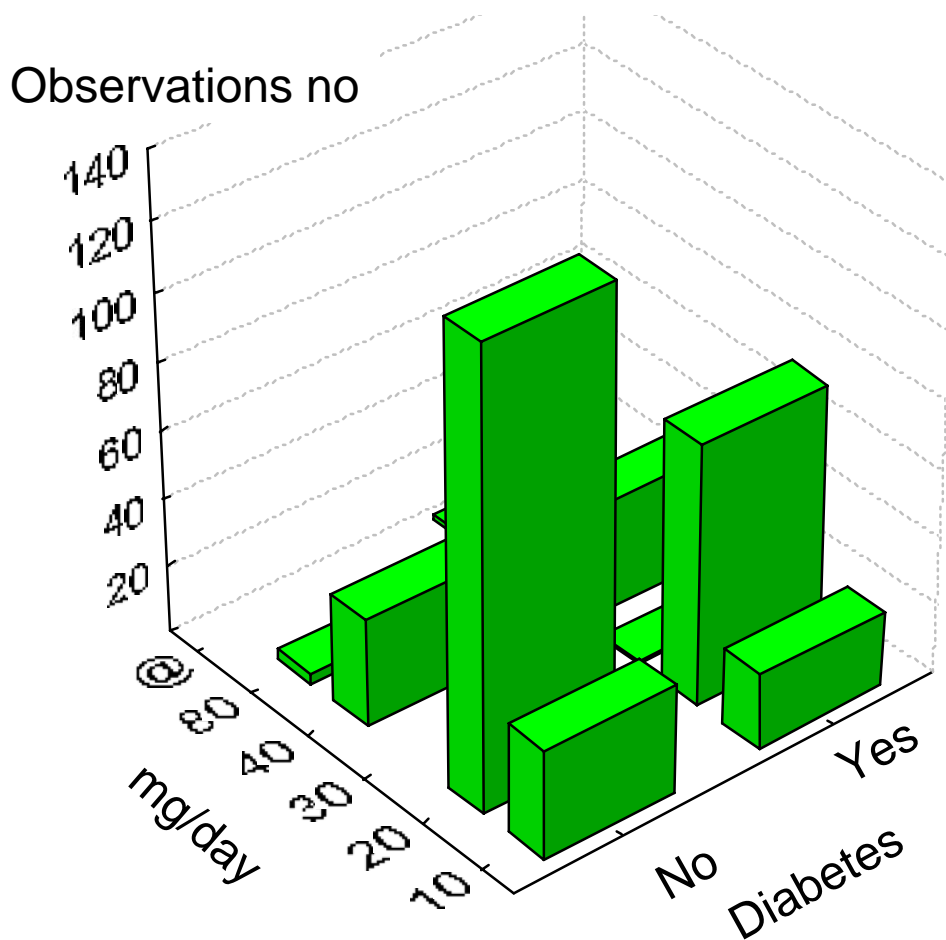
(The most commonly prescribed ACE-inhibitor)



ACE-i at admission (%)	DM	No DM
Enalapril	19	13
Ramipril	10	5
Captopril	7	4
Lisinopril	4	3

Dosage of simvastatin at admission

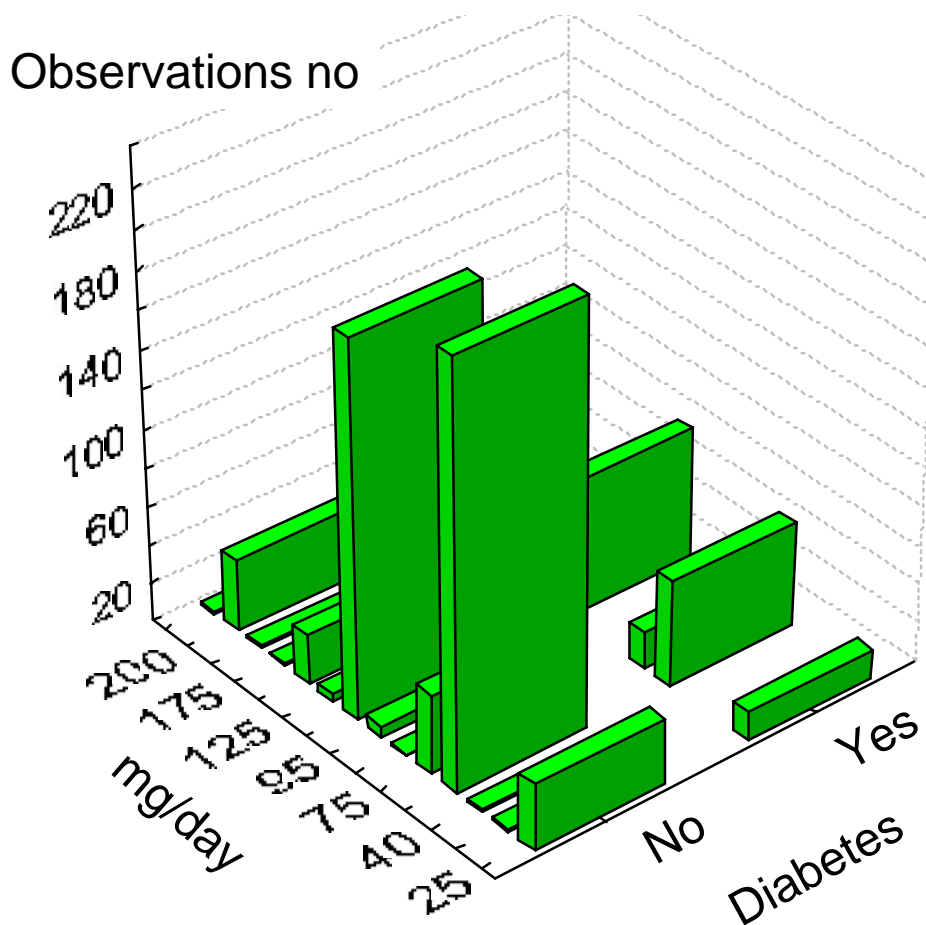
(The most commonly prescribed statin)



