
**International Task Force for Prevention
Of Coronary Heart Disease**



*Coronary heart disease and stroke:
Risk factors and global risk*

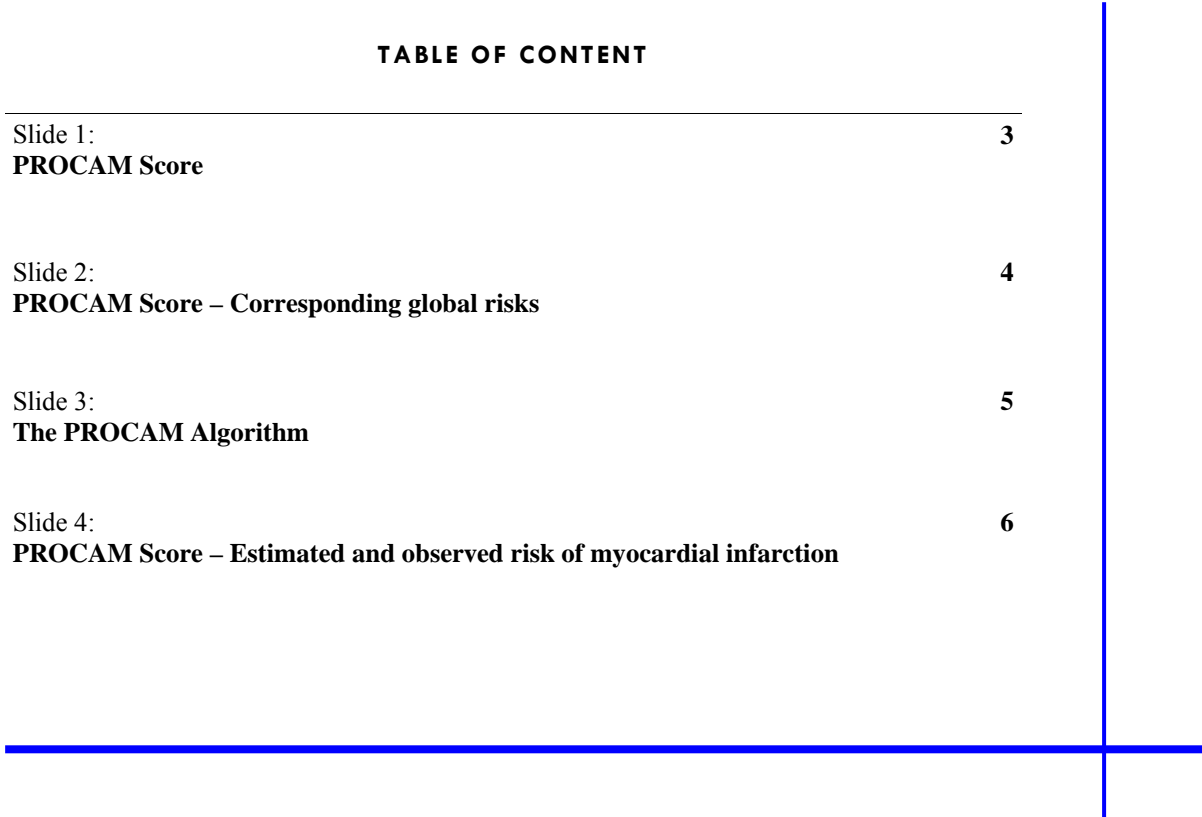
Slide Kit 7

PROCAM
(**P**rospective **C**ardiovascular **M**ünster Heart Study)

The PROCAM Risk Score

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Slide 1:

PROCAM (Münster Heart Study): PROCAM Score



LDL cholesterol (mg/dl)		HDL cholesterol (mg/dl)		Systolic blood pressure (mmHg)		Age (years)	
≤100	0	≤35	11	<110	0	35-65	Age-35
101-105	1	36-37	10	100-119	1		
106-110	2	38-39	9	120-129	2	Smoker	
111-115	3	40-41	8	130-139	3	Never	0
116-120	4	42-43	7	140-149	4	Former	2
121-125	5	44-45	6	150-159	5	Current	9
126-130	6	46-47	5	≥160	6		
131-135	7	48-49	4			Fasting blood glucose (mg/dl)	Antihypertensive drug
136-140	8	50-51	3	<120	0	No	0
141-145	9	52-53	2	≥120	3	Yes	2
146-150	10	54-55	1				
151-155	11	>55	0				
156-160	12			Diabetes		MI in family history	
161-165	13	Triglycerides (mg/dl)		No	0	No	0
166-170	14	<100	0	Yes	4	Yes	5
171-175	15	100-149	2				
176-180	16	150-199	3				
181-185	17	≥200	4				
186-190	18						
191-195	19						
196-200	20						
>200	21						

PROCAM Score

This slide shows the scores assigned to each level of the respective risk factor. The total score is calculated by adding together the points for each risk factor.

