

Gender aspects on patients with coronary artery disease in relation to glucose regulation

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In collaboration with

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on behalf of the EHS group

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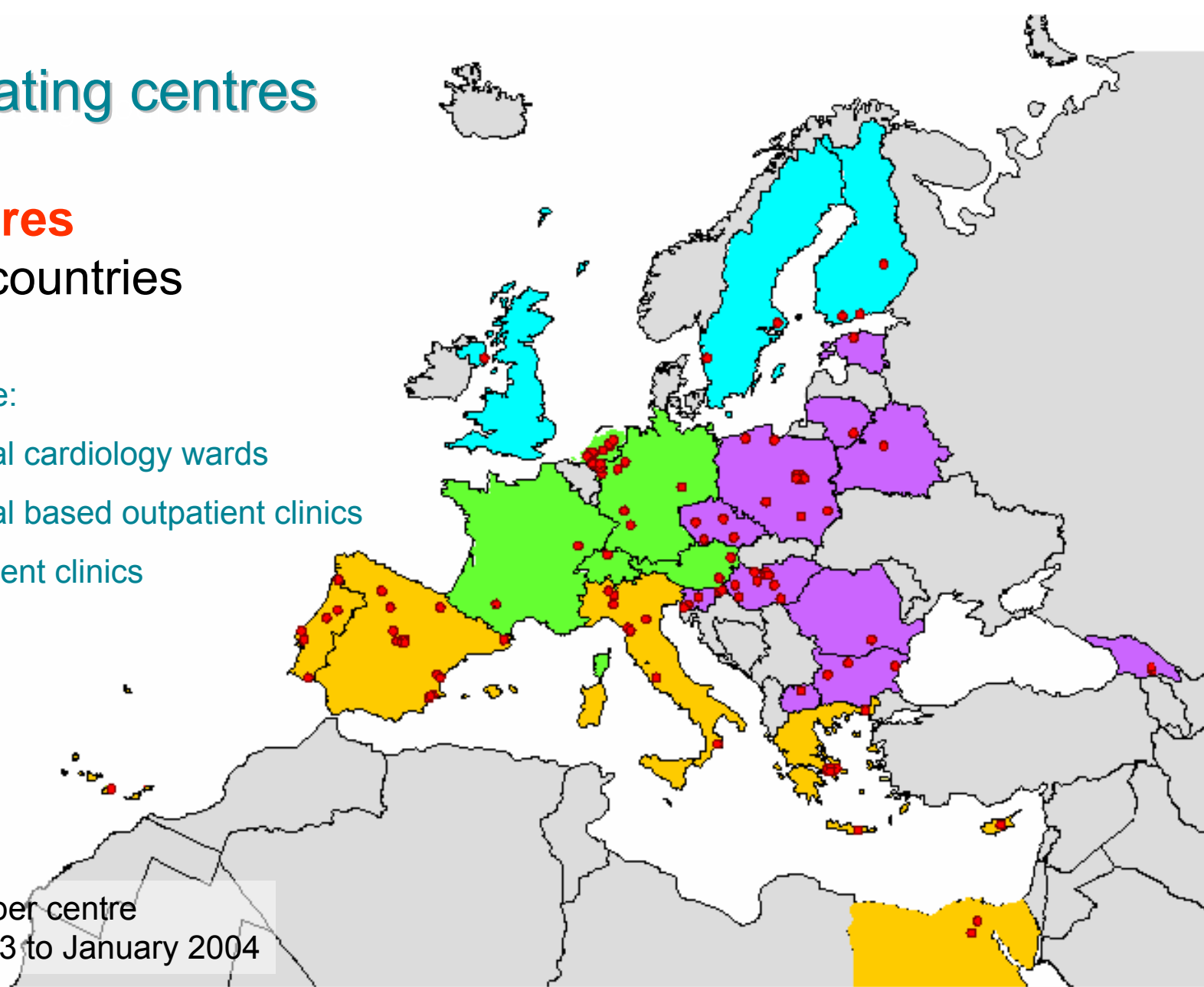
Participating centres

110 centres
from 25 countries

type of centre:

- 47% hospital cardiology wards
- 45% hospital based outpatient clinics
- 8% outpatient clinics

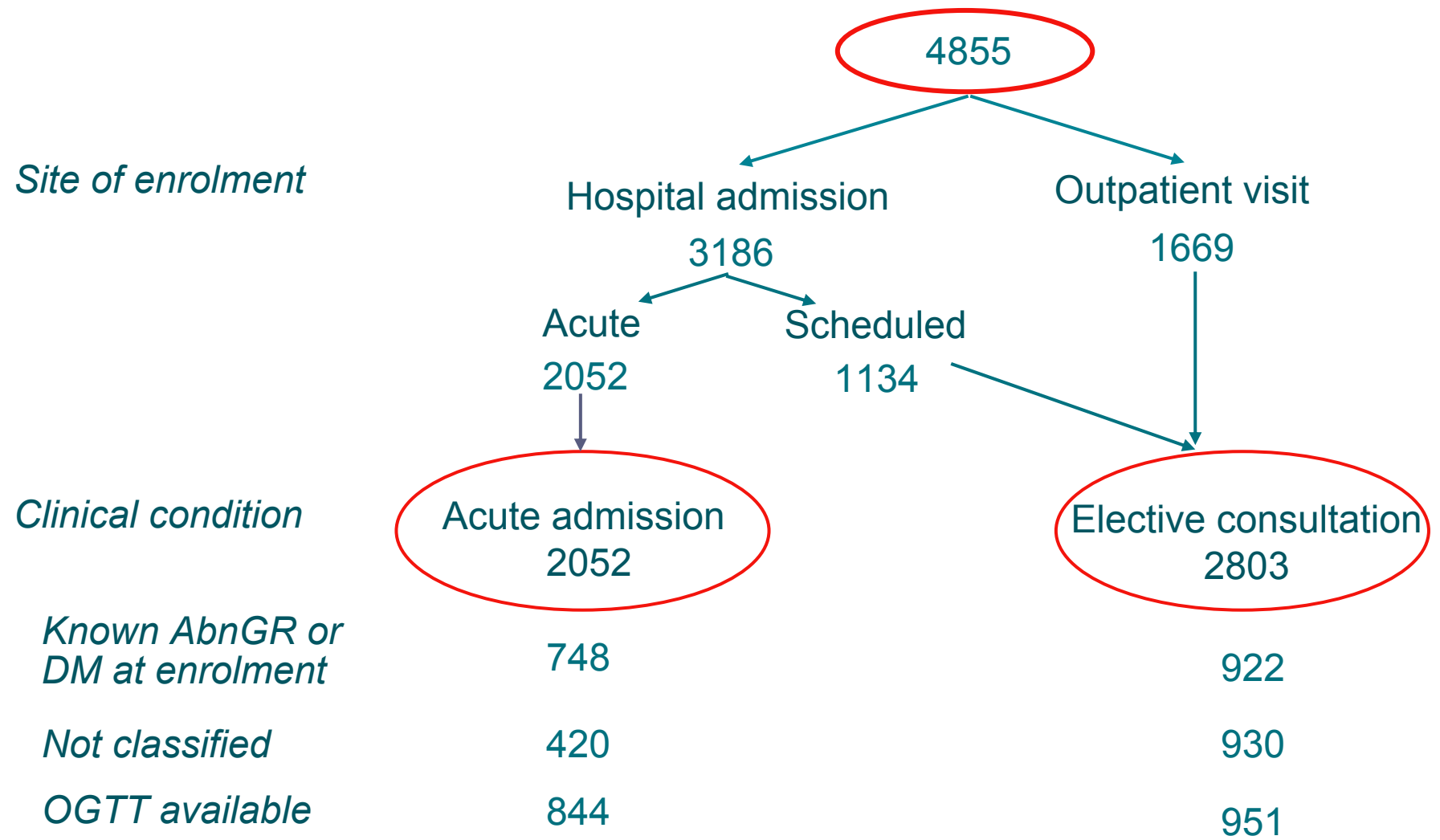
2- 12 weeks per centre
February 2003 to January 2004



