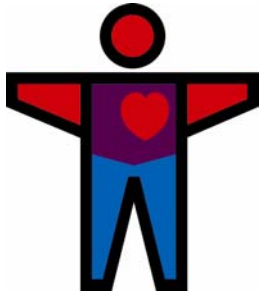
Celebrating 30 years of the MIDSPAN Studies



Is CVD risk prediction equitable?

The accuracy of the Framingham risk score in different socioeconomic groups

Peter Brindle

Background

- Guidelines for the primary prevention of coronary heart disease recommend preventive treatment in high risk patients: *>15% and >30% over 10 years (or CVD equivalent)*
- Opportunistic population screening
- Risk assessment methods based upon a regression equation from the Framingham Study – data collected 1968-75

Risk factors used to calculate the Framingham risk score

-age and sex
-diastolic and systolic BP
-total:HDL cholesterol ratio
-diabetes (Y/N)
-cigarette smoking (Y/N)
-left ventricular hypertrophy (Y/N)

CVD risk over 10 years

Getting it wrong

***Over*-prediction means...**

People with little to gain may become patients

***Under*-prediction means…**

People with much to gain may not be offered preventive treatment

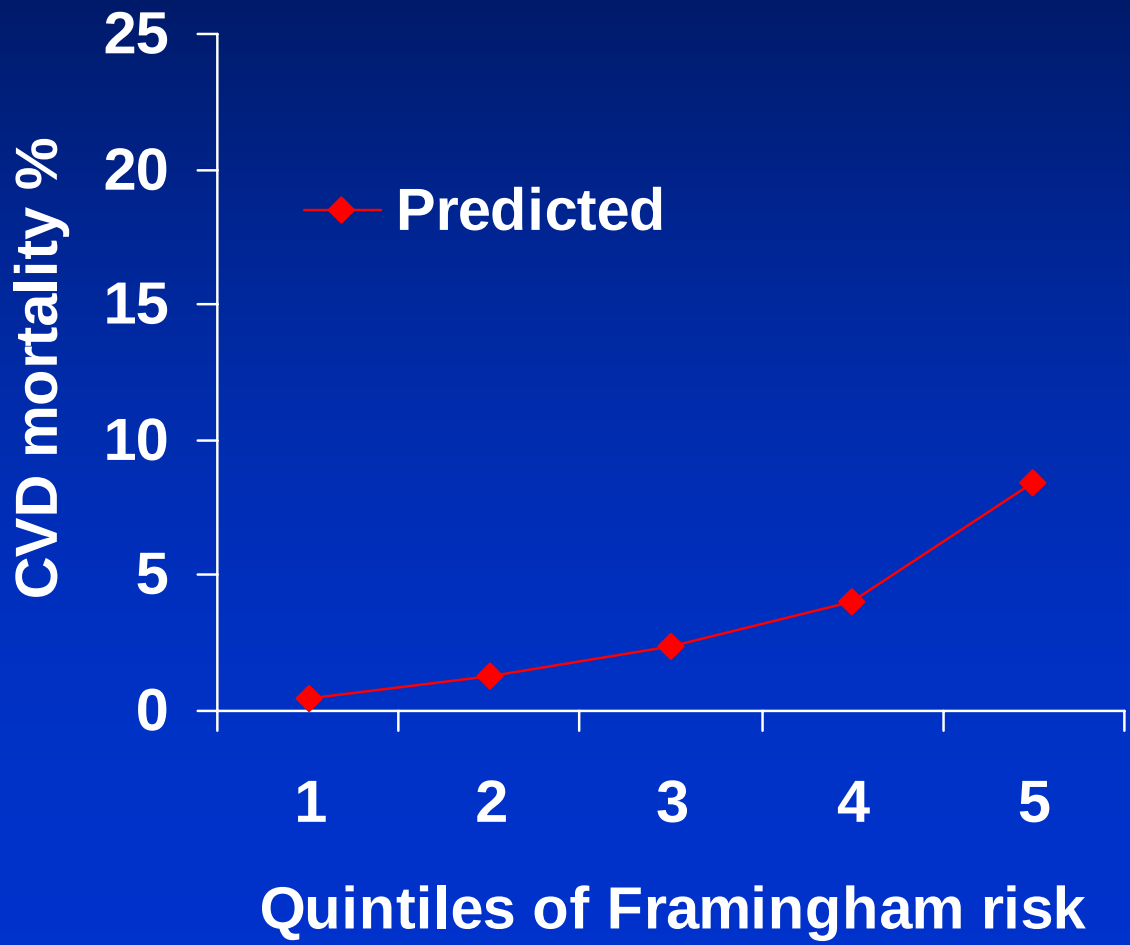
Aim

To examine the validity of the Framingham risk score in different socio-economic groups

Study design

- 12,300 men and women, aged 45-64 and no evidence of cardiovascular disease at entry (1972-76)
- Baseline risk factor assessment
- 10-year follow up for cardiovascular disease mortality
- Stratified by deprivation and social class