Slide 2:

**PROCAM (Münster Heart Study):
 PROCAM Score – Corresponding global risks**

		PROCAM Score (2004)				
No. of points	10-year risk of acute coronary events (%)	No. of points	10-year risk of acute coronary events (%)	No. of points	10-year risk of acute coronary events (%)	
≤8	0.1	34	2.9	55	18.3	
9-11	0.2	35	3.2	56	19.0	
12-13	0.3	36	3.5	57	21.3	
14-16	0.4	37	3.8	58	23.6	
17	0.5	38	4.1	59	25.4	
18	0.6	39	4.5	60	27.8	
19	0.7	40	4.7	61	30.1	
20	0.8	41	5.2	62	32.0	
21	0.9	42	5.6	63	34.0	
22	1.0	43	6.0	64	36.0	
23	1.1	44	6.9	65	38.0	
24	1.2	45	7.3	66	41.0	
25	1.3	46	8.2	67	43.0	
26	1.4	47	9.1	68	45.0	
27	1.5	48	10.1	69	48.0	
28	1.7	49	10.9	70	51.0	
29	1.9	50	12.0	71	54.0	
30	2.1	51	12.8	72	57.0	
31	2.2	52	13.4	≥73	≥60	
32	2.4	53	14.3			
33	2.6	54	16.7			

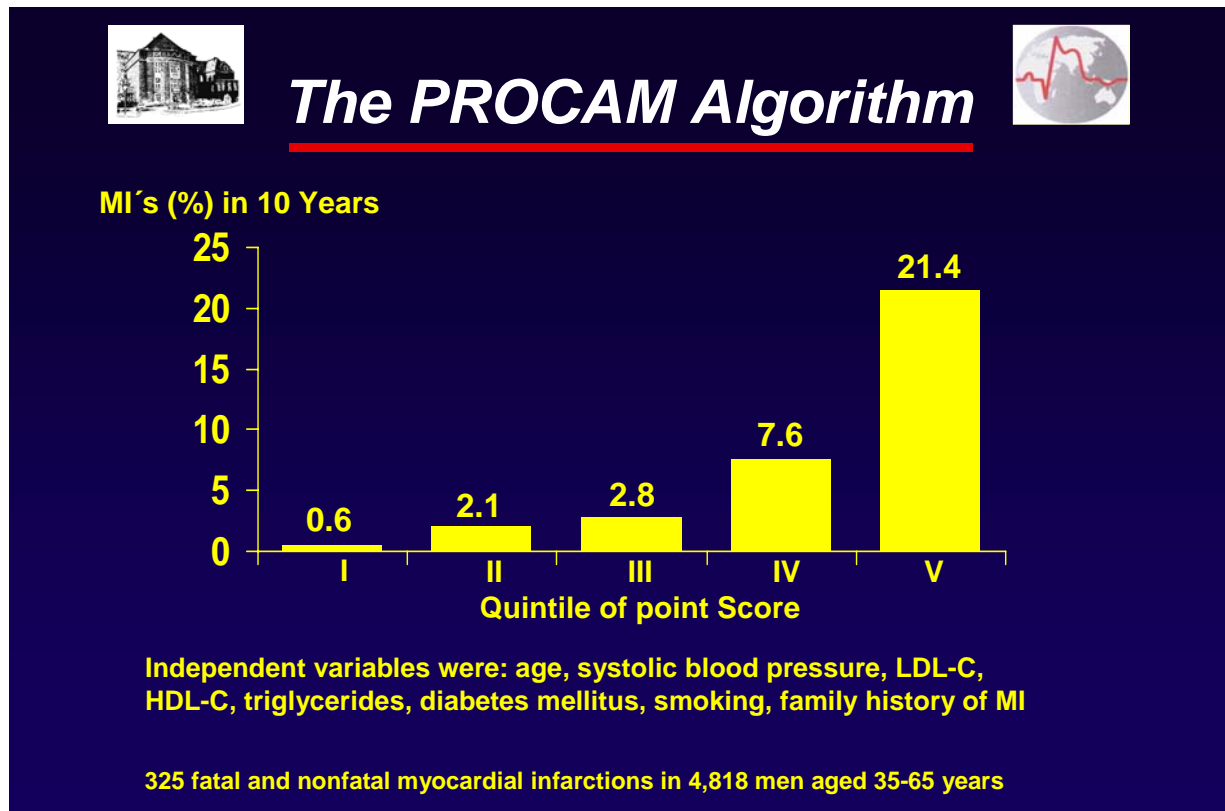
PROCAM Score – Corresponding global risks

For each total score the corresponding global risk for suffering a heart attack or dying from an acute coronary event within the next 10 years can be seen from this slide. This score was derived in men aged 35-65 years in the PROCAM Study.

The number of coronary events which occurred in women during 10 years of follow-up does not yet permit the development of a specific risk prediction algorithm for women. However, analysis based on data from women aged 45-65 years indicate a 4-fold lesser absolute risk of coronary events in postmenopausal women compared with men of the same age. Therefore, a rough risk prediction for women can be obtained by dividing the global risk estimated for men by 4. Note, that this estimation is only applicable to postmenopausal women 45-65 years of age.