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 ≤ 85 years (the present group)



CAD

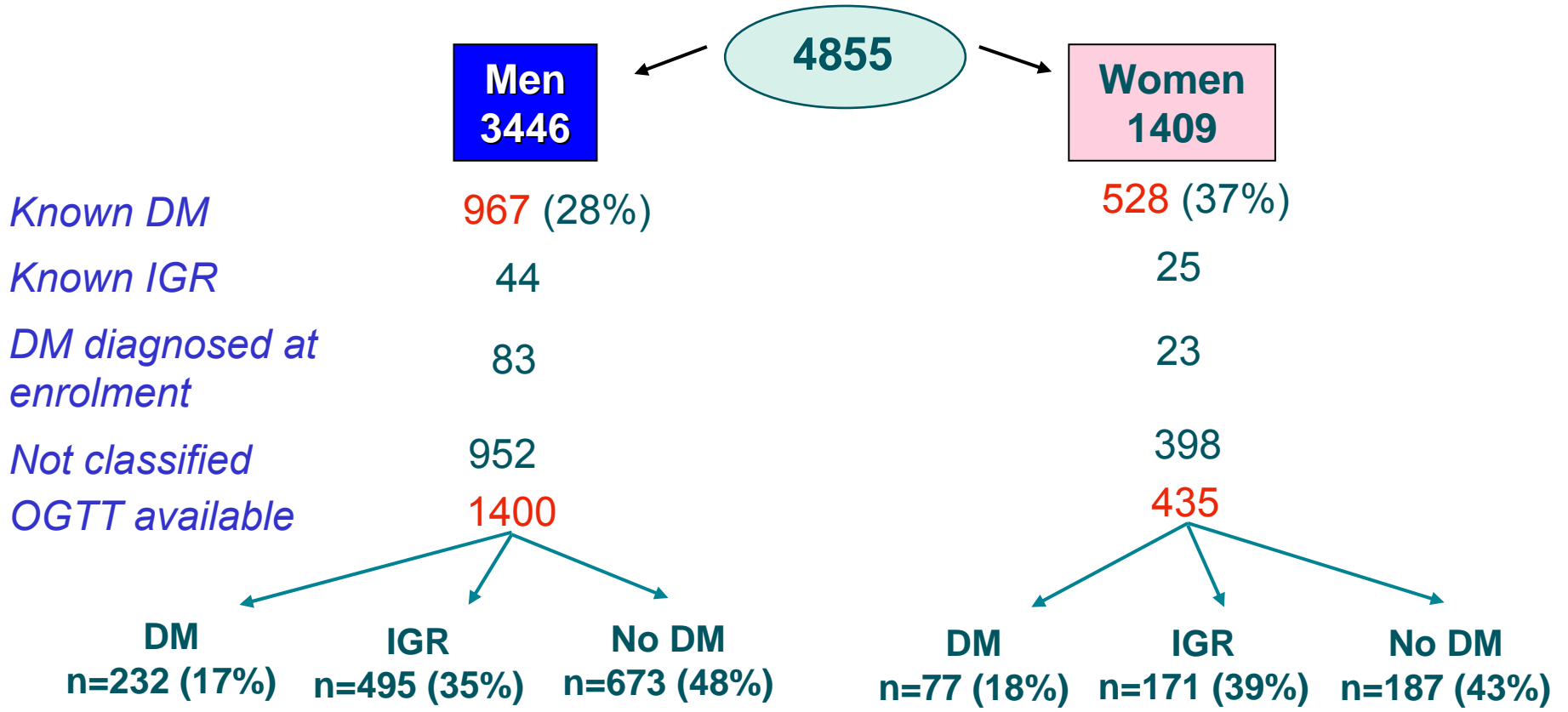
- Clinical diagnosis supported by at least one objective finding such as:
 - Ischemia or signs of previous MI on ECG
 - Abnormal stress test indicating MI
 - Coronary angiography with $> 50\%$ stenosis in any major coronary artery

Diabetes mellitus

- Previously diagnosed, local routines based on WHO classification
 - Fasting p-glucose ≥ 7.0 mmol/l or random p-glucose ≥ 11.1 mmol/l
 - 75g OGTT
-

IGR : impaired glucose regulation
= IGT: impaired glucose tolerance
+
IFG: impaired fasting glucose

Patients ≤ 85 years (the present group)