10-year CVD mortality rate by Framingham risk



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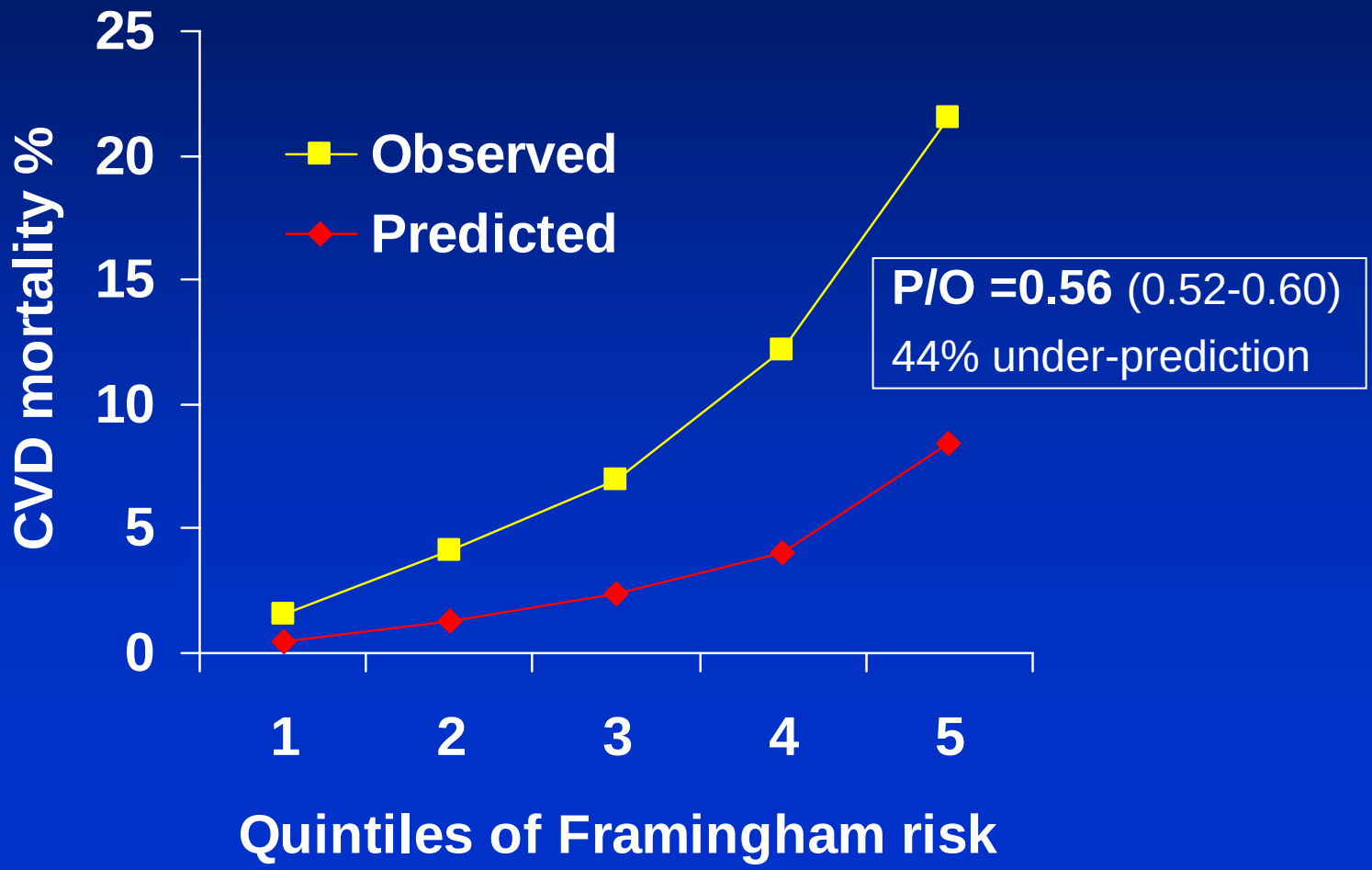

10-year predicted versus observed CVD death rates by area deprivation and social class

Social class

(Pred/Obs)

Non-Manual	0.69	*p= 0.0005*
Manual	0.52	

Deprivation

(Pred/Obs)

Affluent	0.64	
Intermediate	0.56	*p= 0.0017 for trend*
Deprived	0.47	

The numbers of participants identified by risk threshold – original and adjusted scores

	Original score		Adjusted score	
Risk threshold	Non-manual	Manual	Non-manual	Manual
>40%	3%	6%	17%	44%
>20%	36%	46%	60%	84%

Risk score inflated by 1.45 (non-manual) and 1.94 (manual)

Conclusions

- How to make CVD risk assessment more equitable?
- Current methods are poorly calibrated
- “One size fits all” approach fails

Poverty ‘must be factor’ in heart risk

Heart fears for those living in deprived areas

Heart disease diagnosis ‘is failing poor’

Expert says too many patients dying

Addressing the problem…

- Scottish Intercollegiate Guideline Network (SIGN)

Tunstall-Pedoe and Woodward. *Heart* 2005 Sep 15

- National Institute for Health and Clinical Excellence (NICE)
- The National Screening Committee
- NHS National Programme for IT (NPfIT)

Summary

- People from deprived areas are less likely to reach treatment thresholds than those from affluent areas
- Risk assessment methods could use measures of social deprivation to improve targeting of preventive treatment

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