Statin at admission (%)	DM	No DM
Simvastatin	20	14
Atorvastatin	11	8
Pravastatin	5	5

Dosage of metoprolol at discharge

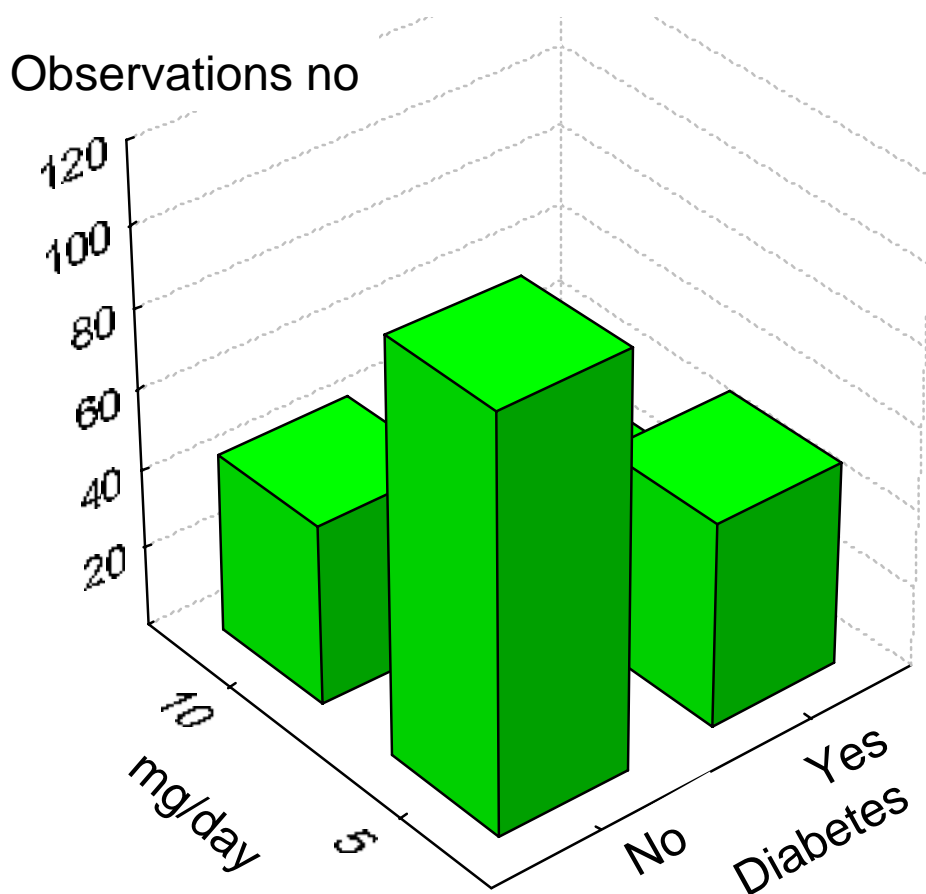
(The most commonly prescribed betablocker)



Betablocker at discharge (%)	DM	No DM
Metoprolol	29	41
Atenolol	16	12
Bisoprolol	13	10
Carvedilol	10	11

Dosage of ramipril at discharge

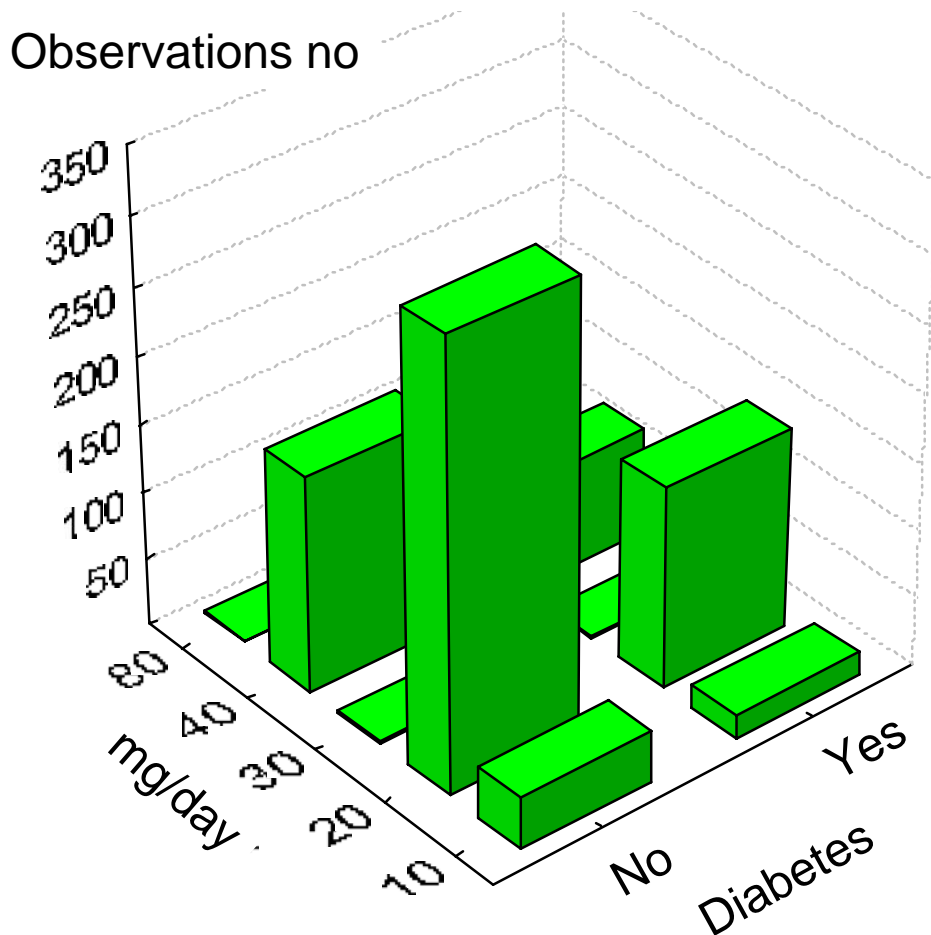
(The most commonly prescribed ACE-inhibitor)