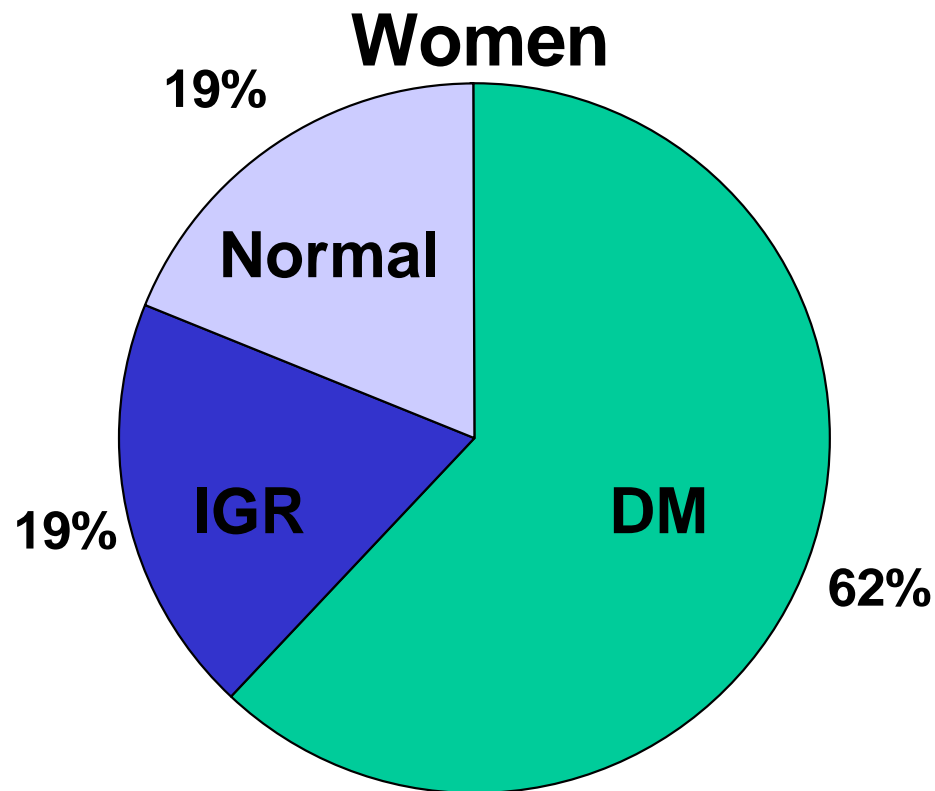
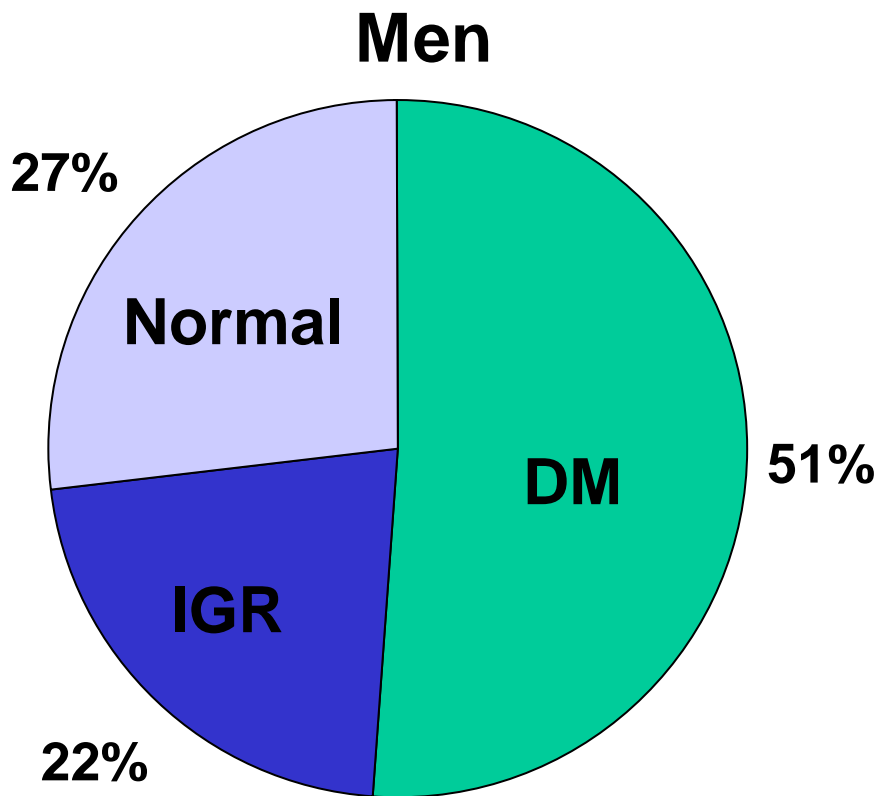


TOTAL:

DM n=1282 (37%)	IGR n=539 (16%)	No DM n=673 (20%)	DM n=628 (45%)	IGR n=196 (14%)	No DM n=187 (13%)
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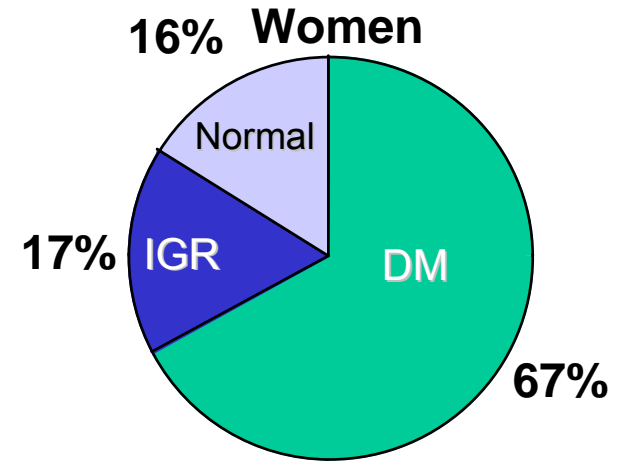
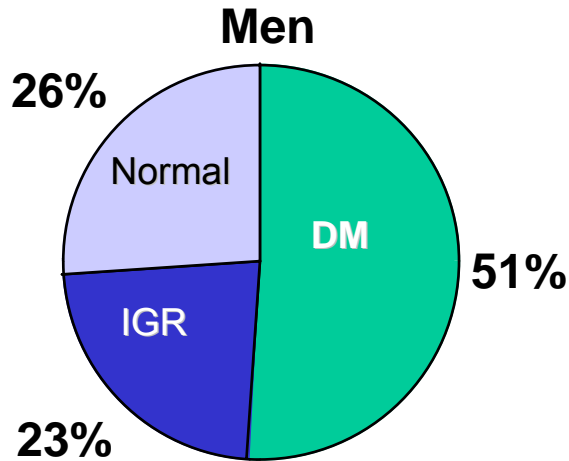
Glucose regulation in all patients in EHS

Diabetes and the Heart

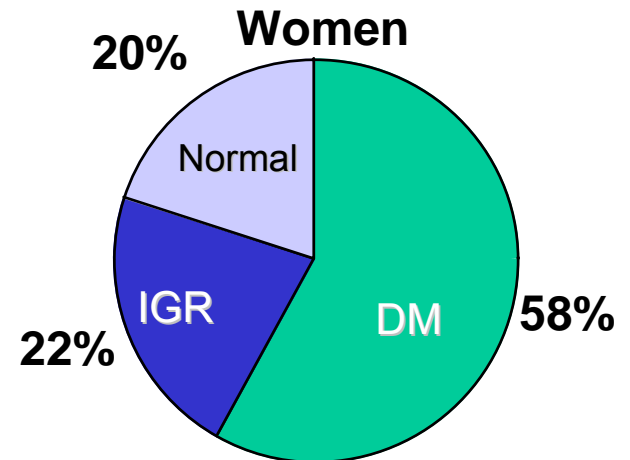
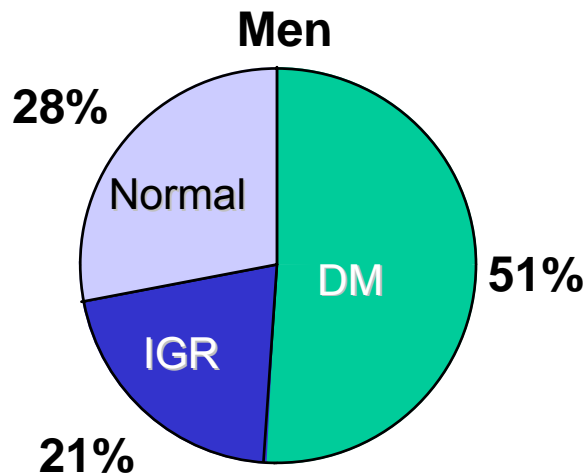


