

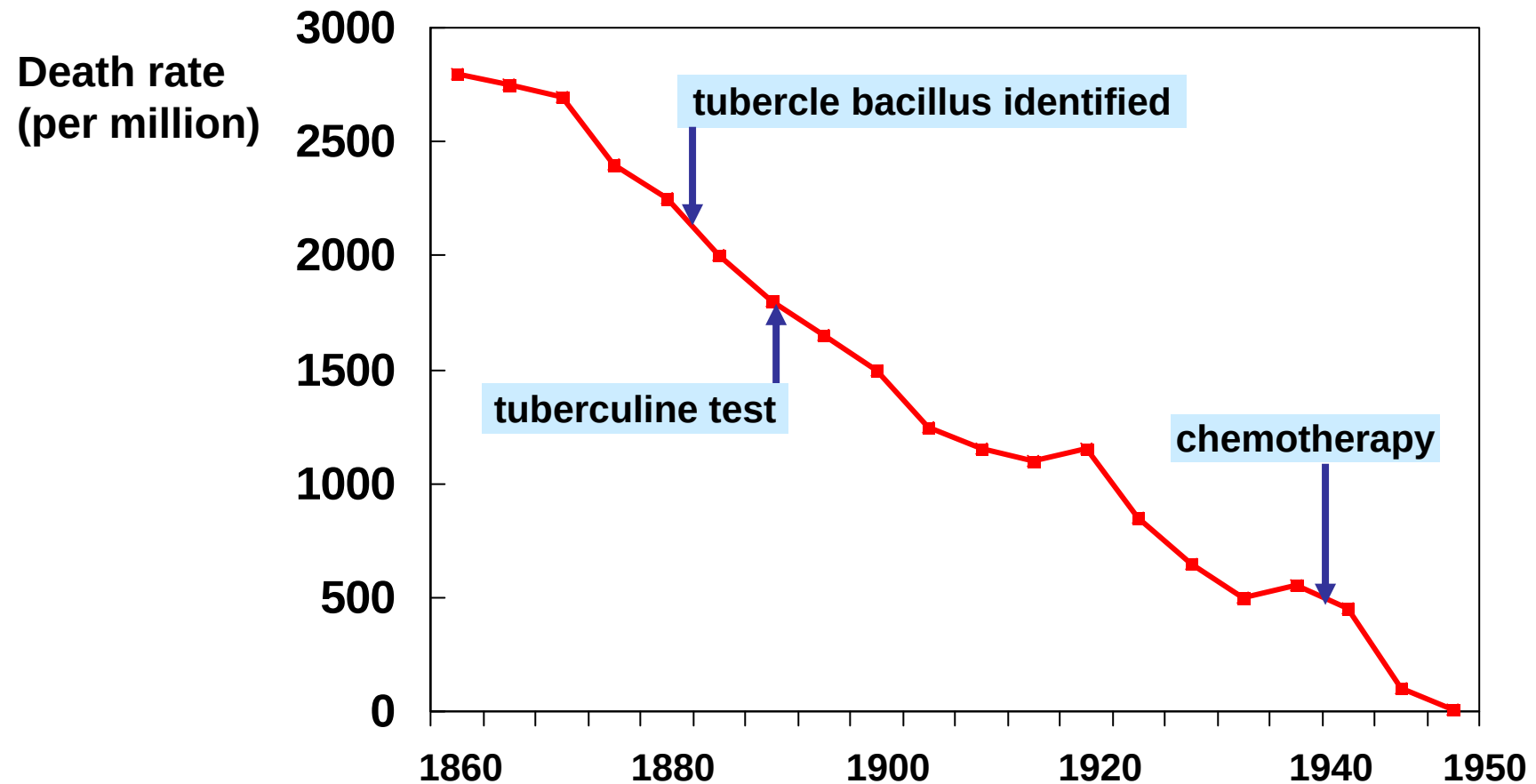
Socioeconomic Inequalities in CVD in Europe

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www.charite.de/epidemiologie