ACE-i at discharge (%)	DM	No DM
Ramipril	19	18
Enalapril	20	15
Captopril	6	4
Lisinopril	8	7

Dosage of simvastatin at discharge

(The most commonly prescribed statin)



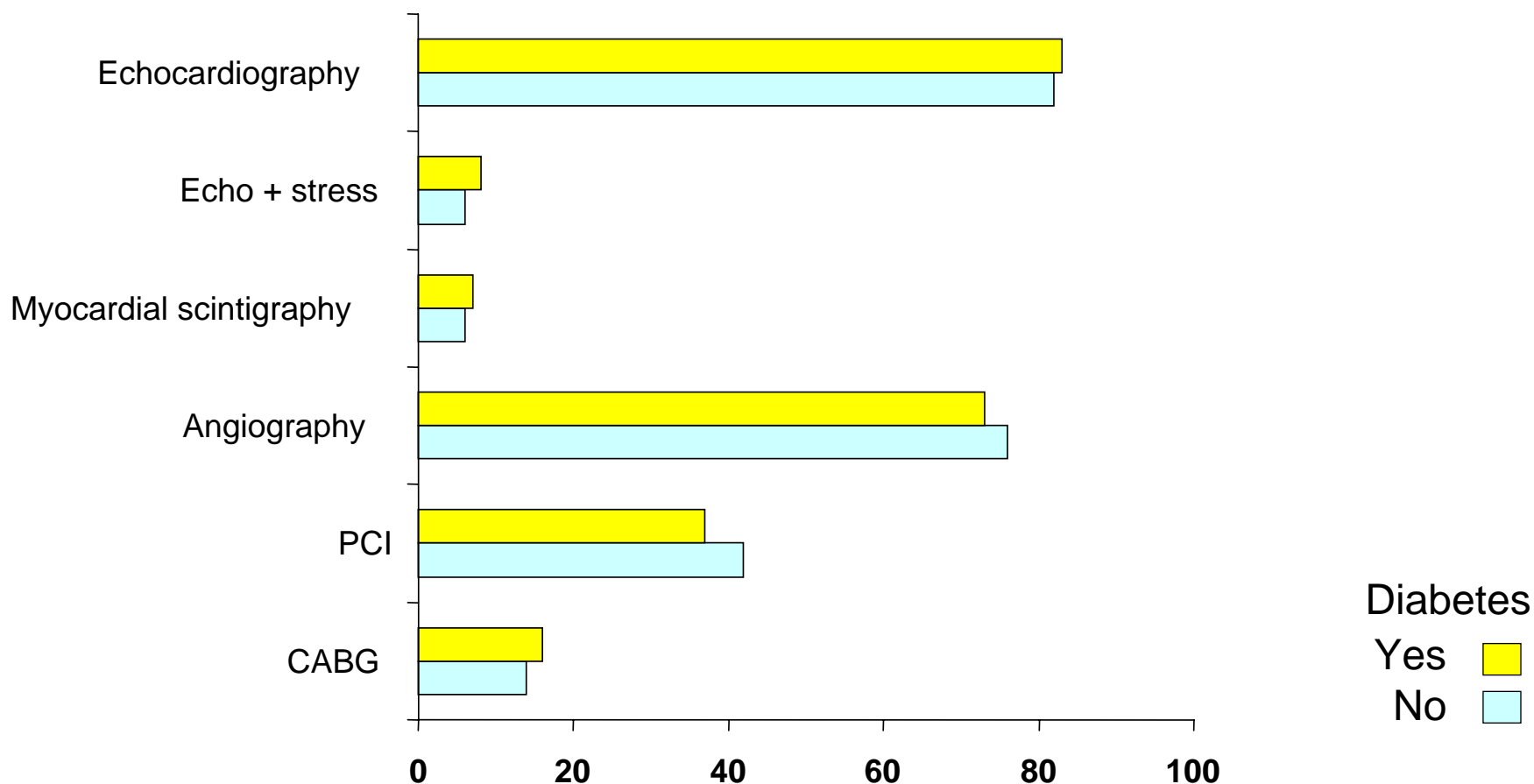
Statin at discharge (%)	DM	No DM
Simvastatin	37	37
Atorvastatin	18	18
Pravastatin	10	5