Glucose regulation in acute and elective patients in EHS diabetes and the heart

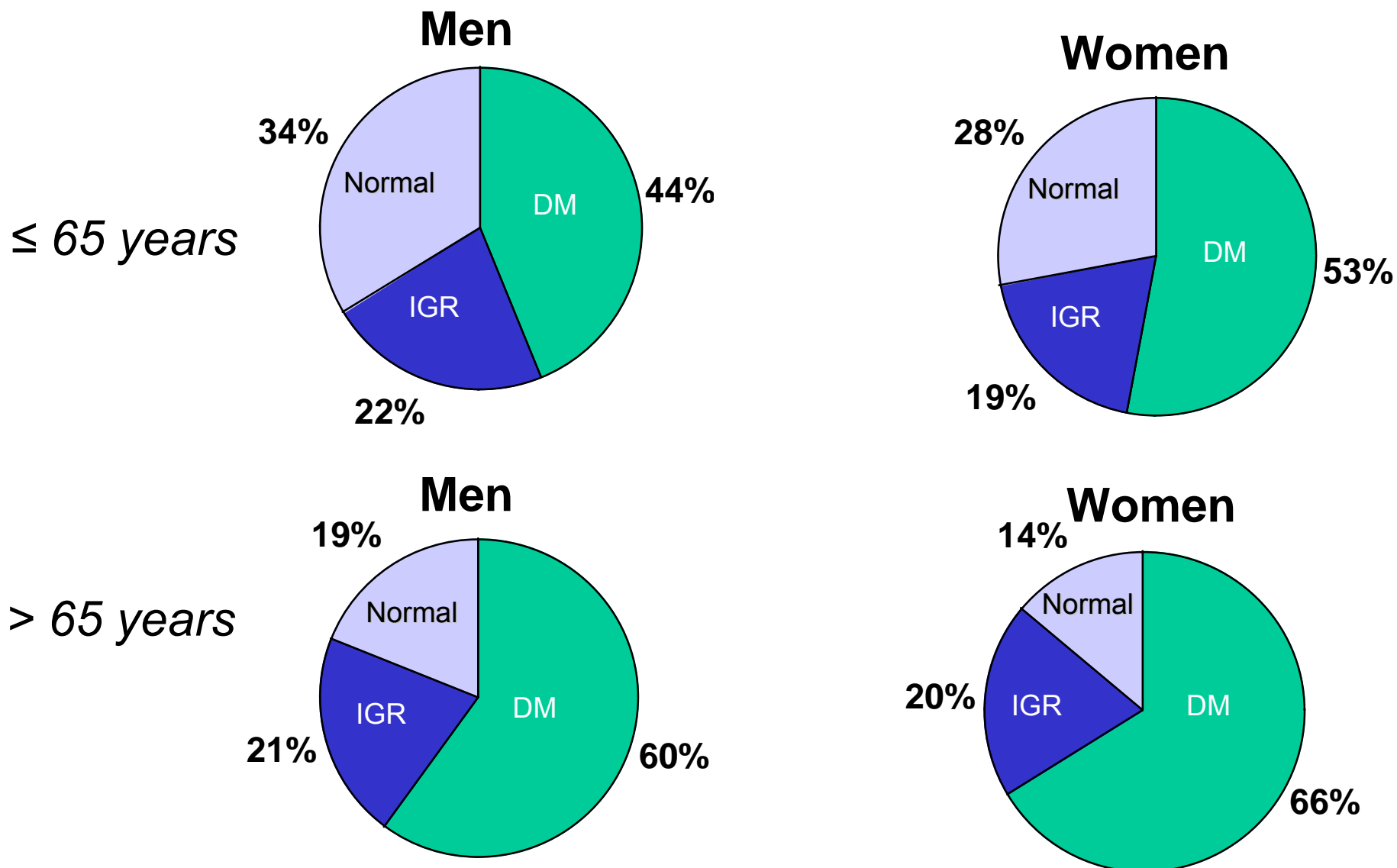
Acute



Elective



Glucose regulation in patients ≤ 65 and >65 years



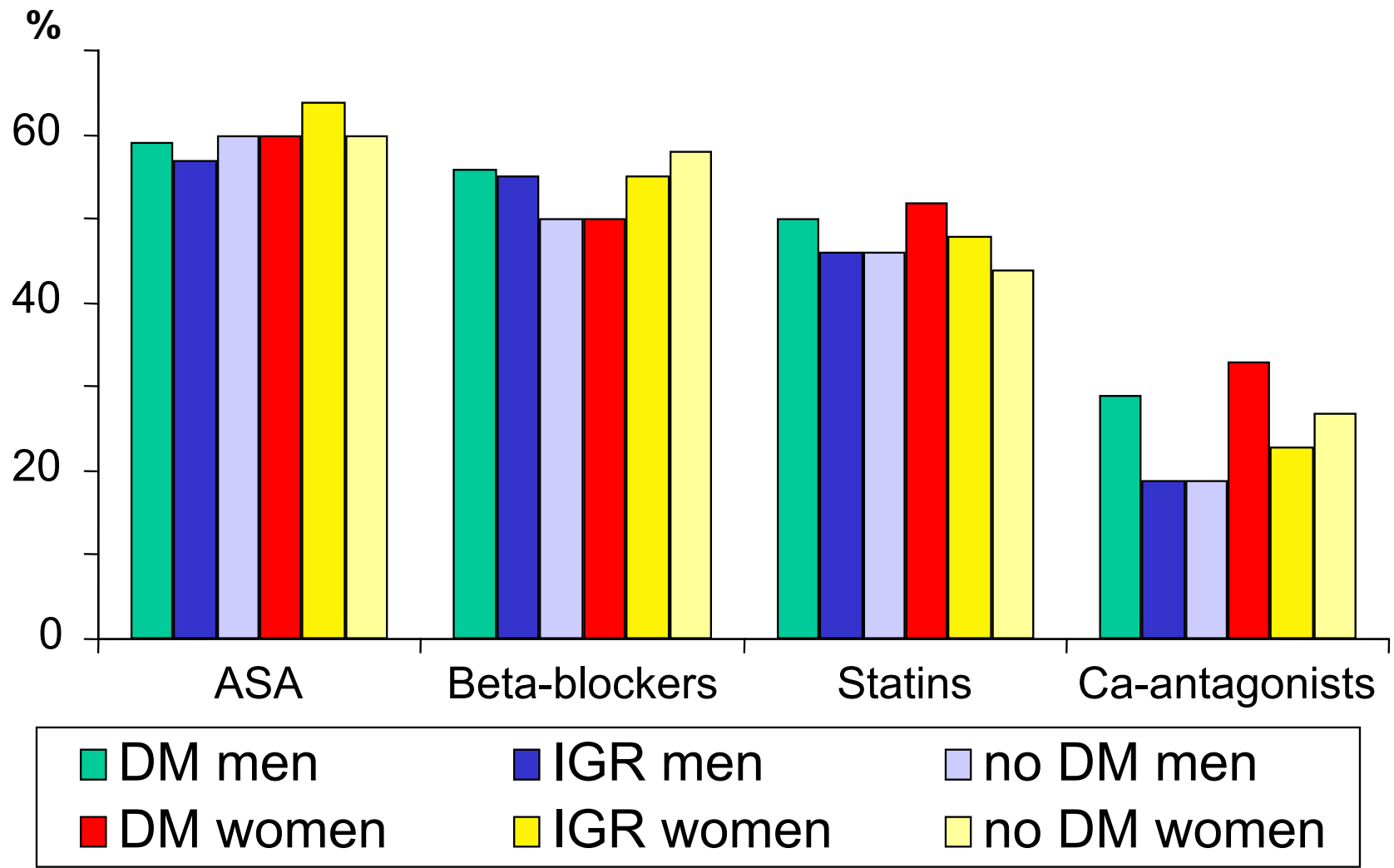
Age adjusted odds ratio for women with coronary artery disease to have