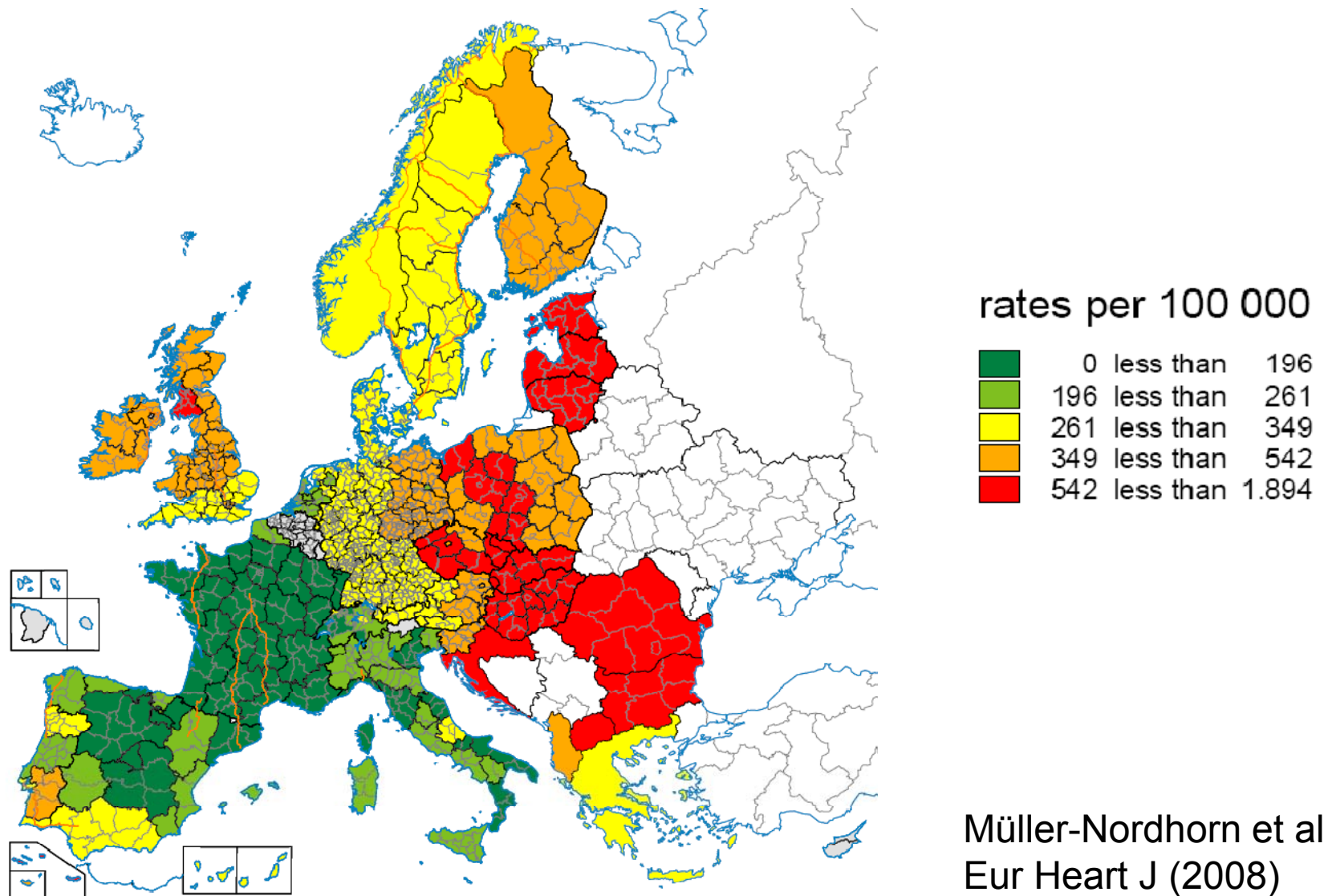


Respiratory Tuberculosis Mortality (England and Wales)