Characteristics of patient with vs. those without DM

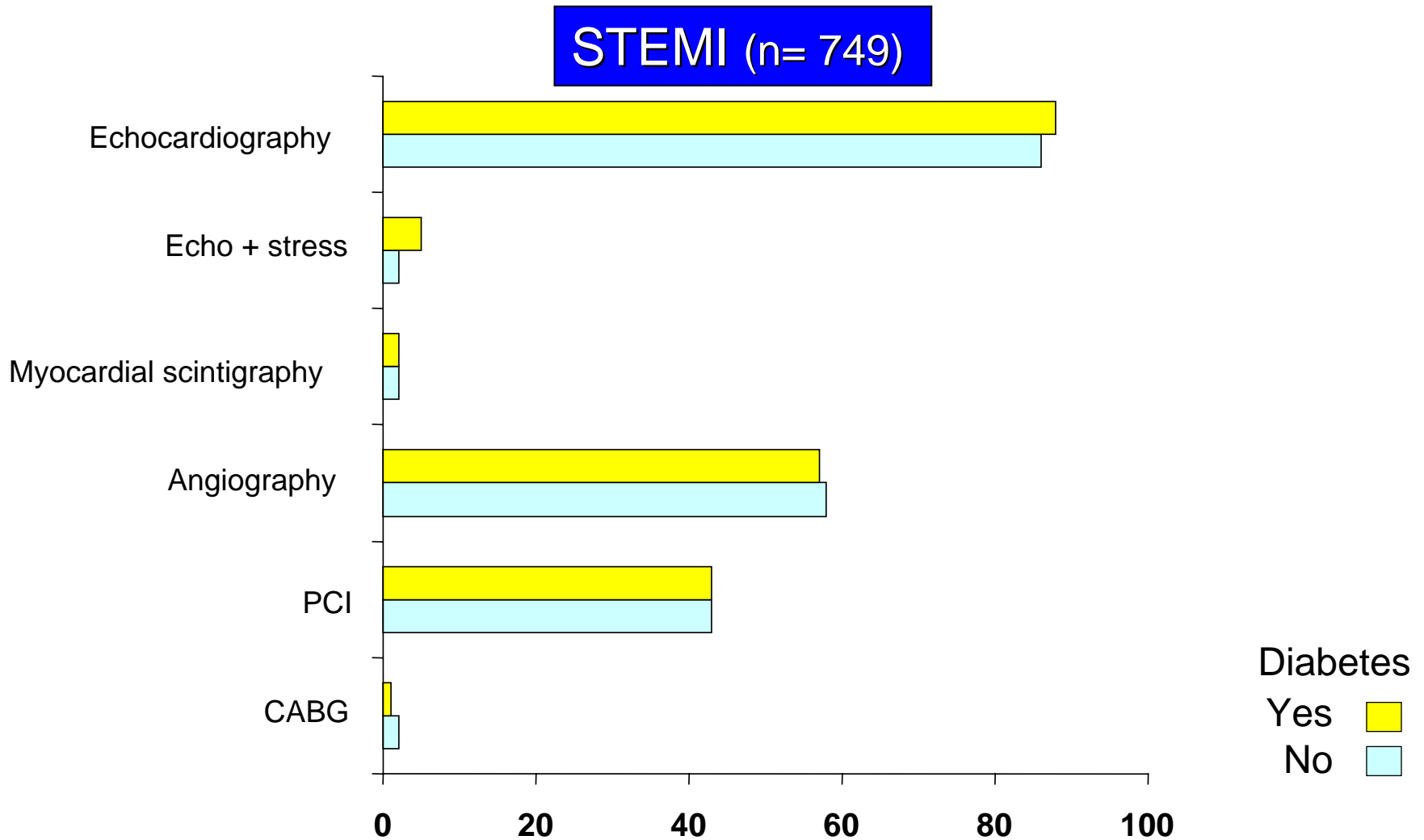
- ♥ more often heart failure
- ♥ less often ST elevation myocardial infarction
- ♥ more often on aspirin, RAA-blockers, statins and a combination of three blood pressure lowering agents (7 vs 4%, $p=0.01$)
- ♥ less often prescribed aspirin, beta-blockers and statins at discharge
- ♥ when on drugs no dosage differences, but overall doses are lower than those with a evidence-based effect

Interventions (planned and performed)

Acute coronary syndrome (n=1 872)

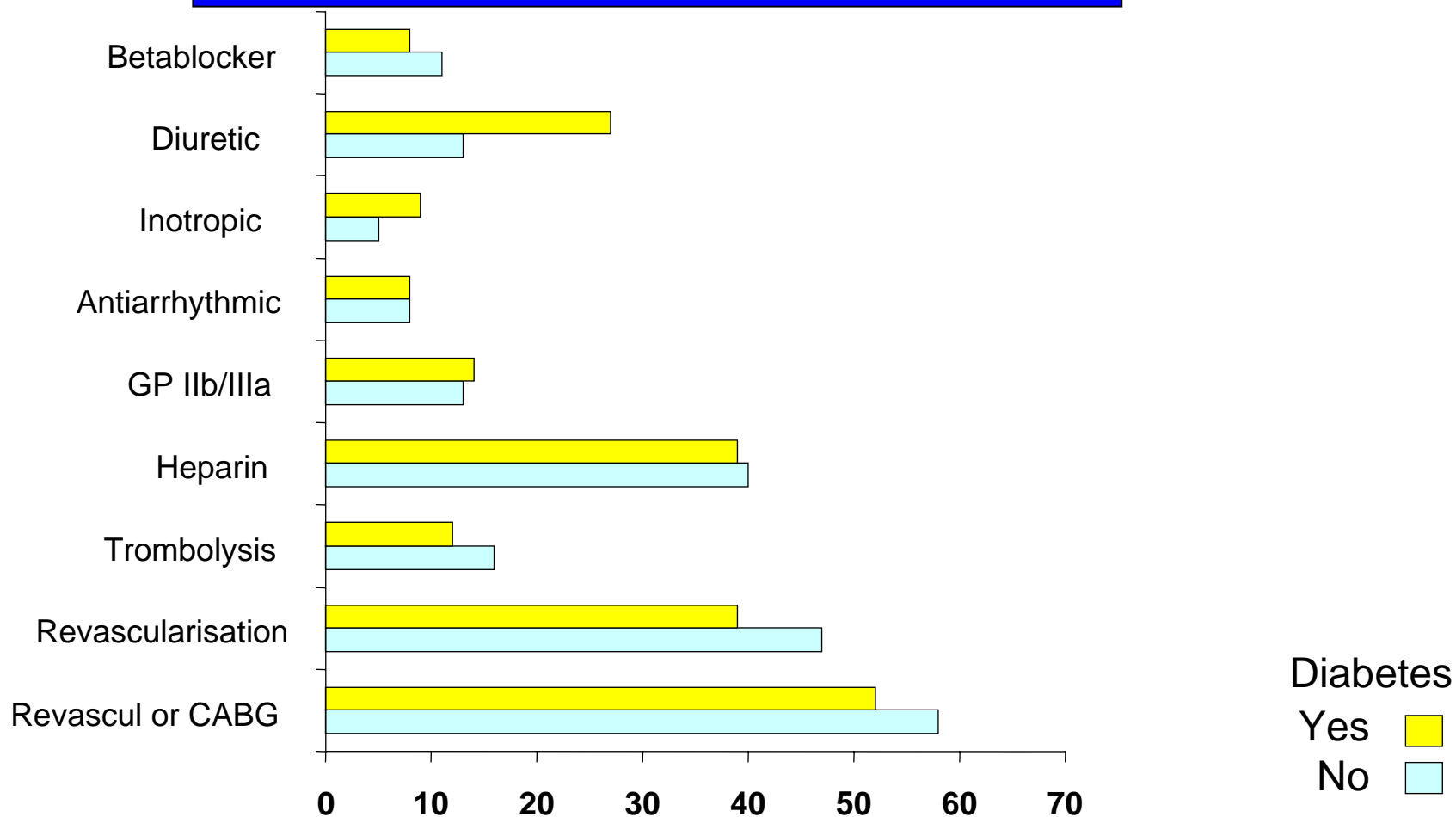


Interventions (performed)