Diabetes	1.32 (1.13-1.54)
Abnormal glucose regulation	1.34 (1.11-1.62)

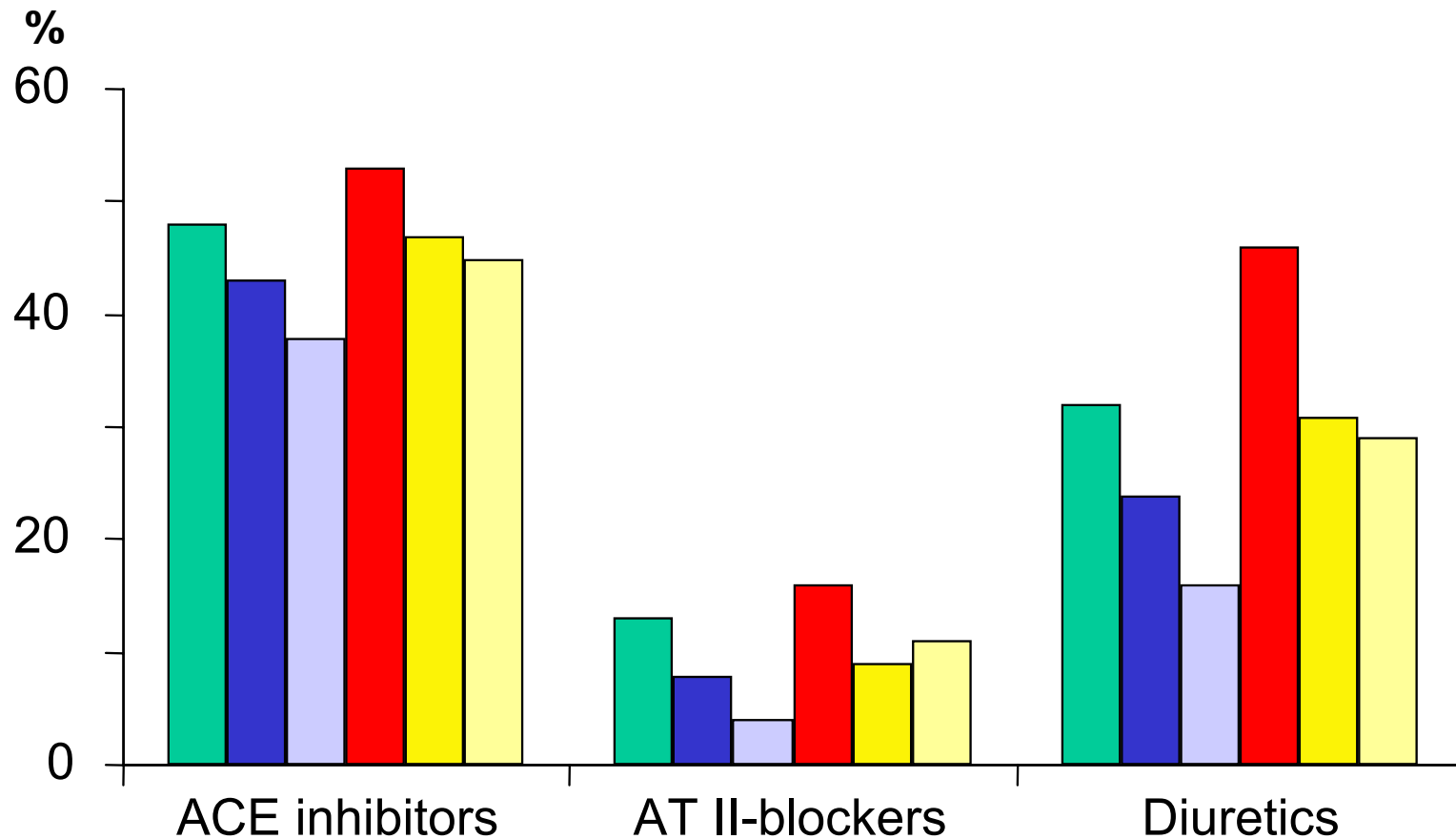
Clinical characteristics in relation to gender

Variable (% if not stated otherwise)	Men			Women		
	DM n=1282	IGR n=539	No DM n=673	DM n=628	IGR n=196	No DM n=187
Age (years)	66 (58,73)	63 (54,72)	59 (53,67)	71(64,76)	70 (62,75)	65 (56,73)
Smoking	22	25	31	10	11	18
Hypertension	70	60	53	82	75	71
BMI > 30 kg/m ²	31	26	19	42	31	32
Previous MI	48	45	43	37	32	30
Previous CABG	21	15	14	15	13	7
Previous PCI	22	20	26	14	14	21
Previous CHF	27	17	11	32	15	17

Pharmacological treatment (1)



Pharmacological treatment (2)