Slide 3:

PROCAM (Münster Heart Study): The PROCAM Algorithm



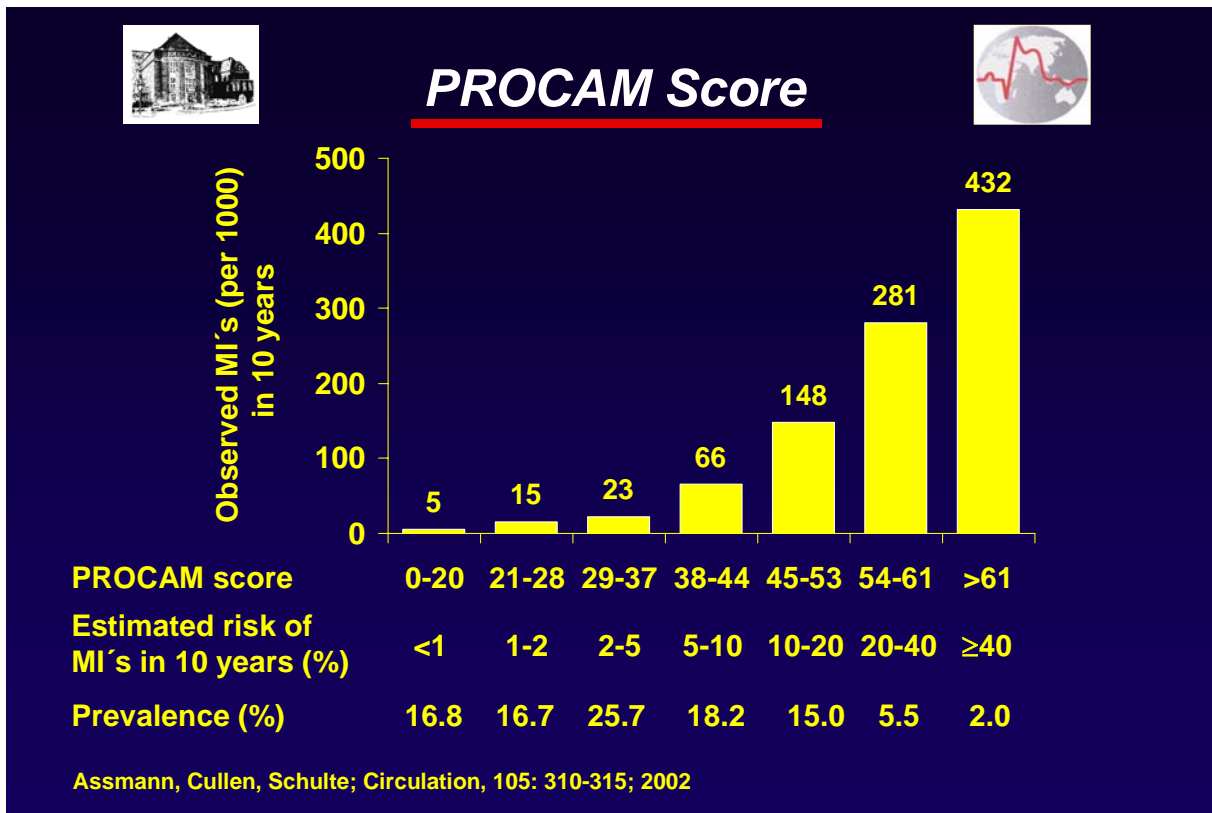
The PROCAM Algorithm

This slide shows the incidence of coronary events occurring within 10 years of follow-up in men aged 35-65 years in PROCAM, divided into fifths (quintiles) using a cox proportional hazards model derived from more than 50 variables measured in each man. The 8 variables listed here each make an independent contribution to risk. Taken together, they allow a more than 30-fold stratification of risk between the lowest and the highest quintile.

The lower fifths of this distribution are within the desirable range. We regard the third fifth as indicating a moderate increase in risk and the fourth fifth as indicating a marked increase in risk. The top fifth of this distribution is regarded as being at high risk of myocardial infarction. Allocation of your patients to these quintiles can be performed using the interactive program on this website using this link.

Slide 4:

**PROCAM (Münster Heart Study):
 PROCAM Score – Estimated and observed risk of myocardial infarction**



PROCAM Score – Estimated and observed risk of myocardial infarction

This slide shows the observed incidence of myocardial infarction in 10 years for categories of estimated 10-year risk. Also, the ranges of the PROCAM score corresponding to each estimated risk category are given. The numbers illustrate a good fit between estimated and observed risk.

The prevalences given in the last row reveal that 7.5% of the men in the PROCAM cohort had a 10-year risk for myocardial infarction $\geq 20\%$ and a further 15% had a risk between 10 and 20%.