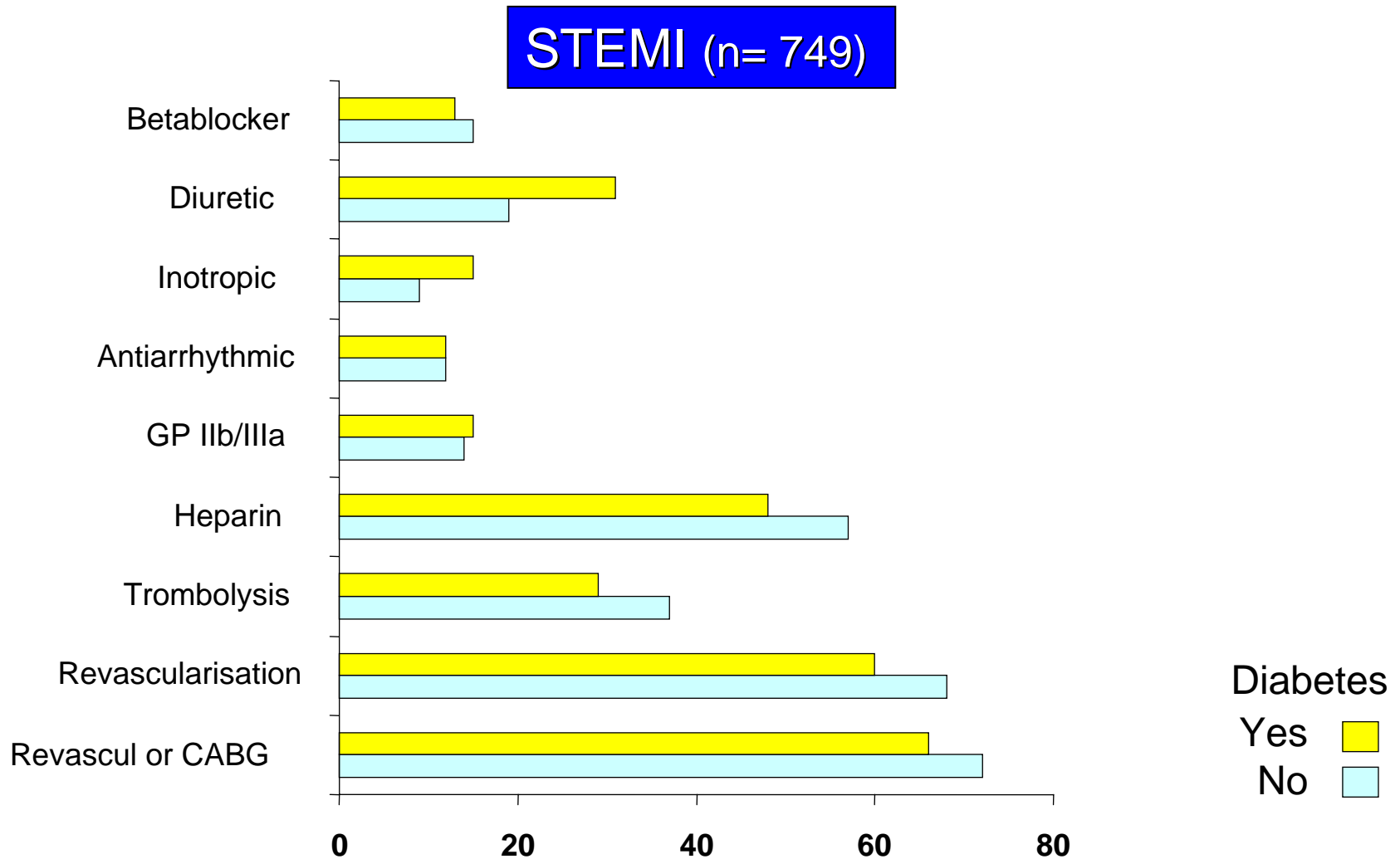


Intravenous therapy during hospitalisation

Acute coronary syndrome (n=1 872)