■ DM men

■ IGR men

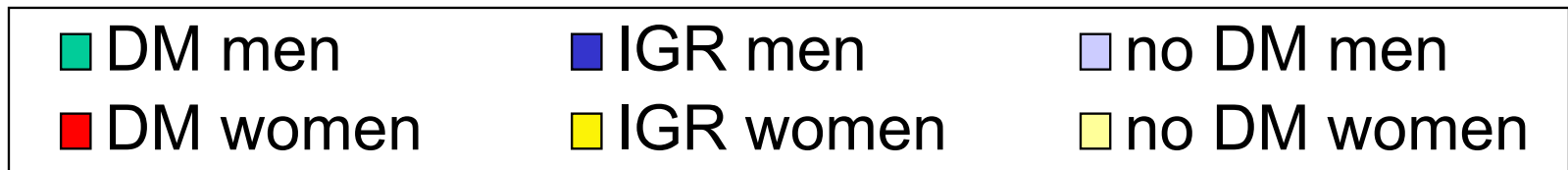
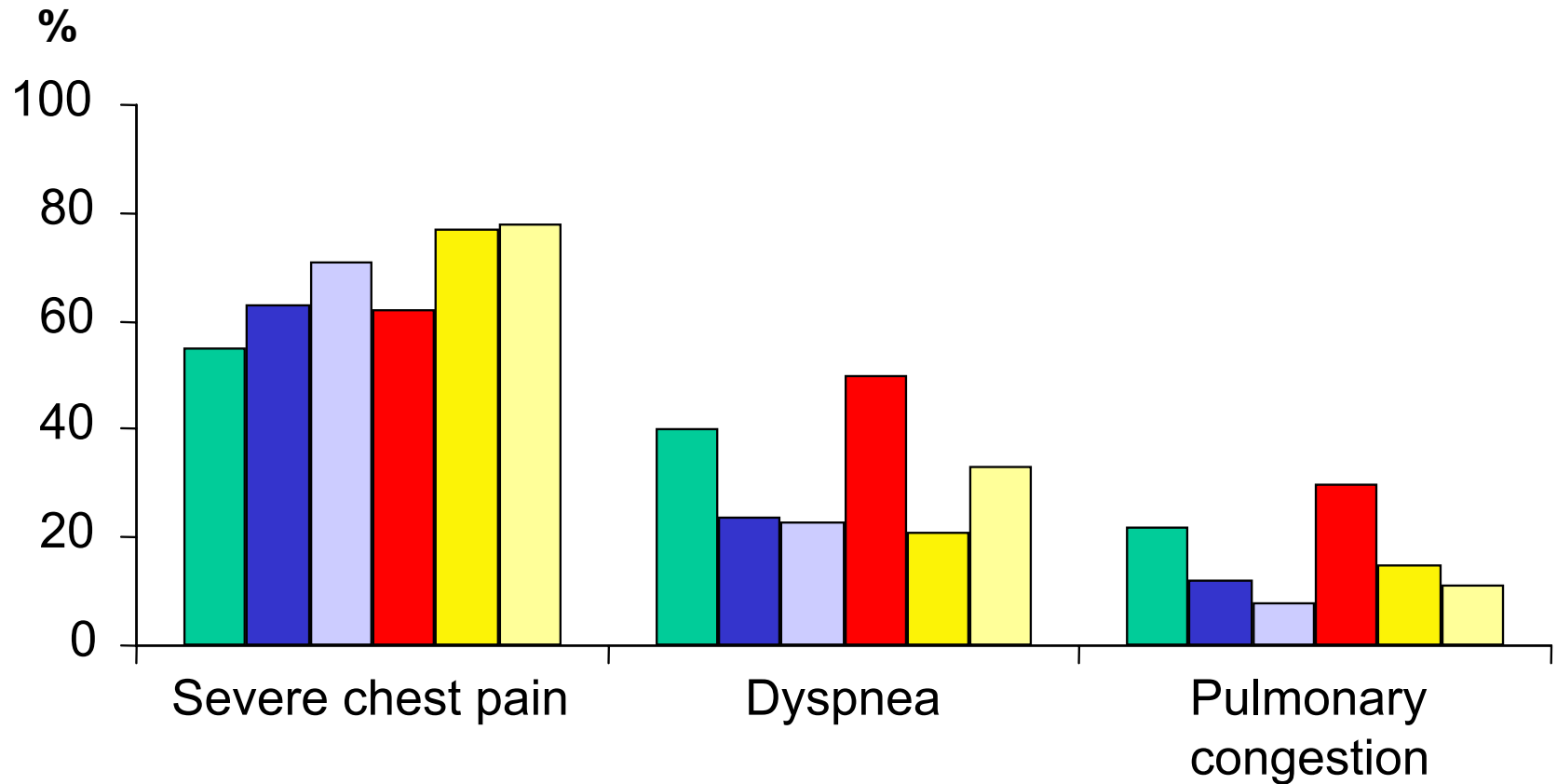
■ no DM men

■ DM women

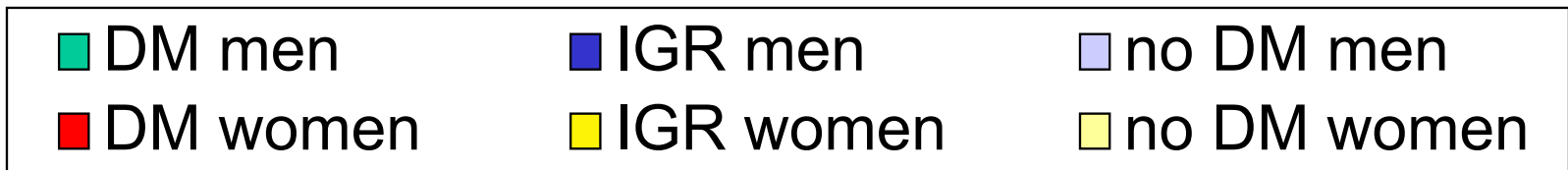
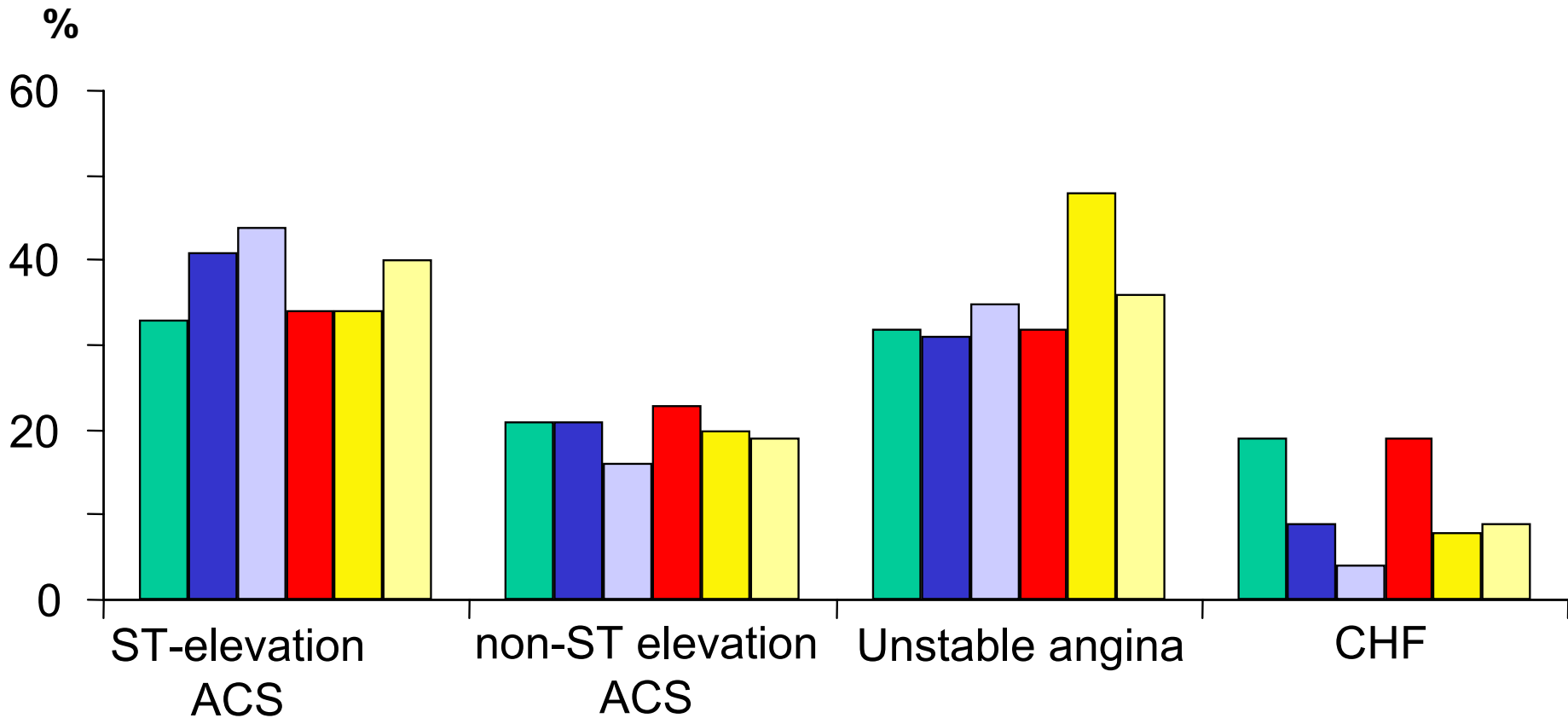
■ IGR women

