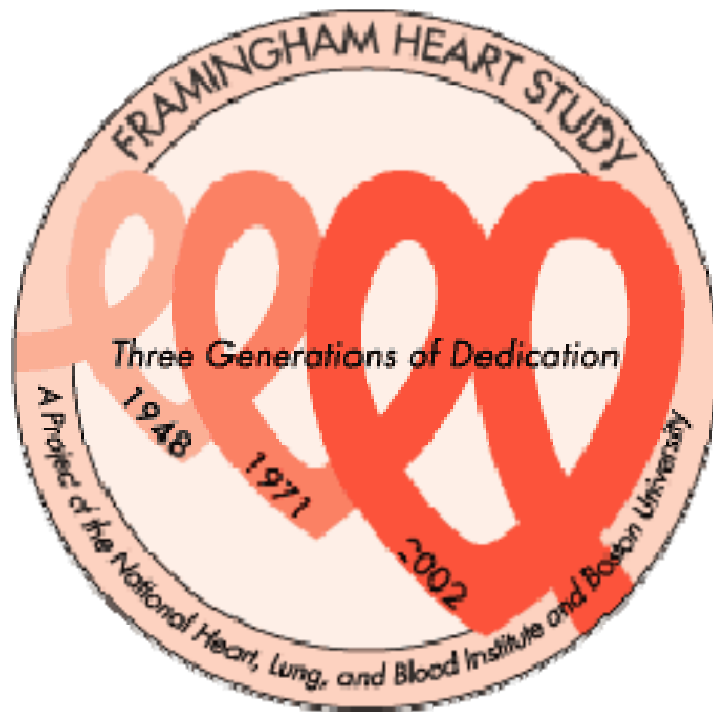


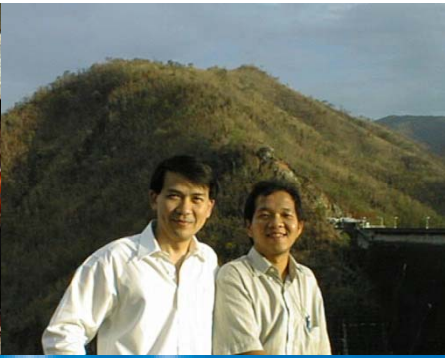
# EGAT-CRP



# Coronary disease risk prediction



The Framingham heart study has been a leader in the development of multivariable models to estimate the risk of coronary heart disease.



Rama-EGAT scores

## Ramathibodi - EGAT Heart Scores

หมายถึงอะไร      สนับสนุนโดย

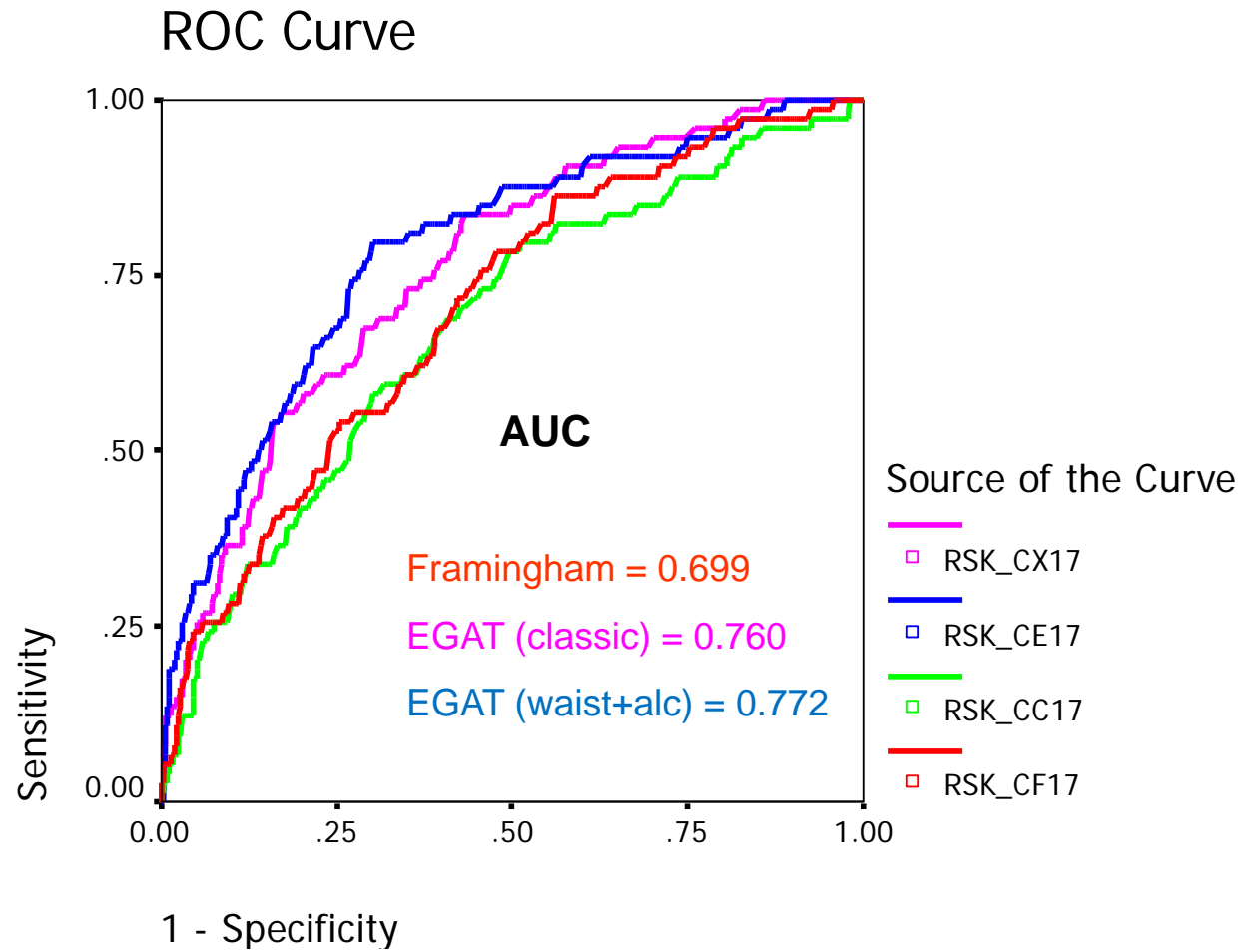
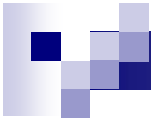
**โปรดเลือกสถานะของท่าน**