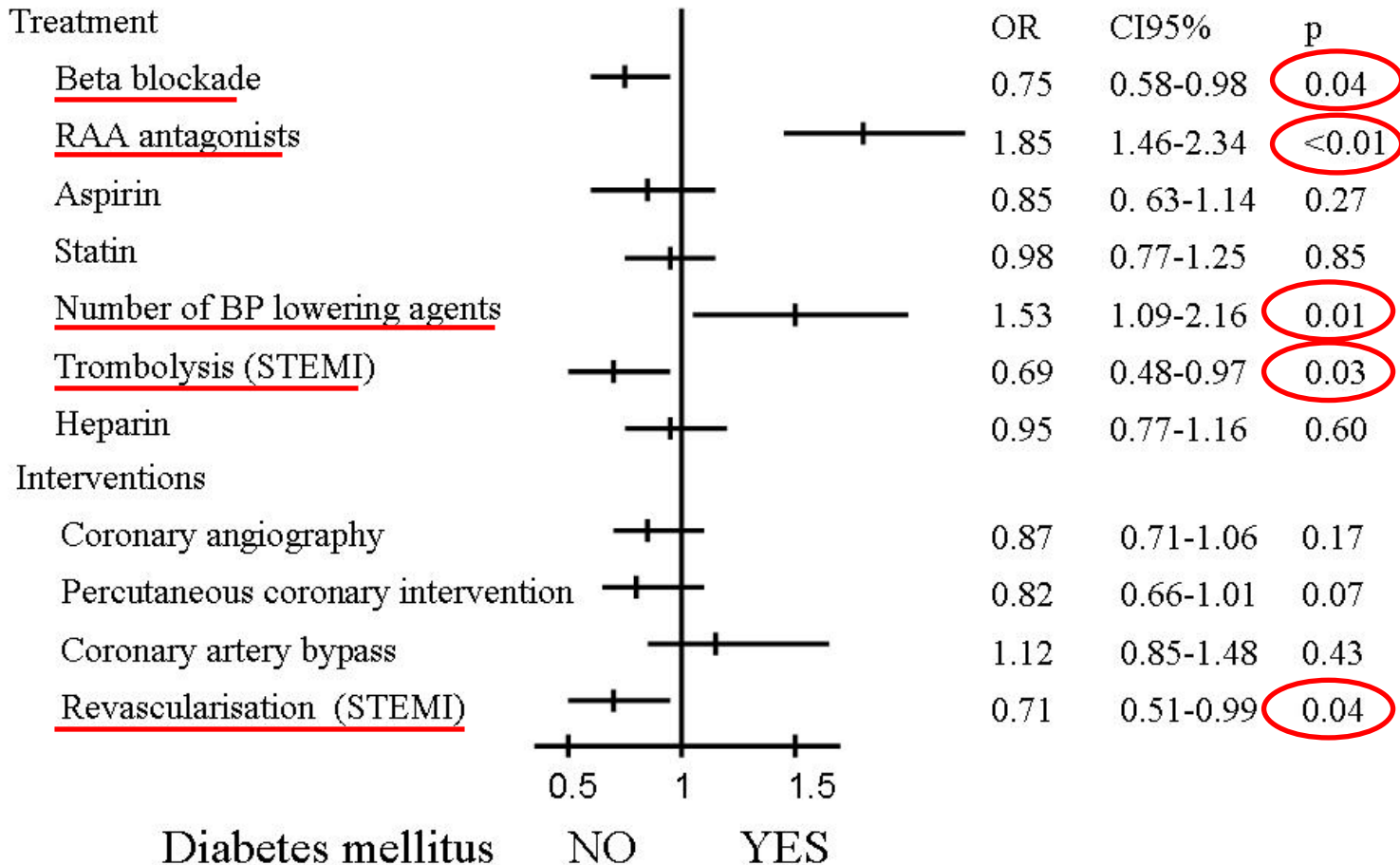


Intravenous therapy during hospitalisation

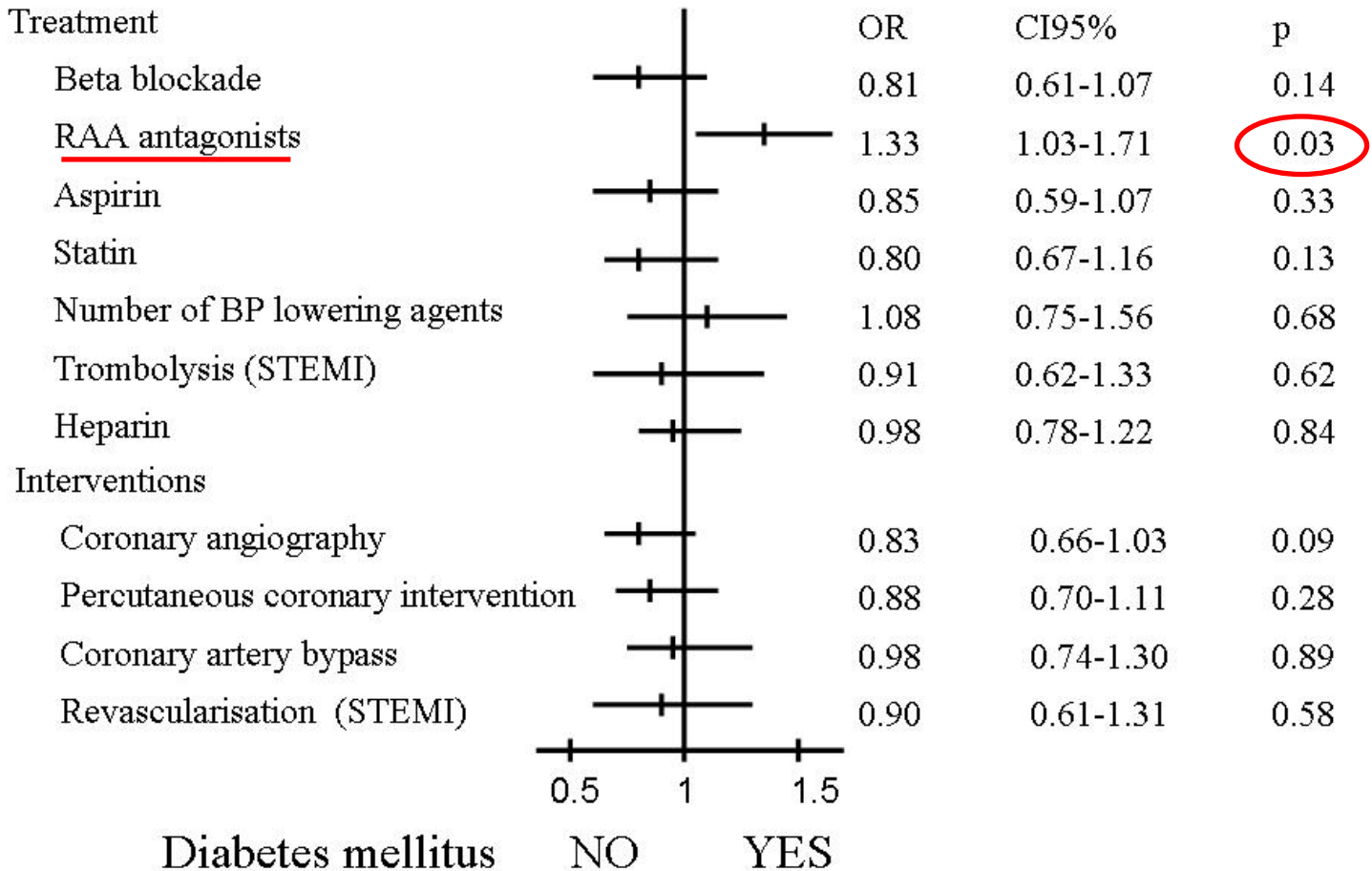


Treatment pattern in relation to diabetic state

- crude analysis



Treatment pattern in relation to diabetic state - corrected by multiple logistic regression*