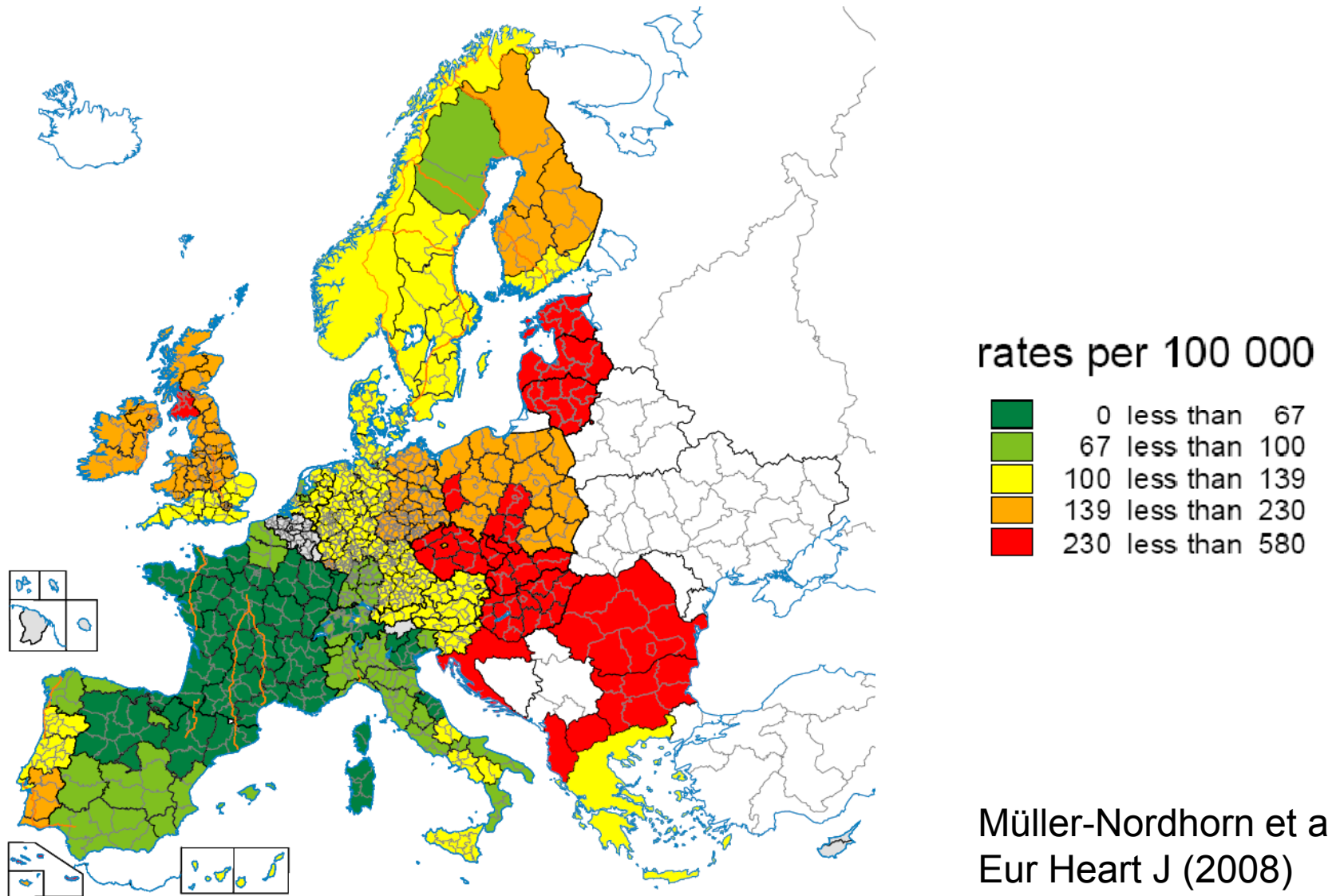


Brenner, 2002

Cardiovascular Disease Mortality – Men



Cardiovascular Disease Mortality – Women



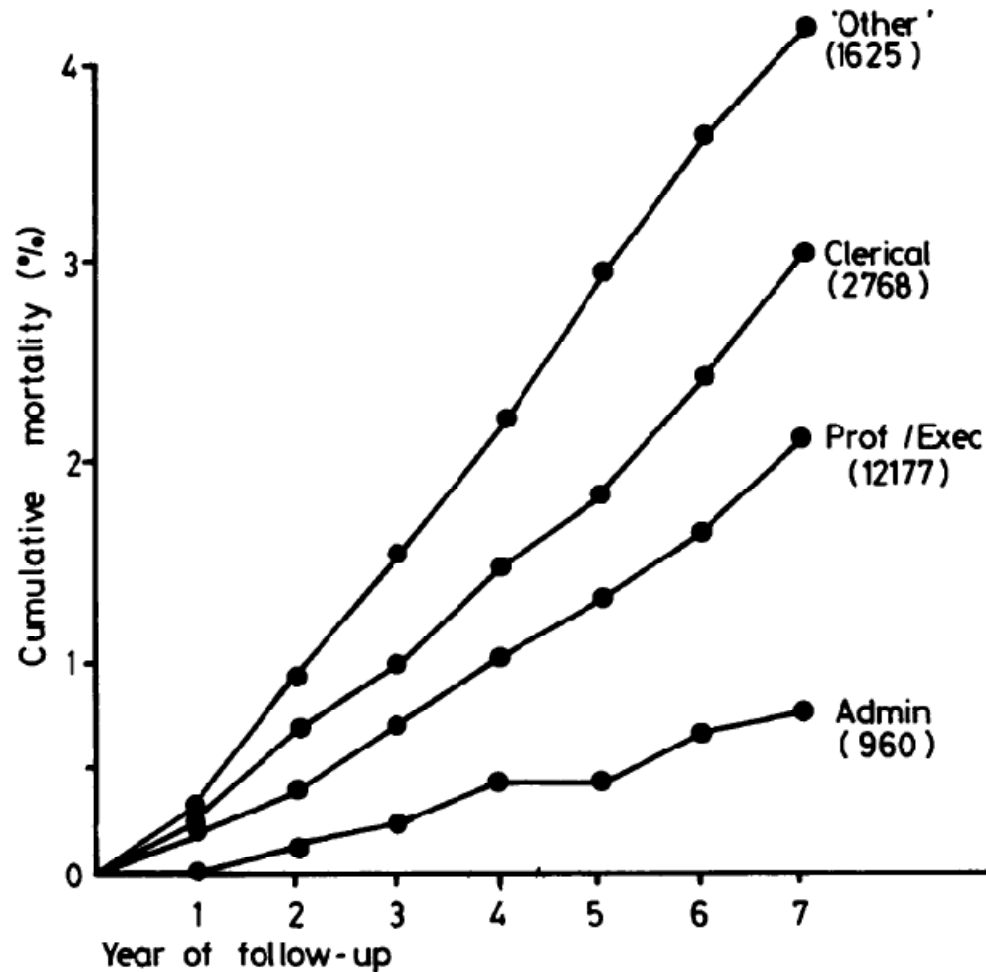
Müller-Nordhorn et al.,
Eur Heart J (2008)

Challenges of Regional Variation – Possible Explanations

- Access to and quality of medical care
- Genetic factors
- Environment
- Risk factors
- Socioeconomic factors

Mortality from CHD and Employment Status

Whitehall Study, 17,000 Civil Servants)