■ no DM women

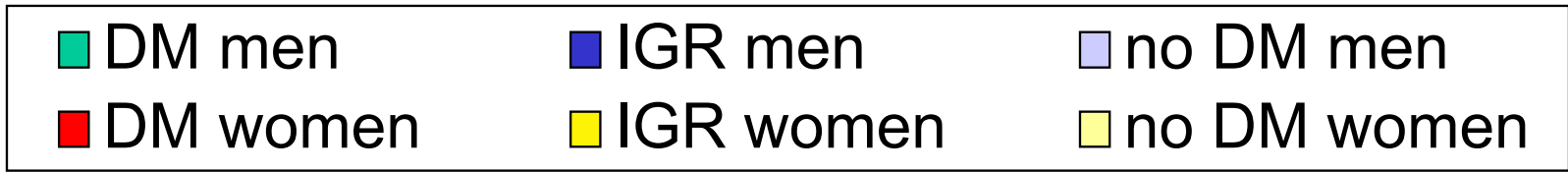
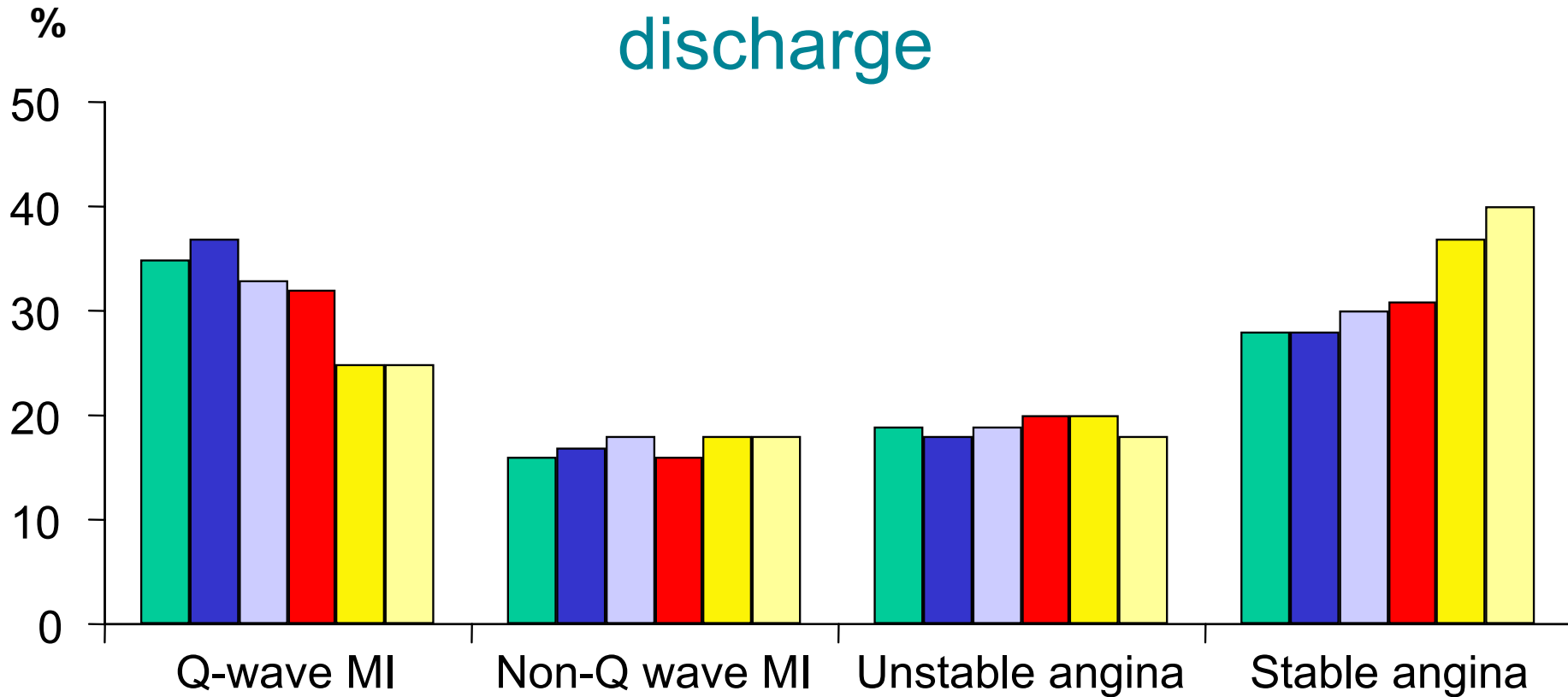
Clinical status in acute patients at enrolment