*age, gender, previous: CAD, heart failure, hypertension, cerebrovascular disease, peripheral artery disease and diabetes

Characteristics of patient with vs. those without DM

- ♥ Diabetes influences discharge prescription of renin-angiotensin-aldosterone system blockers (OR 1.33 CI95% 1.03-1.71; $p=0.03$)
- ♥ Diabetes less important when choosing treatment and interventions than other baseline characteristics
- ♥ It remains to be discussed whether patients with diabetes should be more aggressively treated than those without due to a higher overall risk

Guideline targets for secondary prevention

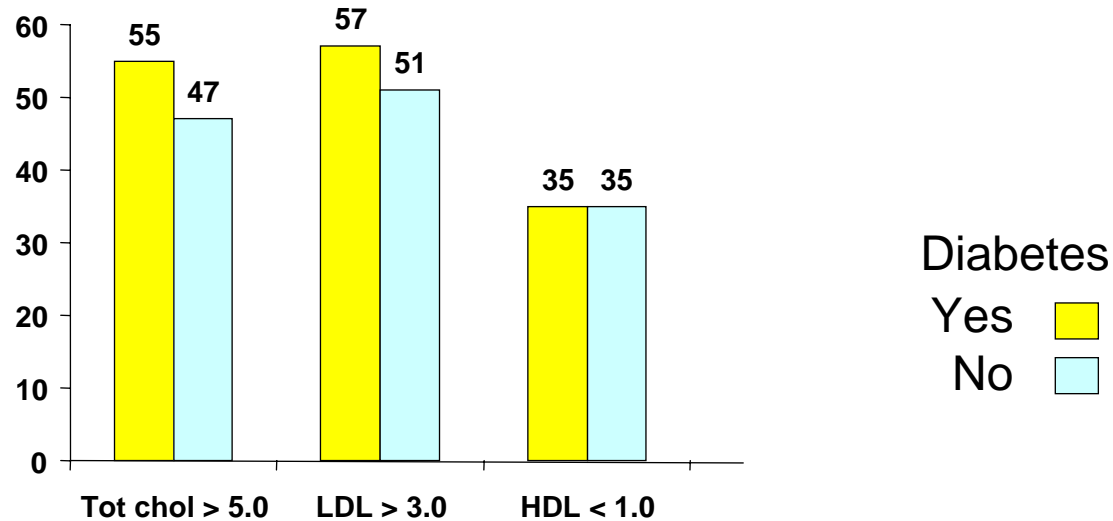
Target recommended for	mmol/L	mg/dl
Total cholesterol	<5.0	190
LDL cholesterol	<3.0	115
HDL cholesterol	>1.0	40
Fasting plasma glucose	<7.2	<130
HbA1c (%)	<7	
Blood pressure (mmHg)	<140/90	

Second Joint Task force of European and other Societies on coronary prevention. Eur Heart J 1998, 19: 1434

American Diabetes Association. Standards of medical care for patients with diabetes mellitus. Diabetes Care 2002, 25: S33

Lipids in patients on statin treatment (n= 1 894; 66%)

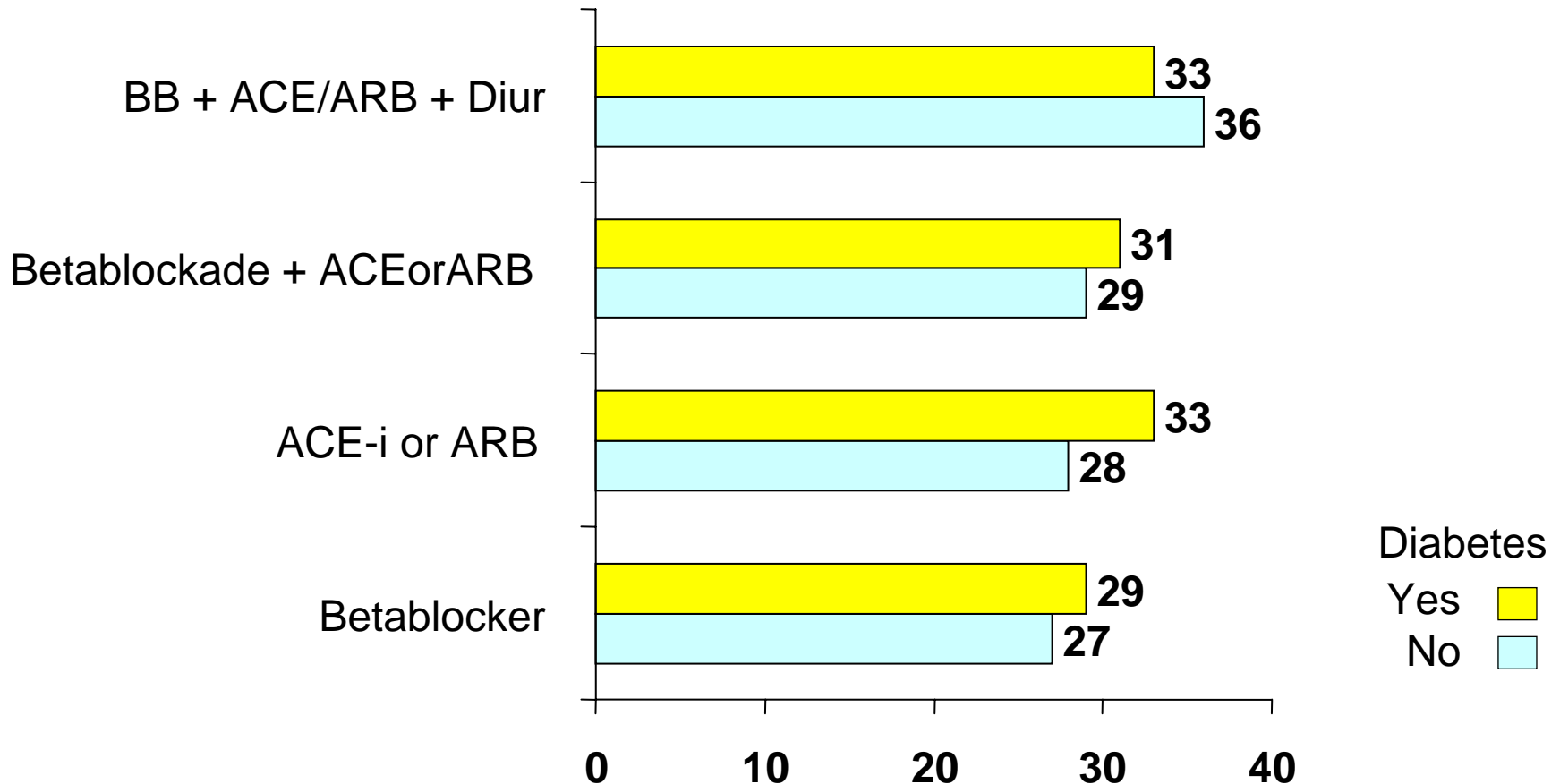
Elective conditions (n=2 854)