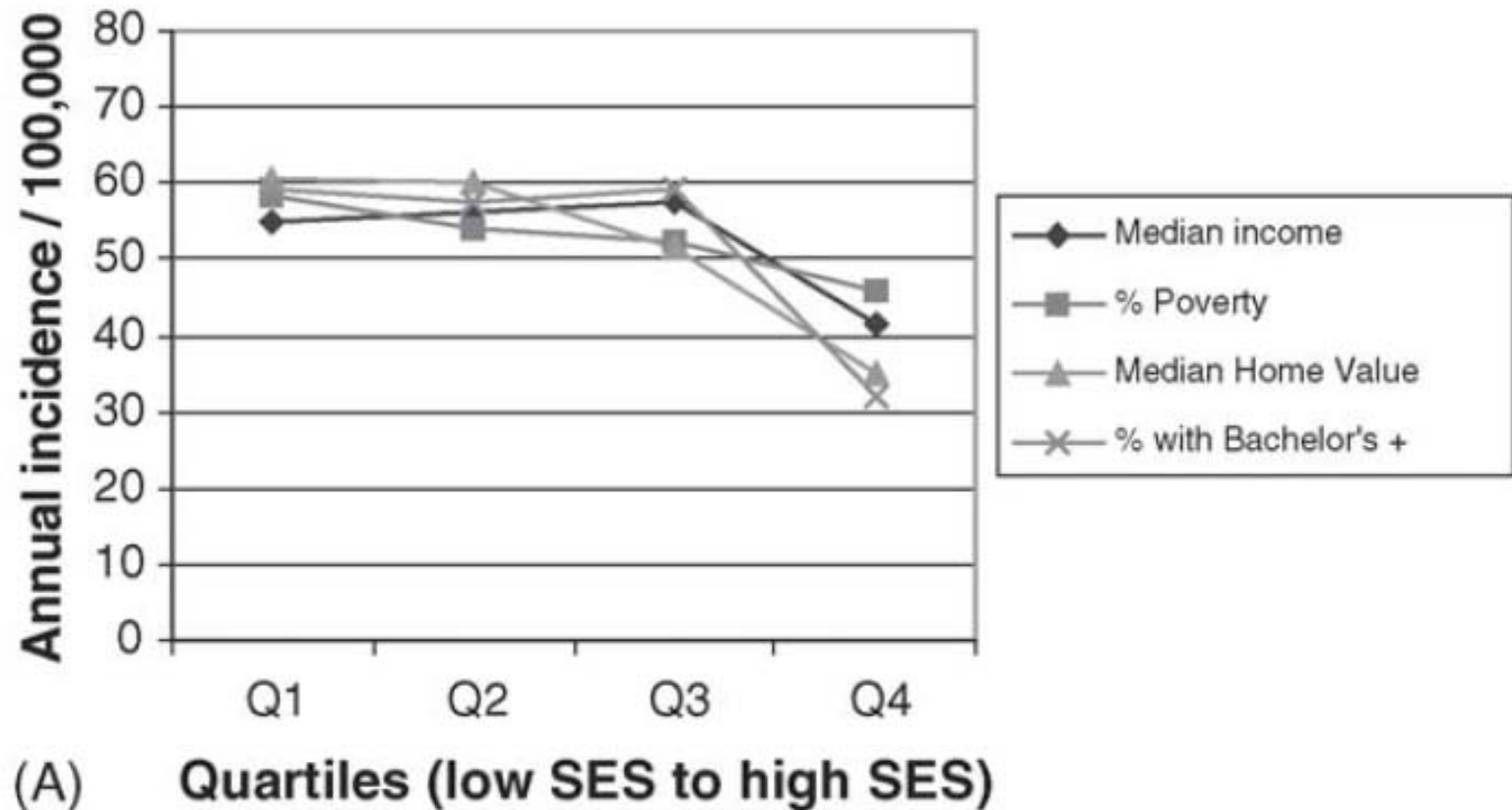
Rose G and Marmot MG, Br Heart J 1981;45:13-19

Relative Risk of CHD Death over 10 Years

	Administrators	Professional/ executive	Clerical	Other
Controlling for age	1.0	1.6	2.2	2.7
Controlling for other risk factors	1.0	1.5	1.7	2.1