บุคลากรทางการแพทย์

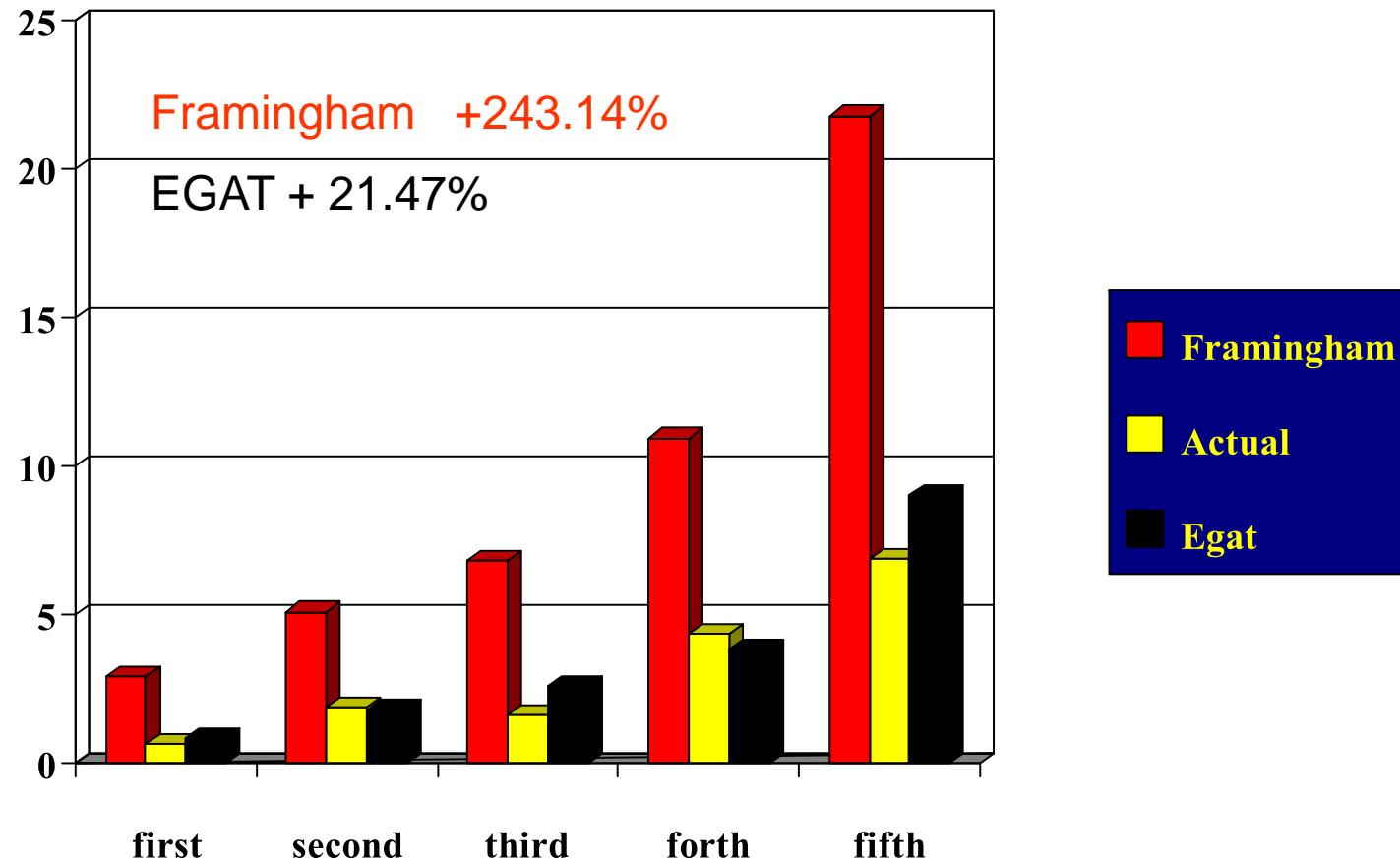
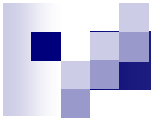
ประชาชนทราบผลเลือด

ประชาชนไม่ทราบผลเลือด

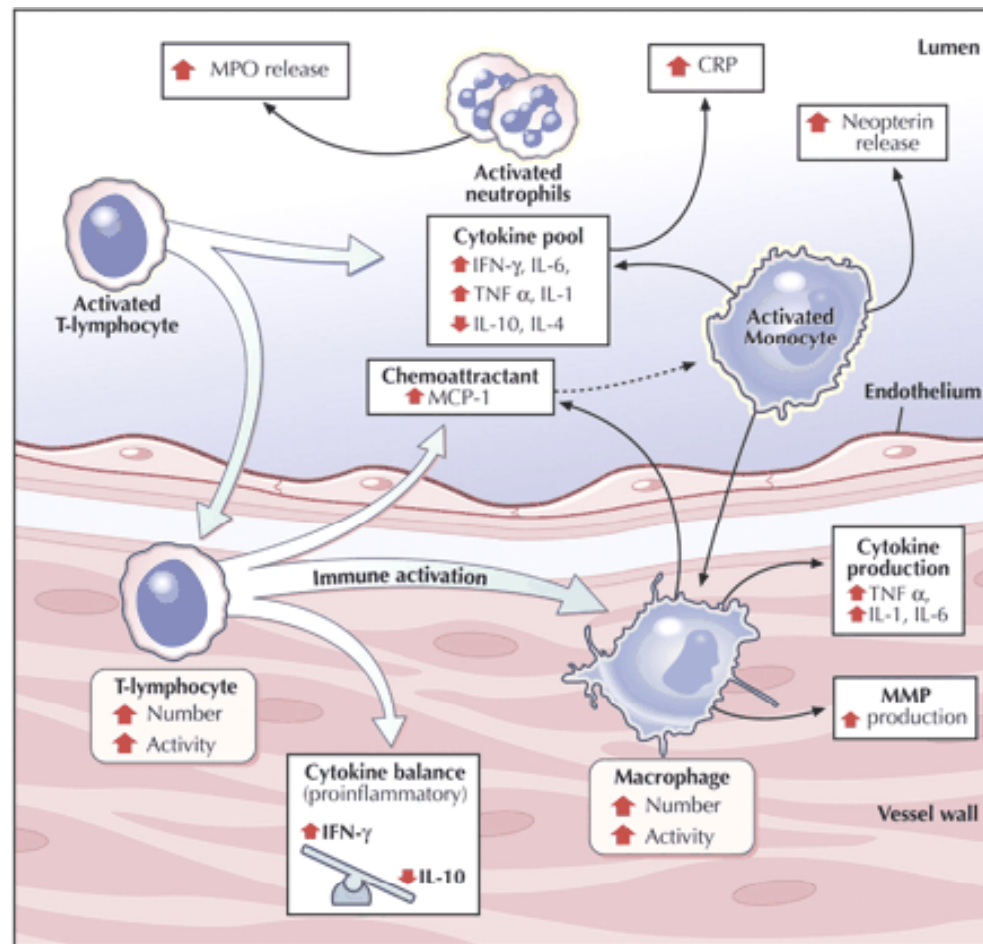




Diagonal segments are produced by ties.