Reasons for acute admission

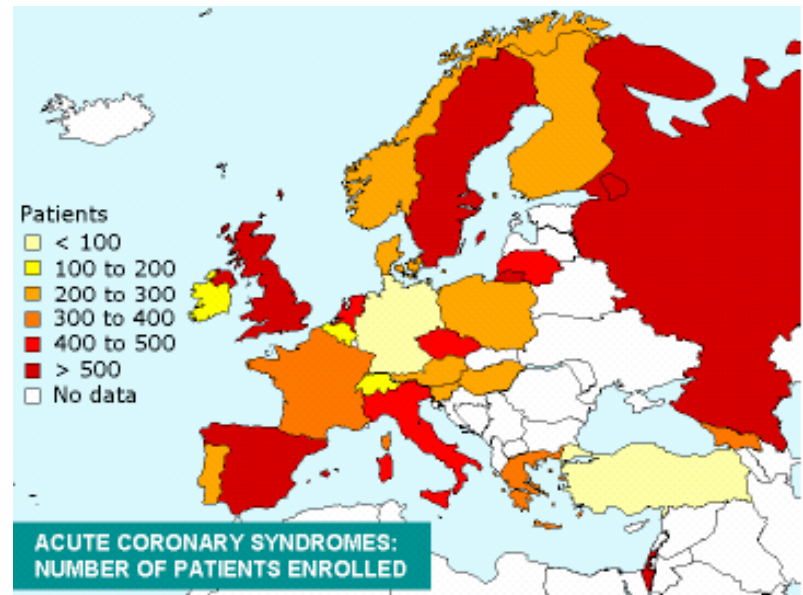


Final diagnosis after consultation or at discharge

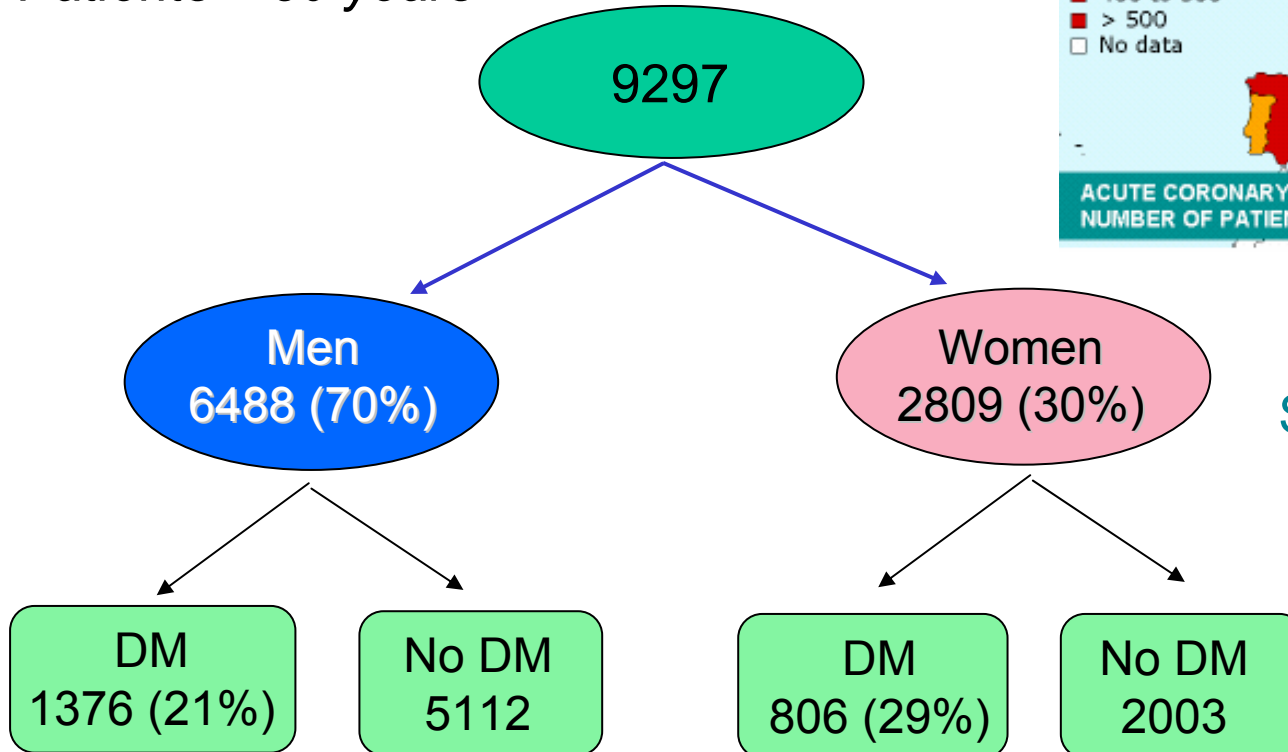


Gender aspects from the Euro Heart Survey on Acute Coronary Syndromes

Patients ≤ 80 years



Patient recruitment
Sept 2000- May 2001



ACS

- Screening:
symptoms compatible
with ACS
- Inclusion:
definite diagnosis of MI
or unstable angina

Diabetes mellitus

- Previously known
diabetes
or
- Diabetes according to
medical charts
or
- Discharge with
antidiabetic treatment

Baseline characteristics in Euro Heart Survey ACS

Parameter	Men		Women	
	Diabetes n=1376	No diabetes n=5112	Diabetes n=808	No diabetes n=2003
Age (years, SD)	64(10)	61(12)	68(9)	66(11)
Smoking (%)	29	41	13	22
Hypertension (%)	66	49	77	65
BMI >30 (kg/m ²)	30	18	37	24
Prior MI (%)	39	29	34	23
Prior heart failure (%)	13	8	16	10
Treatment (%)				
ASA	50	38	48	39
Betablockers	37	31	37	33
ACE-inhib	36	22	40	26

In-hospital complications and angiographic findings in Euro heart Survey ACS

Parameter	<i>Men</i>			<i>Women</i>		
	DM n=807	No DM n=3081	OR age adjusted	DM n=379	No DM n=980	OR age adjusted
CHF, %	23	18	1.33 (1.15-1.54)	31	19	1.82 (1.51-2.19)
Pulmonary edema, %	7	4	1.75 (1.37-2.24)	12	5	2.37 (1.78-3.17)
Shock, %	5	4	1.12 (0.83-1.50)	7	5	1.66 (1.19-2.33)
Normal angiography, %	2	4	0.57 (0.35-0.95)	3	11	0.28 (0.15-0.51)
3-vessel disease, %	42	31	1.46 (1.24-1.71)	42	27	1.90 (1.48-2.45)

Odds ratio for ST-elevation ACS, Q-wave MI and mortality in Euro Heart Survey ACS

adjusted for age, smoking, BMI, hypertension, prior drugs and disease

Parameter	Men OR	Women OR	p interaction DM*sex
ST-elevation ACS	0.99 (0.86-1.14)	1.46 (1.20-1.78)	<0.001
Q-wave MI	0.99 (0.85 -1.15)	1.61 (1.30-1.99)	<0.001
Mortality			
hospital	1.13 (0.76-1.67)	2.13 (1.39-3.26)	<0.001
30 days	1.44 (1.04-2.00)	1.95 (1.31-2.89)	0.13

Conclusion 1

- Diabetes is a powerful risk factor for cardiovascular disease, especially in women
- Women with CAD present with diabetes in a significantly higher proportion than men
- Patients presenting with CAD but without known diabetes should be screened for abnormal glucose regulation

Conclusion 2

- In women with ACS diabetes is associated with higher risk of presenting with ST-elevation, developing Q-wave MI and in-hospital mortality
- The difference between diabetic and non-diabetic men is less marked