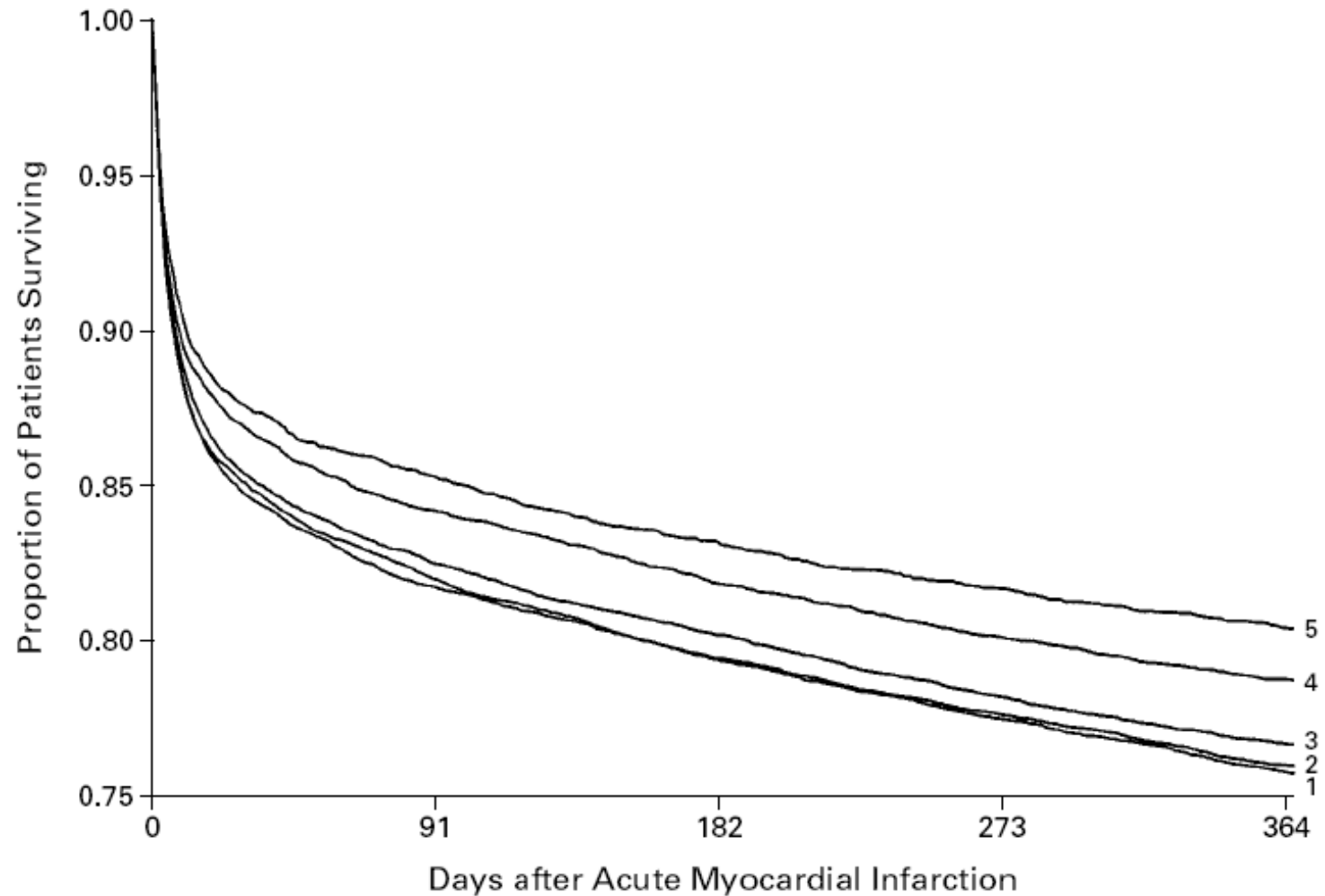
Marmot MG et al., Lancet 1984; 323:1003-1006

Incidence of Sudden Cardiac Arrest and Socioeconomic Status



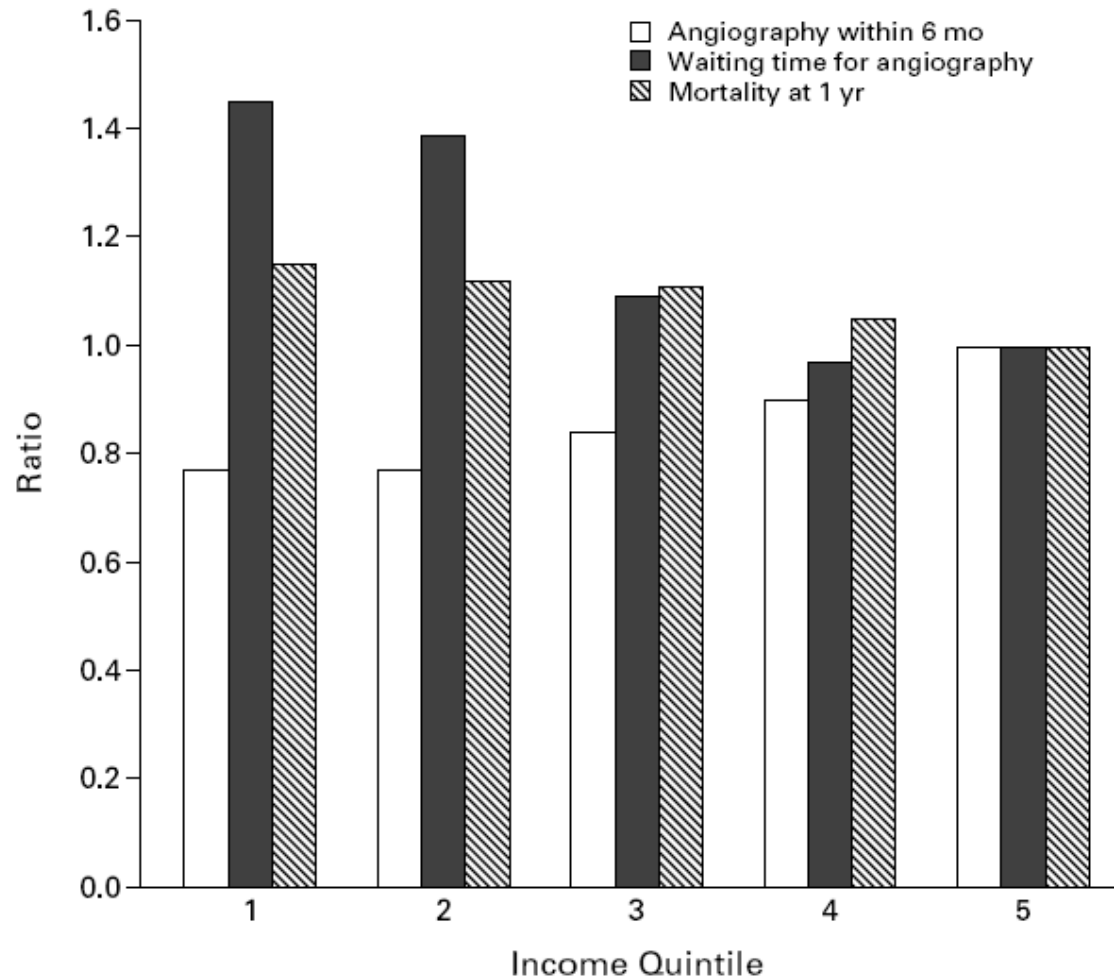
Reinier K et al., Resuscitation 2006;70:186-192