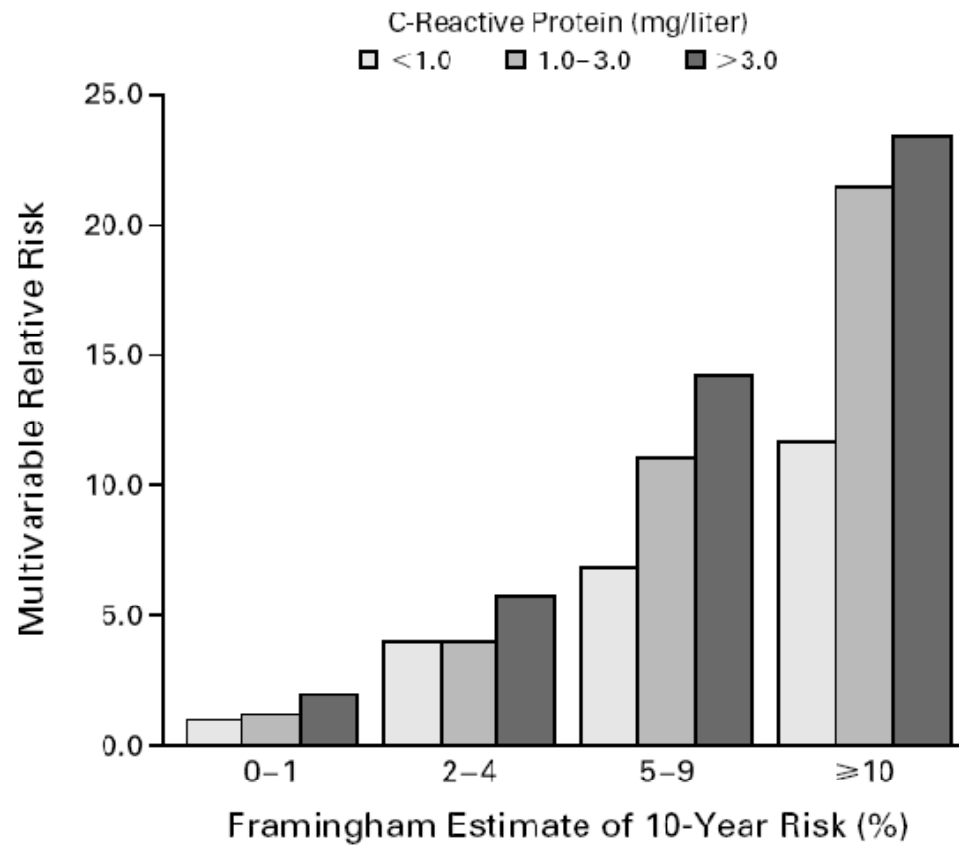


# High sensitivity C reactive protein

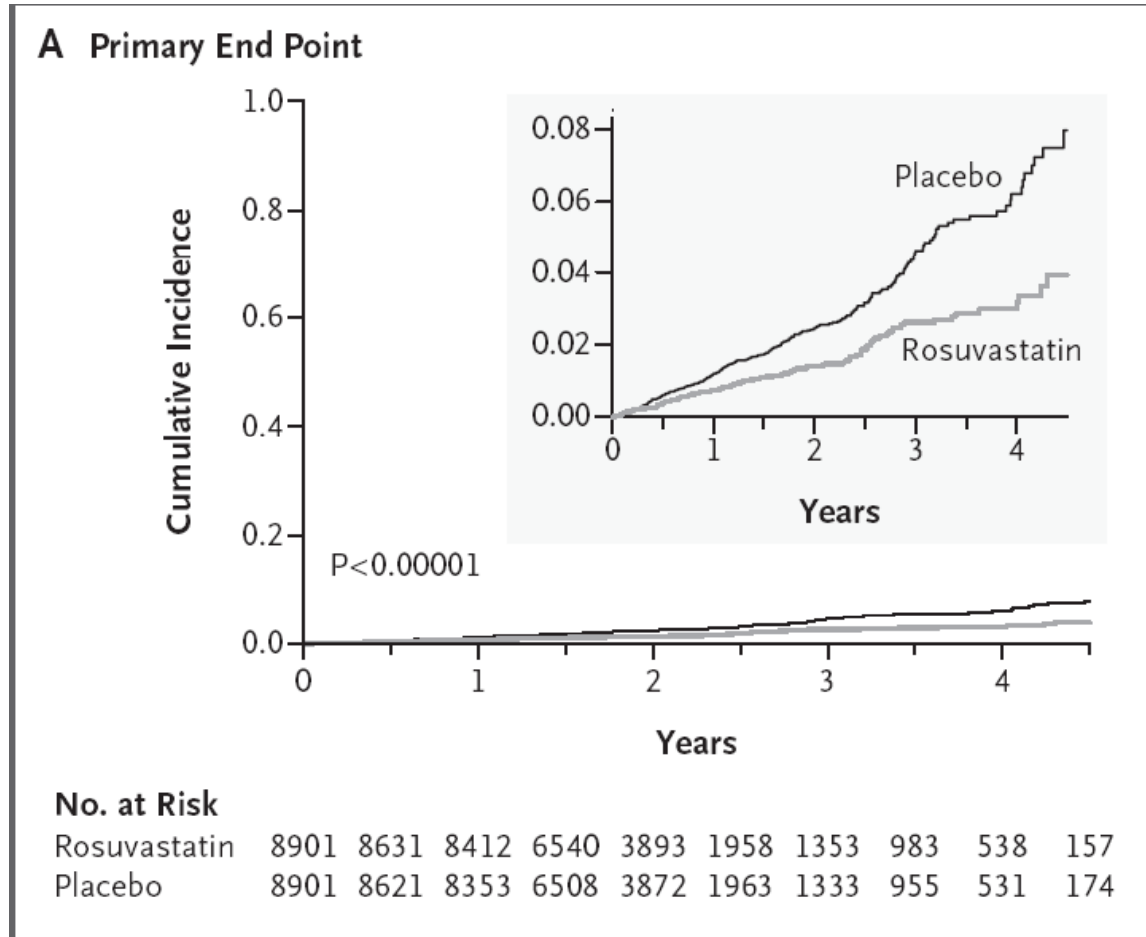




# CRP and first CV events



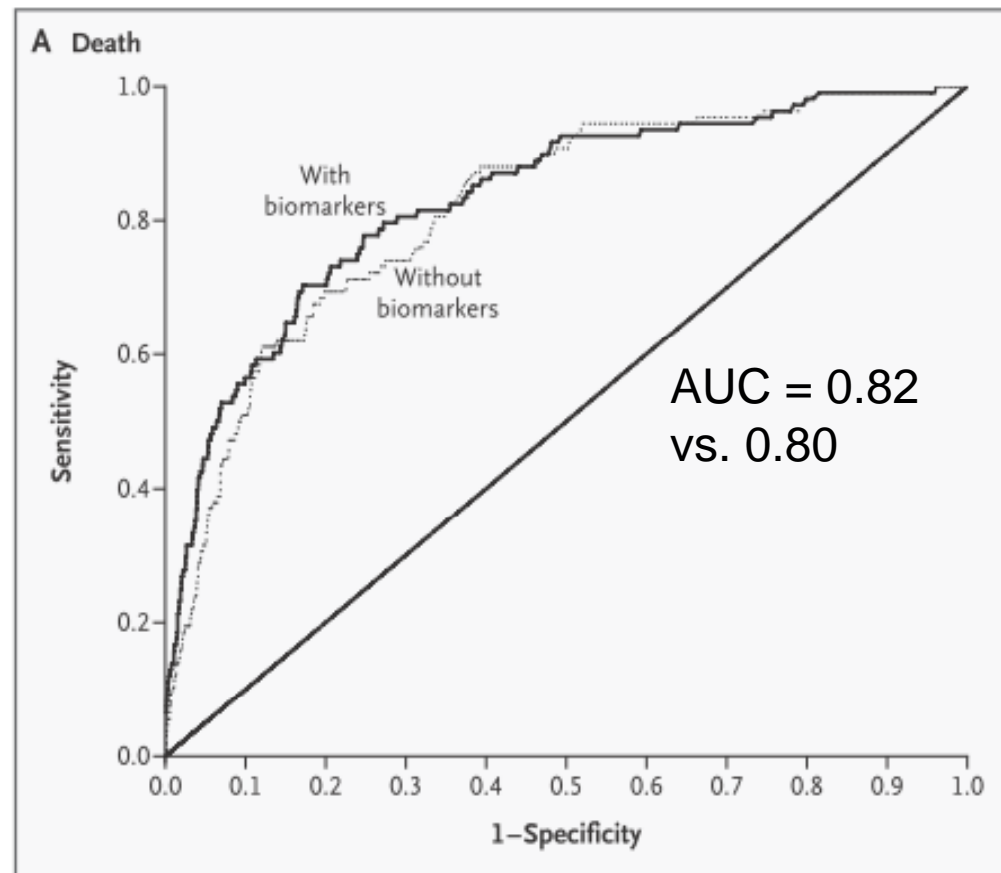
# Jupiter Study



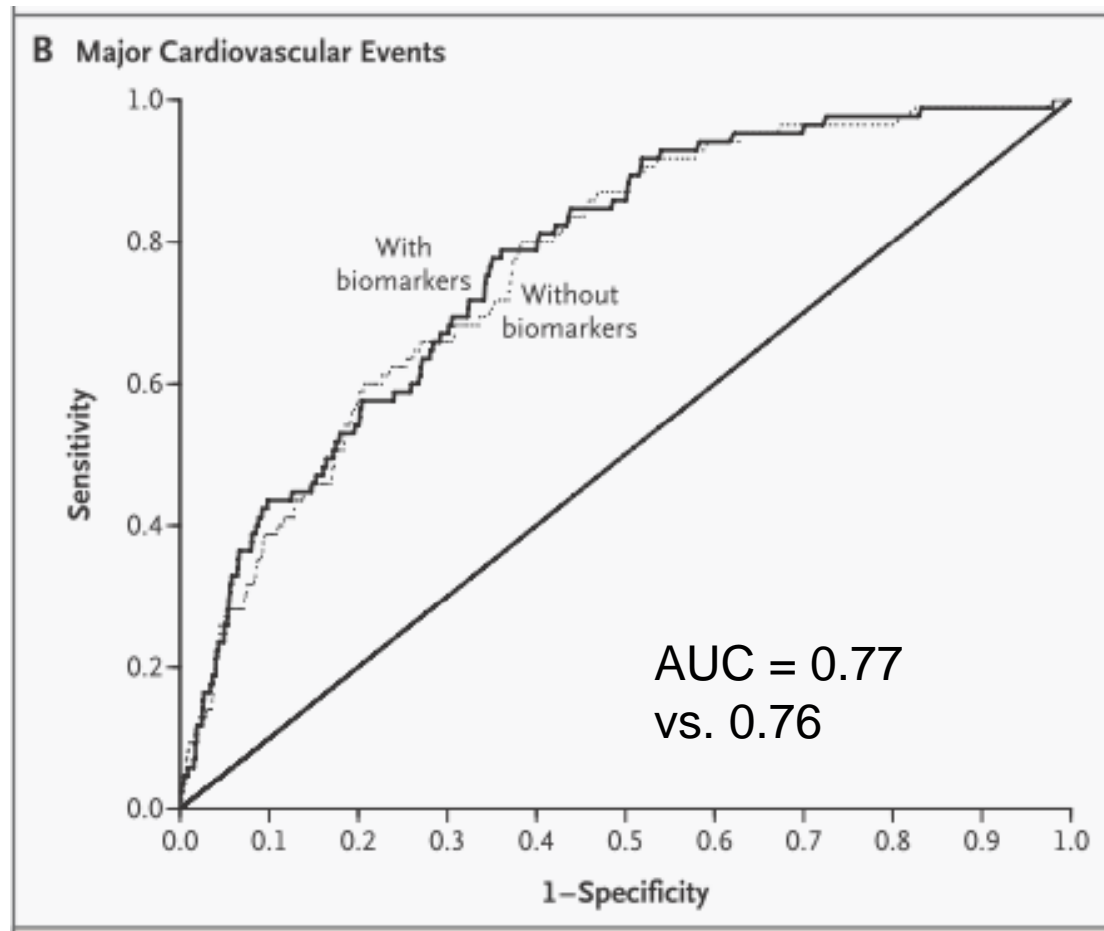
Ridker PM, et al. N Eng J Med. Nov 20 2008;359:2195-207