	Diabetes	No diabetes	
Total cholesterol	5,2 (4,3-6,2)	4,9 (4,2-5,9)	p<0.01
HDL	1,1(0,9-1,2)	1,2 (0,9-1,3)	p<0.01
LDL	3,3 (2,5-4,4)	3,1 (2,4-3,9)	p<0.01

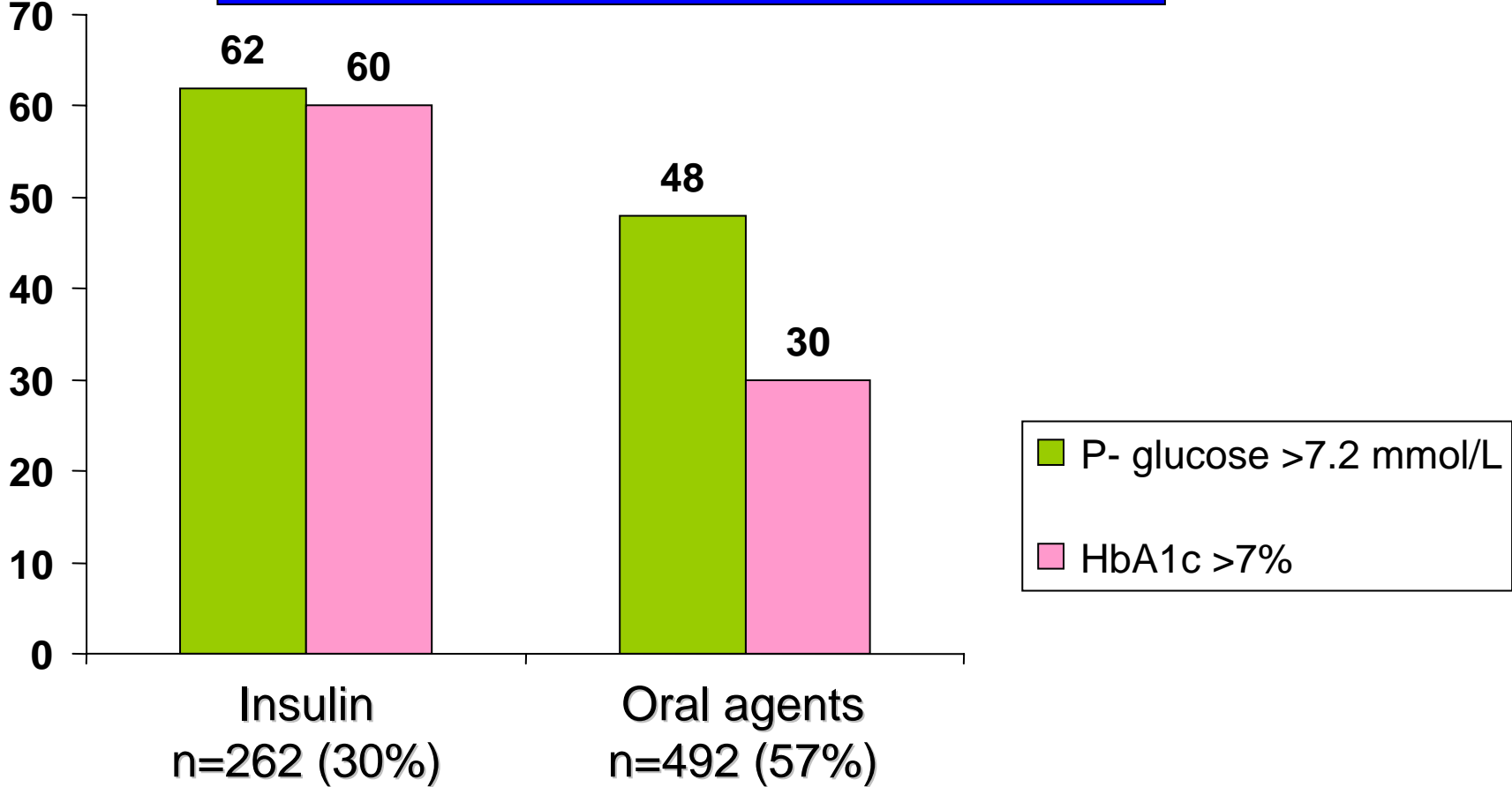
Blood pressure above target in patients on antihypertensive therapy (n=2 127; 75%)

Elective conditions (n=2 854)



Glucose status in patients with diabetes

Elective conditions (n=2 854)



Characteristics of patient with vs. those without DM

- ♥ Lipid control unsatisfactory in 50%, especially among those with diabetes
- ♥ Blood pressure control unsatisfactory in 30% on BP lowering agents independent of the diabetic state
- ♥ Metabolic control unsatisfactory in about 50% of patients with diabetes

Conclusion

- ♥ European patients with DM admitted for ACS receive a comparable acute in-hospital management to their non diabetic counterparts. Observed differences relate to differences in baseline characteristics
- ♥ Secondary prevention of CAD, patients with and without DM is unsatisfactory
- ♥ Patients with DM are definitely not appropriately managed considering their much higher cardiovascular risk
- ♥ Patients with DM are poorly handled as regards their glucometabolic situation