Survival after Myocardial Infarction and Income



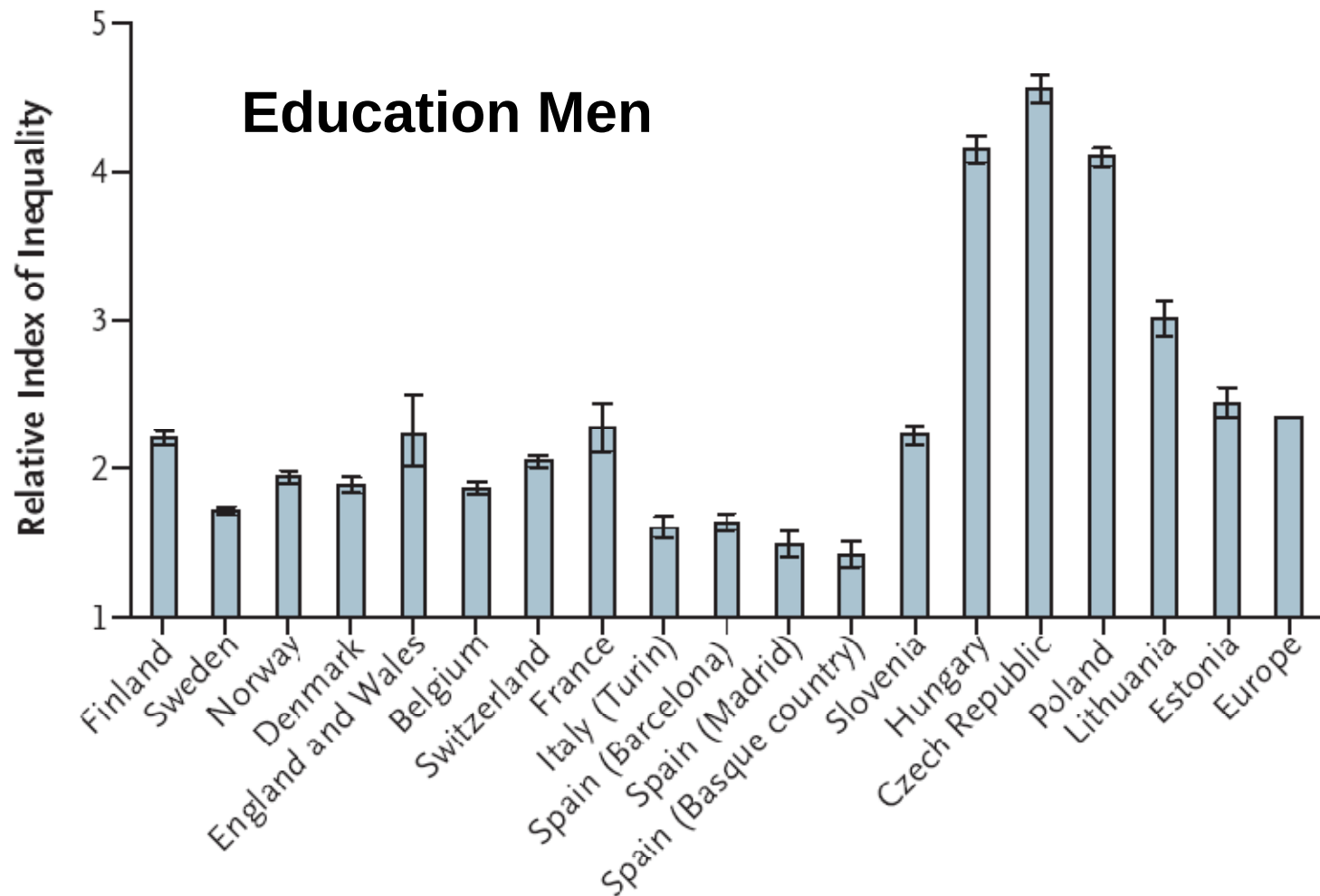
Alter DA et al., N Engl J Med 1999;341:1359-1367