# Standard risk factors and Biomarkers

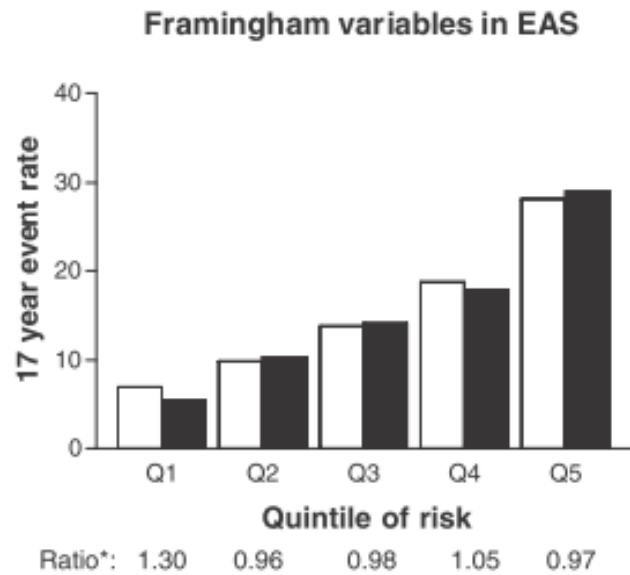


# Standard risk factors and Biomarkers

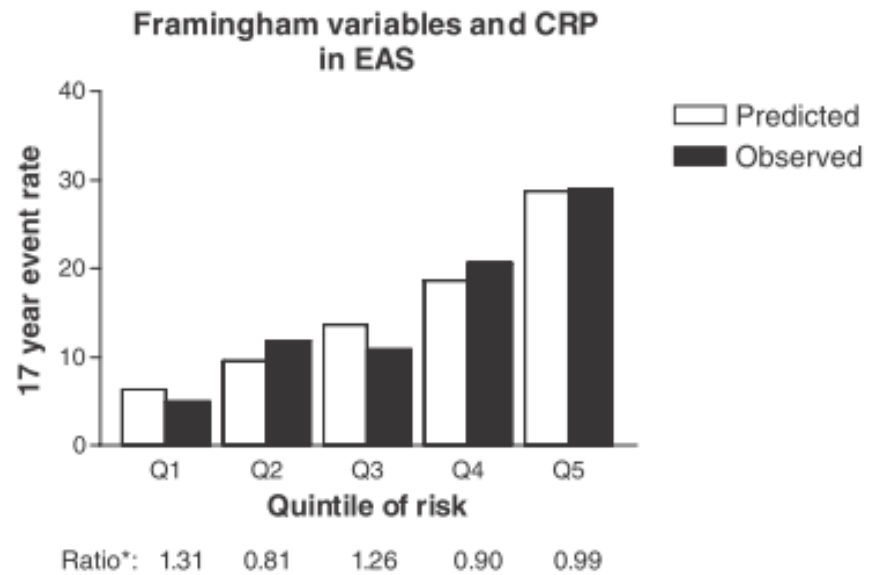


Wang TJ, et al. N Eng J Med 2006;355:2631-2639

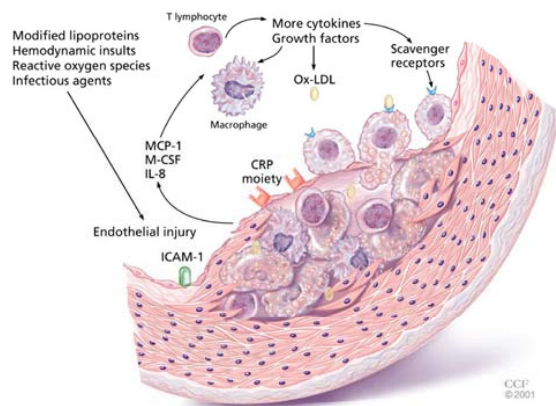
# Standard risk factors and CRP



\*Ratio of predicted/observed event rate.



# Problems



- Different cohort
- ? Occult infection



## EGAT - CRP

N= 4122 (EGAT1/2 + 2/1)

M:F = 3:1

Age = 49.5 (7.8) range 35-66

High-sensitivity C-reactive protein (Dade Behring)



## EGAT - CRP

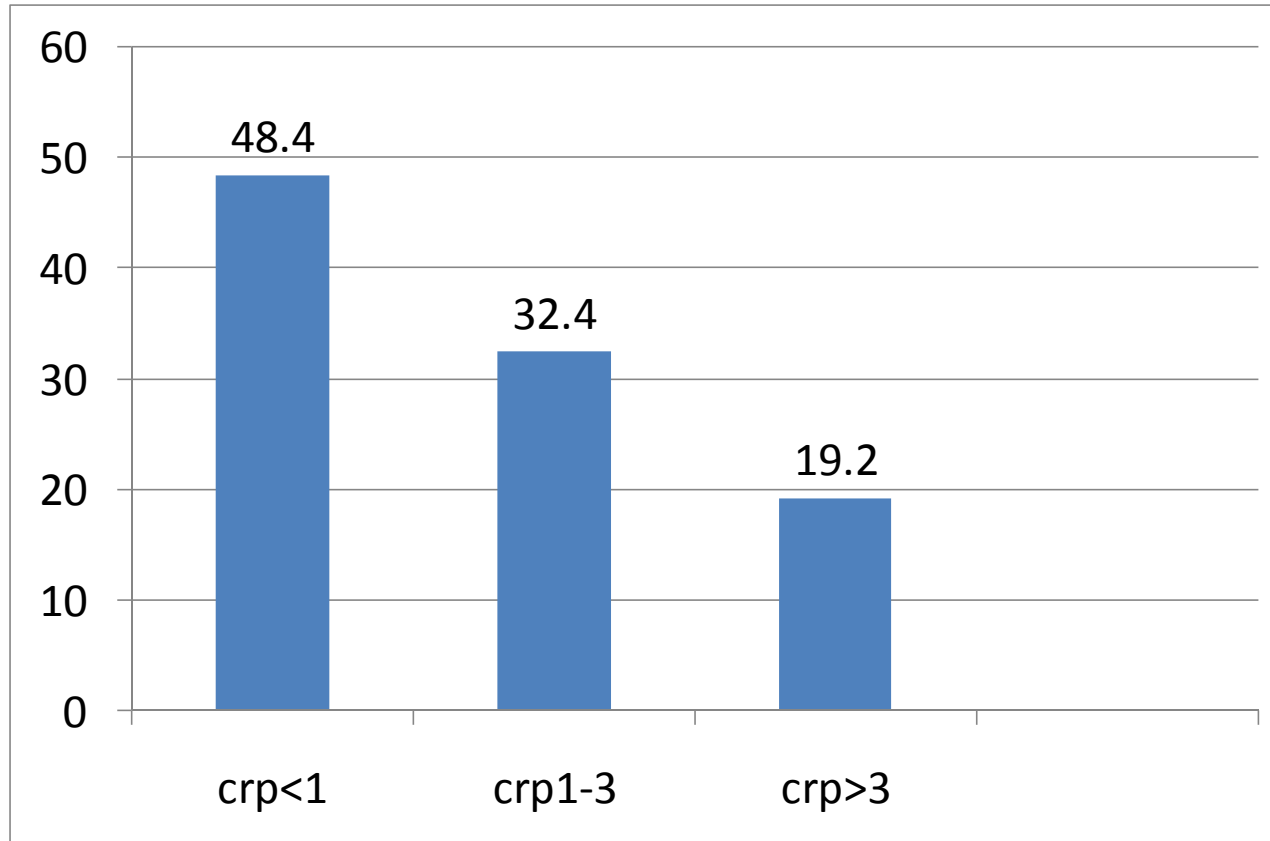
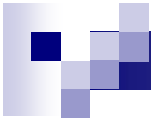
Mean - 2.31