Angiography Treatment and Income



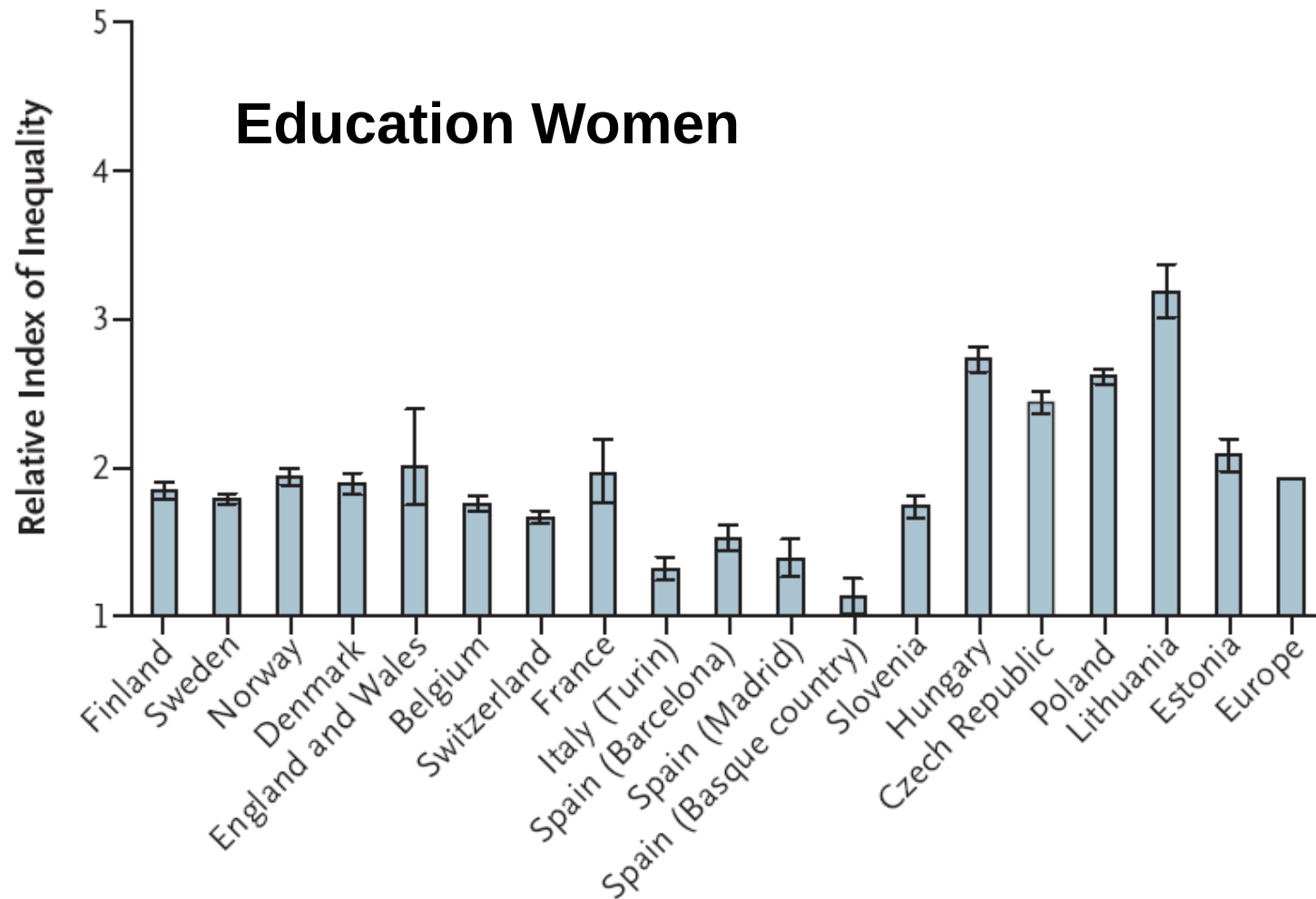
Alter DA et al., N Engl J Med 1999;341:1359-1367

Relative Inequalities in all Cause Rate of Death



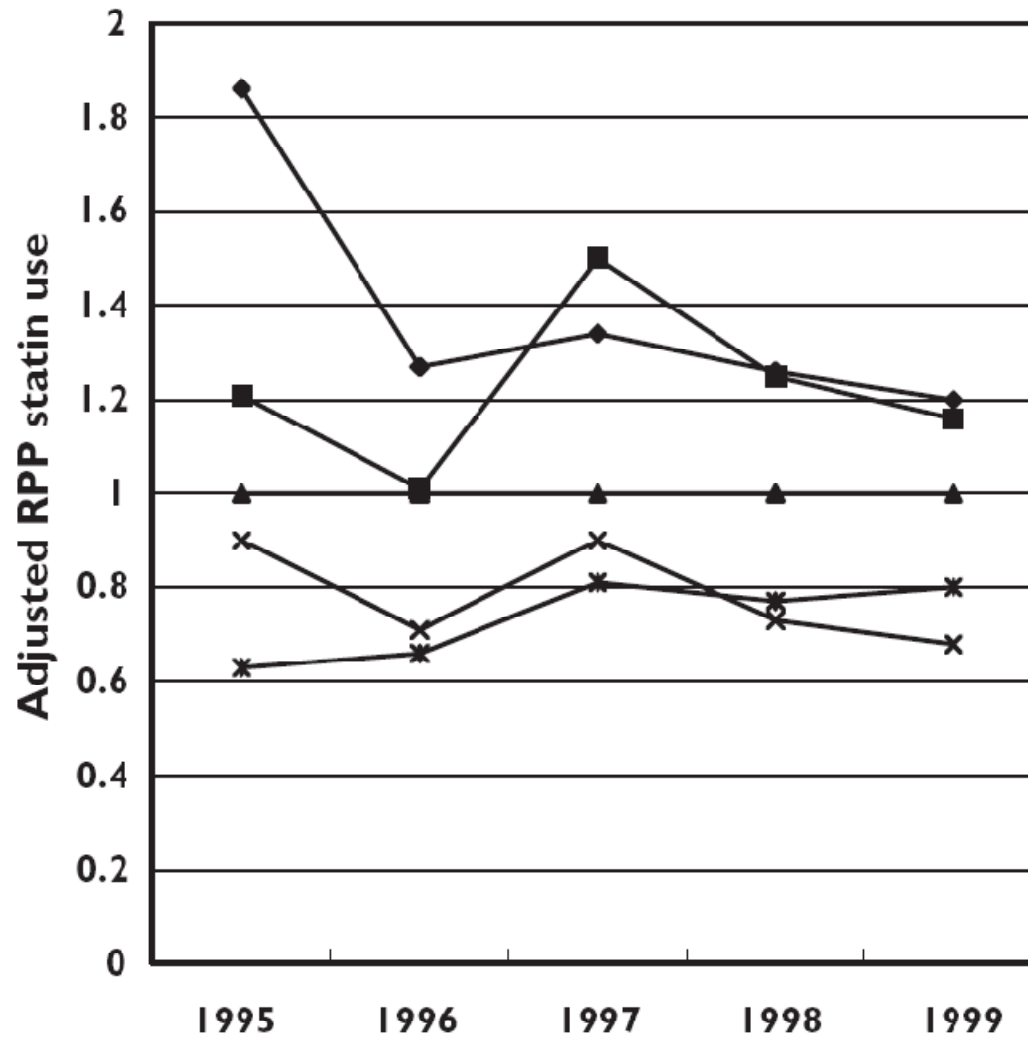
Mackenbach JP et al., New Engl J Med 2008;358:2468-2481