Median = 1.04

IQR = 1.805

Percentile 5 (.180), 10 (.274), 25 (.525), 50 (1.04),  
75(2.37), 90 (5.08), 95 (7.82)

CRP>3 = 19.2%







# EGAT - CRP

	RF-	RF +	P value
DM	0.986	1.670	<0.001
Male	1.10	1.02	0.872
HT	0.95	1.28	<0.001



# EGAT - CRP

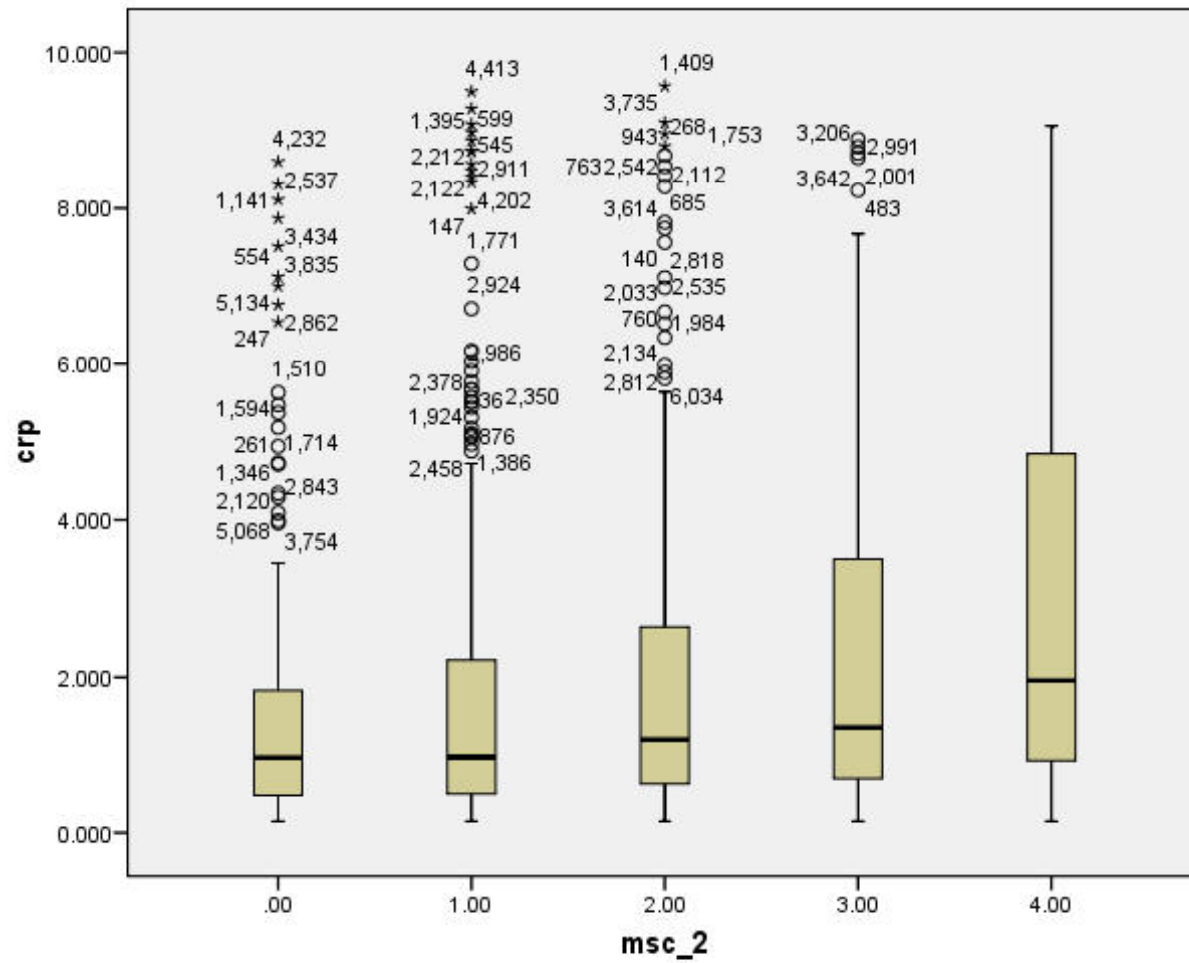
	RF-	RF +	P value
Smoking	0.986	1.670	0.191



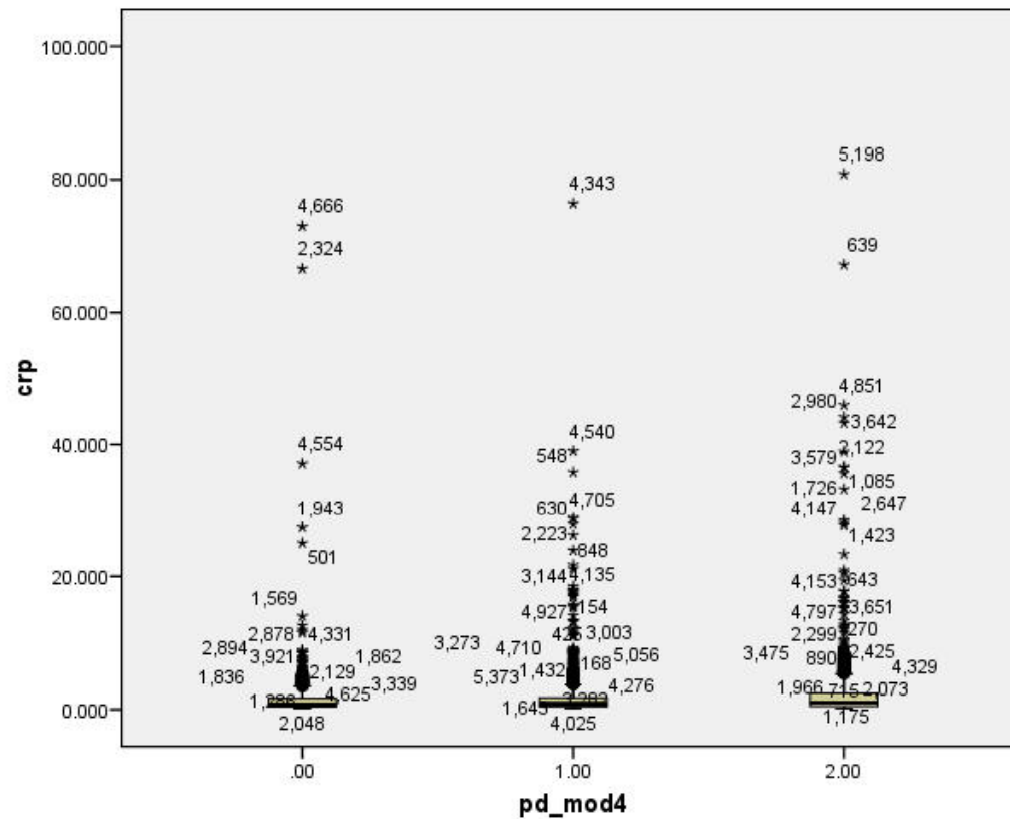
# EGAT - CRP

	RF-	RF +	P value
DM	0.986	1.670	
Male	1.10	1.02	
HT	0.95	1.28	

# MS - CRP



# Infection - CRP





# CVS outcome - CRP

- EGAT1/2
- 2178 cases (CRP>10 = 69 cases)
- Mean age 54.4
- Male 74.7%
- DM 14.6%
- HT 46.6%
- Smoking 22%

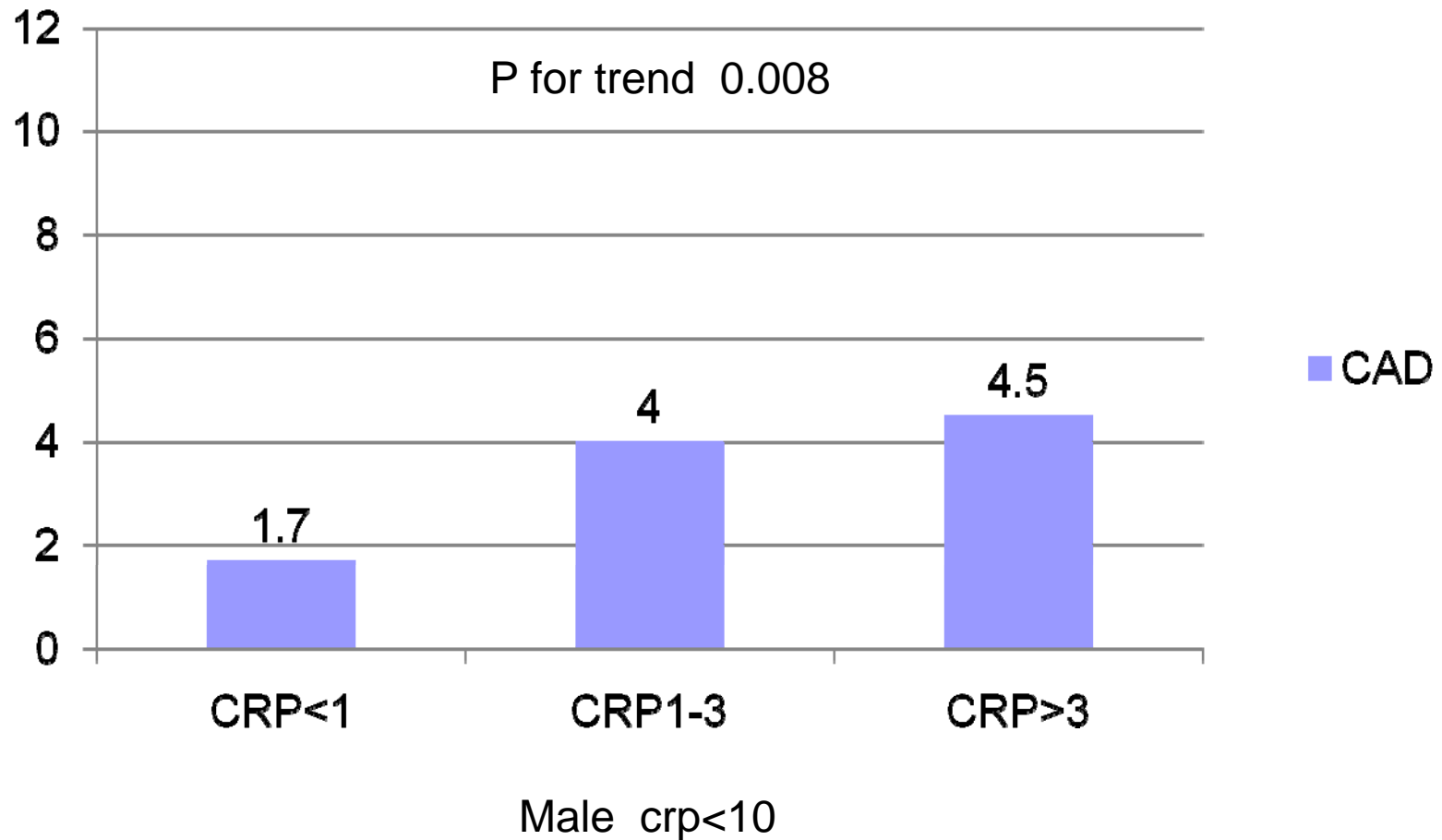


# CVS outcome - CRP

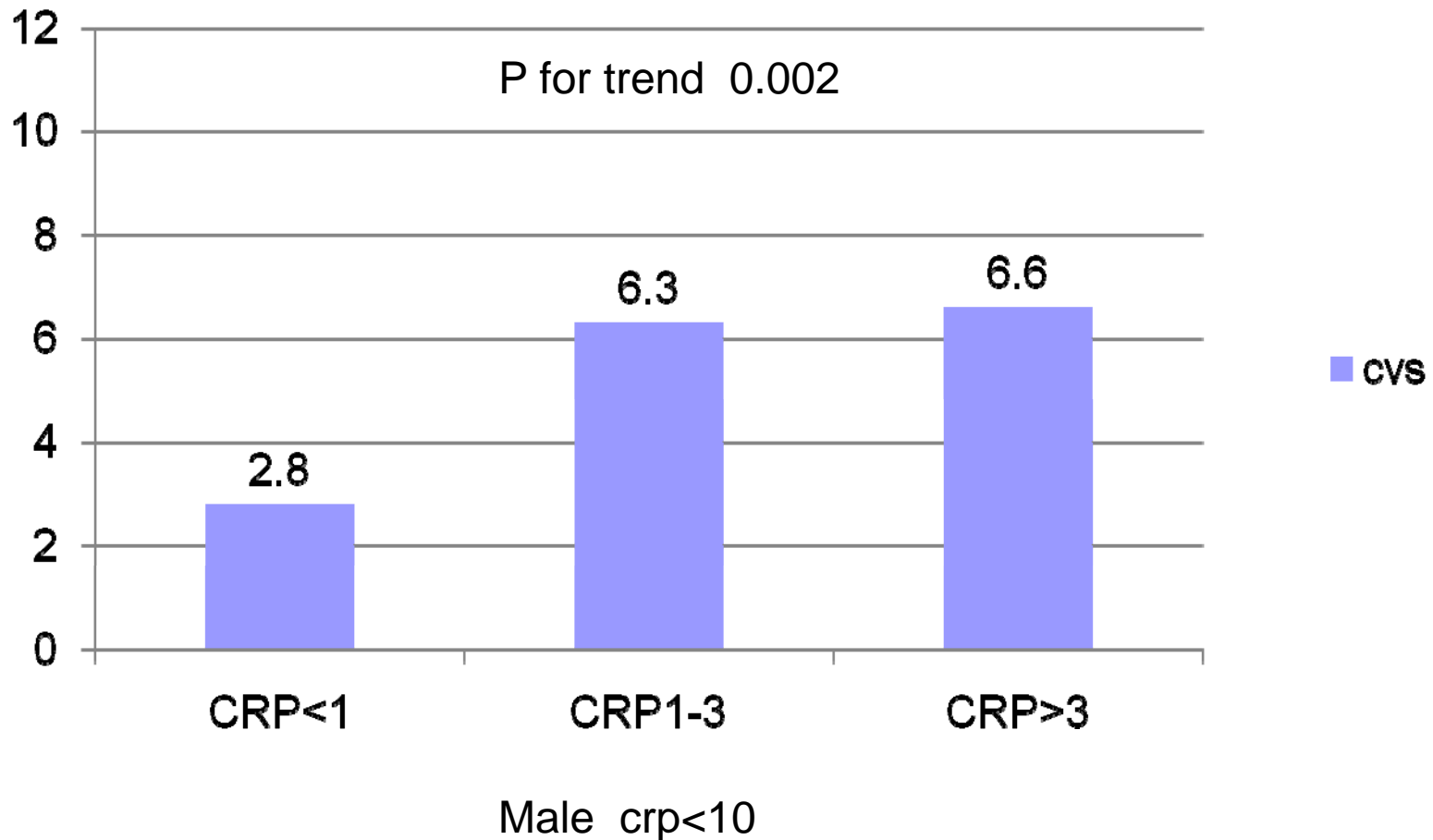
- TC 239.3
- HDL 52.7
  
- 1997→2007



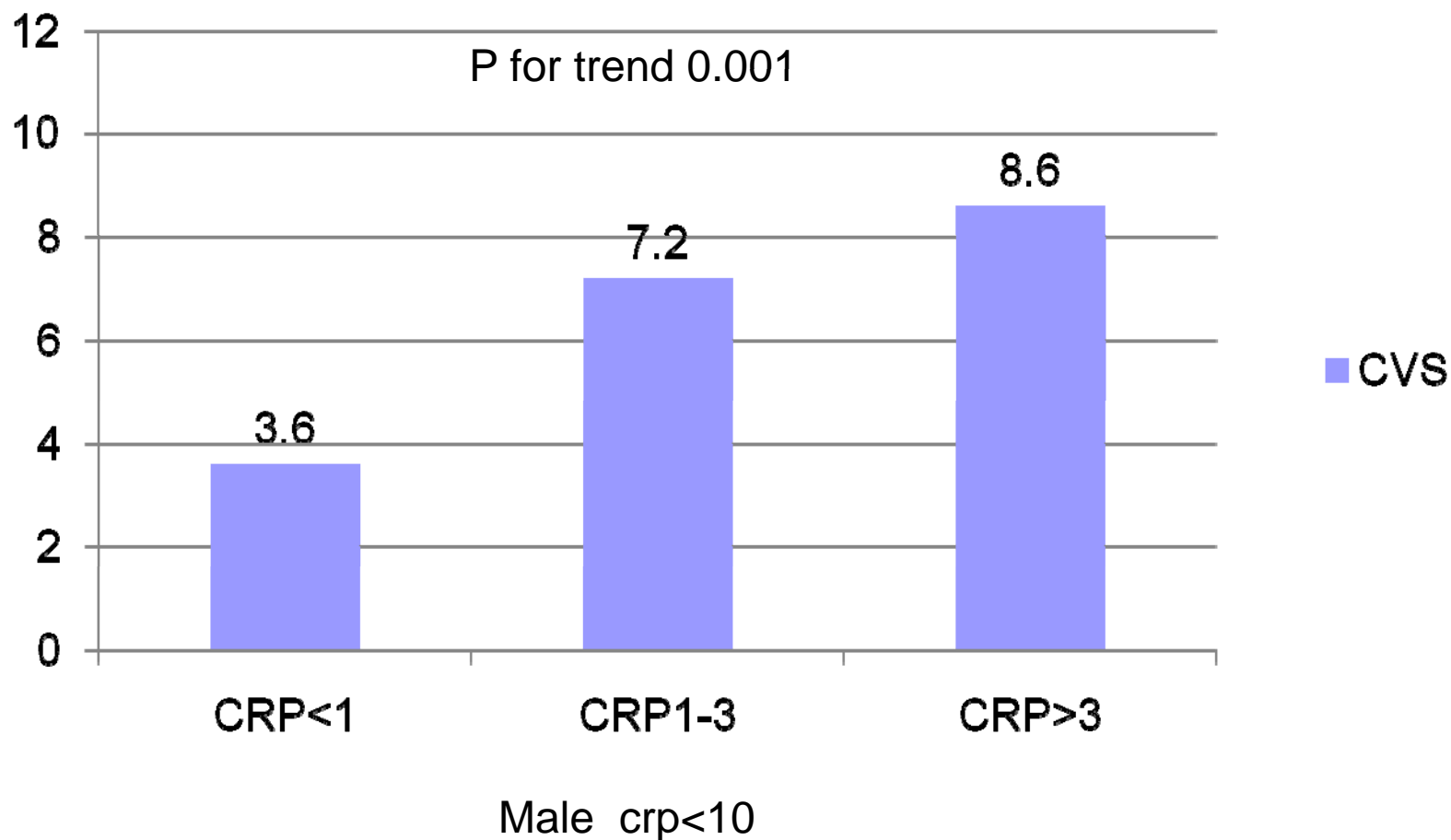
# CHD (Fatal, nonfatal MI, revas)



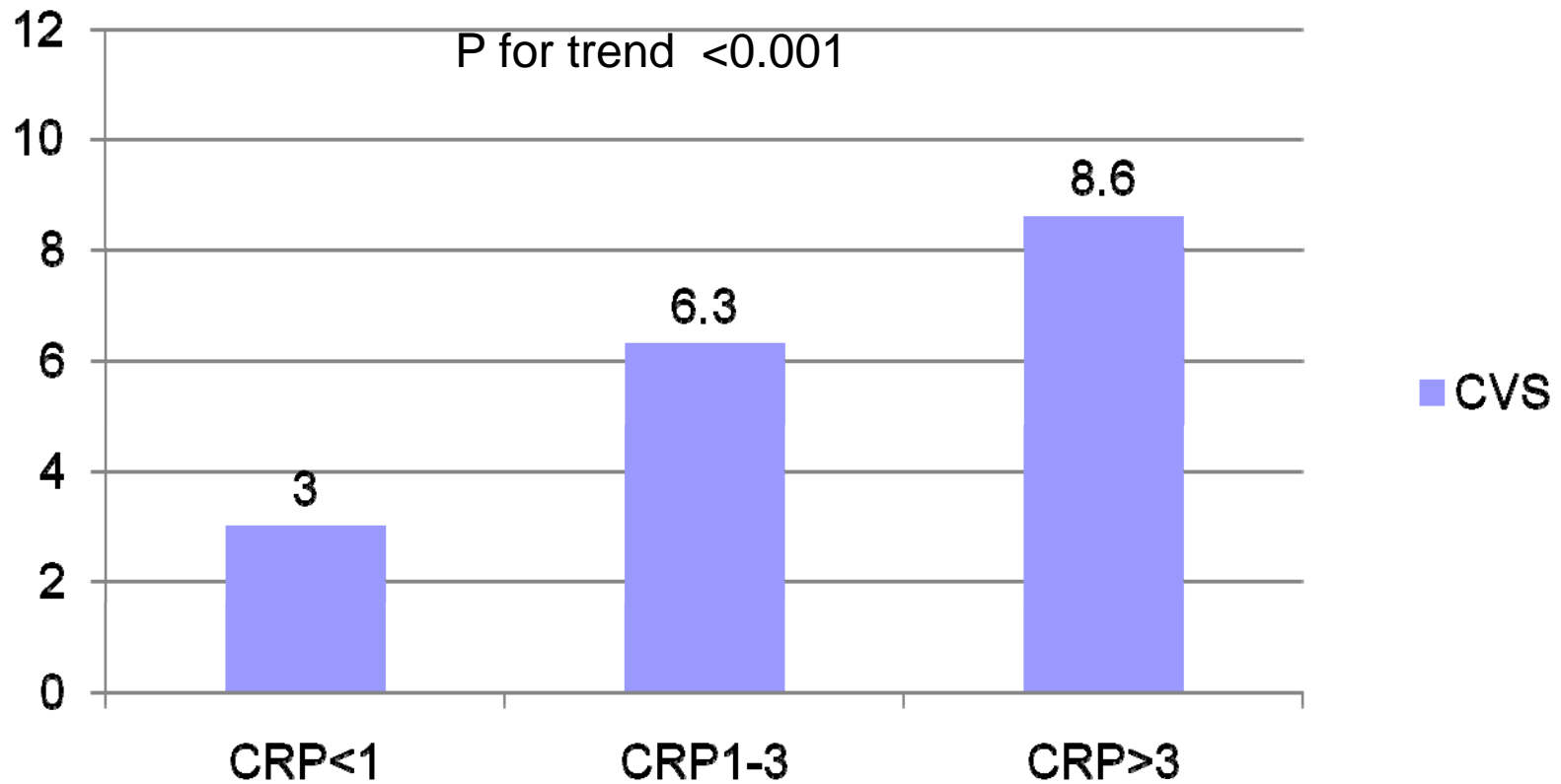
# CVS (Fatal, nonfatal MI, revas, ischemic stroke)



# CHD (Fatal, nonfatal MI, revas, all stroke)



# CHD (Fatal, nonfatal MI, revas, all stroke)



Male and female, all CRP

# CHD, (Male <10)

	B	SE	Wald	df	Sig.	Exp(B)	95.0% CI for Exp(B)	
							Lower	Upper
Step 1								
age97	.082	.028	8.895	1	.003	1.086	1.029	1.146
ht97c99	.449	.305	2.160	1	.142	1.566	.861	2.849
tc97	.001	.003	.060	1	.807	1.001	.994	1.007
hdl97	-.017	.013	1.553	1	.213	.984	.958	1.010
smk97_2	-.078	.323	.058	1	.810	.925	.492	1.741
dm97c98a	.592	.313	3.565	1	.059	1.807	.978	3.340
crp	.079	.059	1.781	1	.182	1.083	.963	1.217
waist97	-.001	.009	.009	1	.925	.999	.981	1.018

Step 5	crp	.078	.059	1.729	1	.189	1.081	.963	1.214
	age97	.079	.027	8.461	1	.004	1.083	1.026	1.142
	ht97c99	.470	.303	2.409	1	.121	1.599	.884	2.894
	dm97c98a	.620	.311	3.981	1	.046	1.860	1.011	3.420
Step 6	crp	.083	.059	1.992	1	.158	1.086	.968	1.219
	age97	.079	.027	8.445	1	.004	1.082	1.026	1.141
	ht97c99	.505	.302	2.806	1	.094	1.657	.918	2.992
	dm97c98a	.658	.310	4.514	1	.034	1.930	1.052	3.541

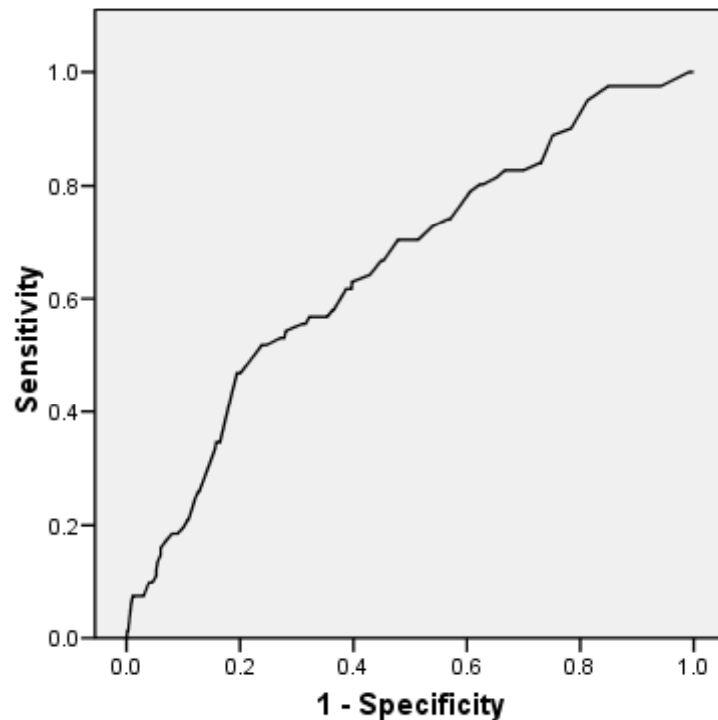
# CHD and ischemic stroke (Male, CRP < 10)

variables in the Equation

		B	SE	Wald	df	Sig.	Exp(B)
Step 1	sex			.	0 <sup>a</sup>	.	
	age97	.072	.025	8.501	1	.004	1.074
	waist97	.001	.005	.040	1	.842	1.001
	ht97c99	.554	.274	4.099	1	.043	1.740
	smk97_2	.280	.267	1.107	1	.293	1.324
	hdl97	-.017	.012	2.165	1	.141	.983
	tc97	.002	.003	.712	1	.399	1.002
	dm97c98a	.612	.278	4.864	1	.027	1.845
	crp	.085	.052	2.627	1	.105	1.088
Step 6	crp	.000	.002	2.000	1	.000	1.001
	age97	.067	.024	7.445	1	.006	1.069
	ht97c99	.534	.271	3.883	1	.049	1.705
	dm97c98a	.630	.277	5.181	1	.023	1.877
	crp	.093	.051	3.243	1	.072	1.097

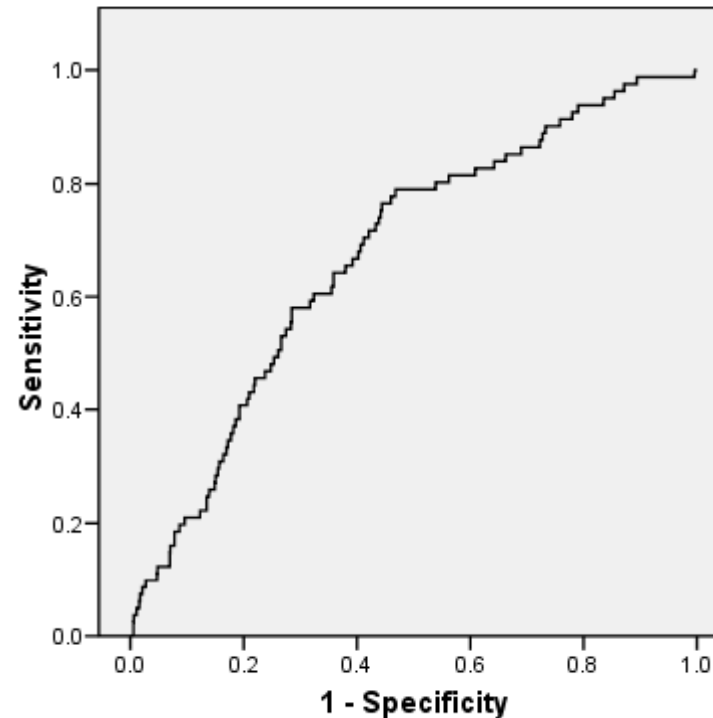
# Discrimination analysis

ROC Curve



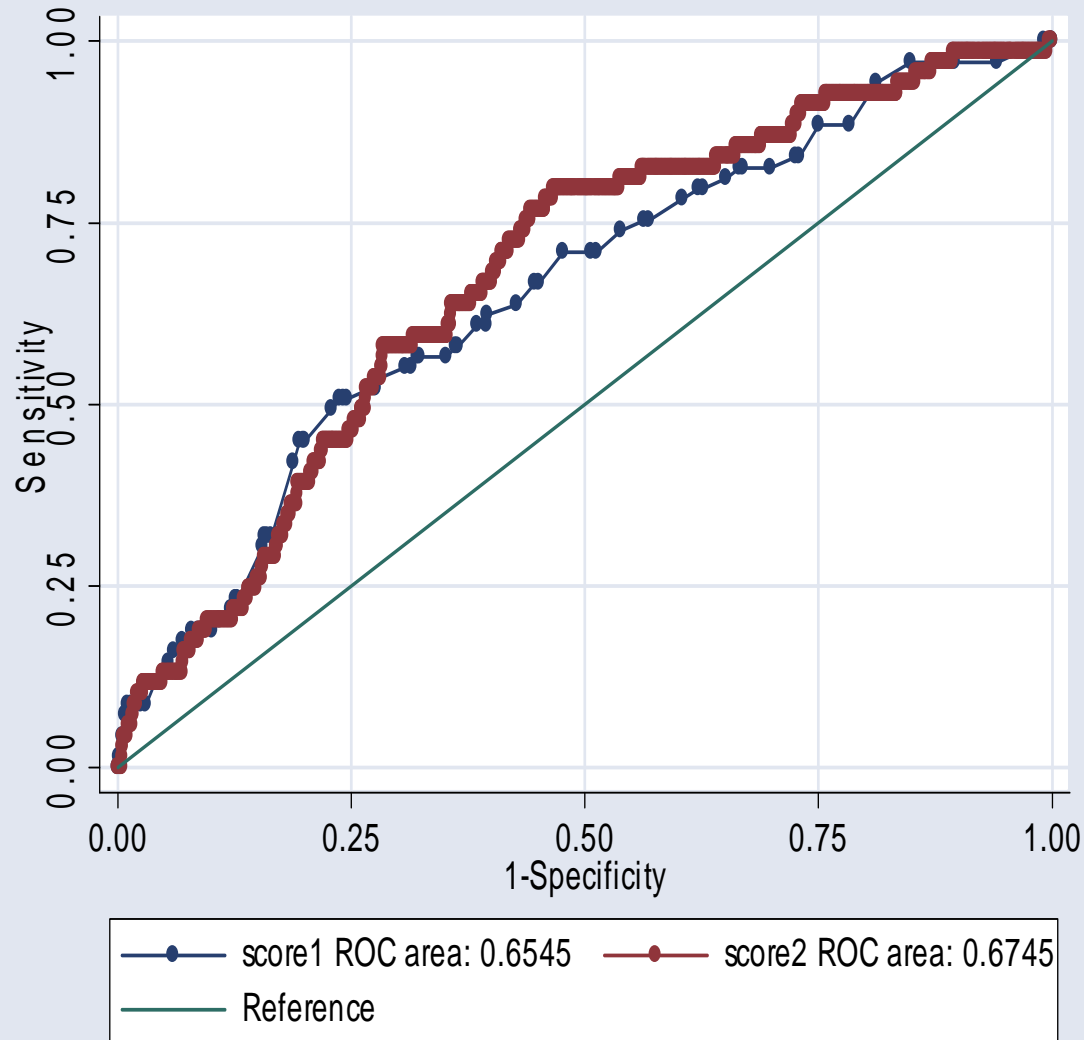
AUC 0.654 age DM HT  
(score1)

ROC Curve



AUC 0.675 age DM HT CRP  
(score2)





Male  
CRP < 10

CHD and  
ischemic  
stroke

	Obs	ROC Area	Std. Err.	-Asymptotic Normal- [95% Conf. Interval]	
score1	1528	0.6545	0.0342	0.58737	0.72154
score2	1528	0.6745	0.0316	0.61266	0.73641
Ho: area(score1) = area(score2)					
	chi2(1) =	3.04	Prob > chi2 =	0.0814	



# ? Representative population

- Less male, DM, HT, smoking
- More central obesity