Relative Inequalities in all Cause Rate of Death



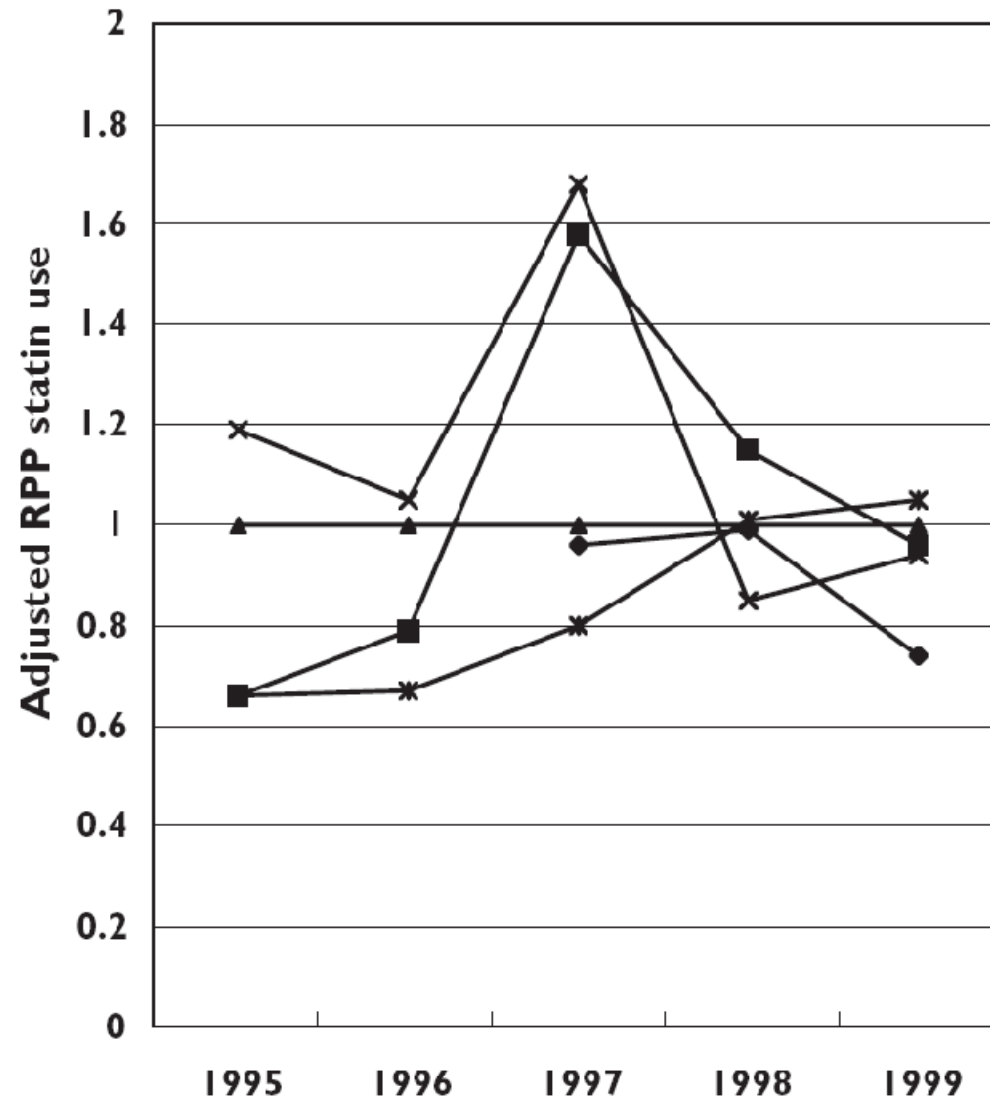
Mackenbach JP et al., New Engl J Med 2008;358:2468-2481

Statine Use and Socioeconomic Status - Men



Thomsen RW et al., Br J Clin Pharmacol 2005;60:534-542

Statine Use and Socioeconomic Status - Women

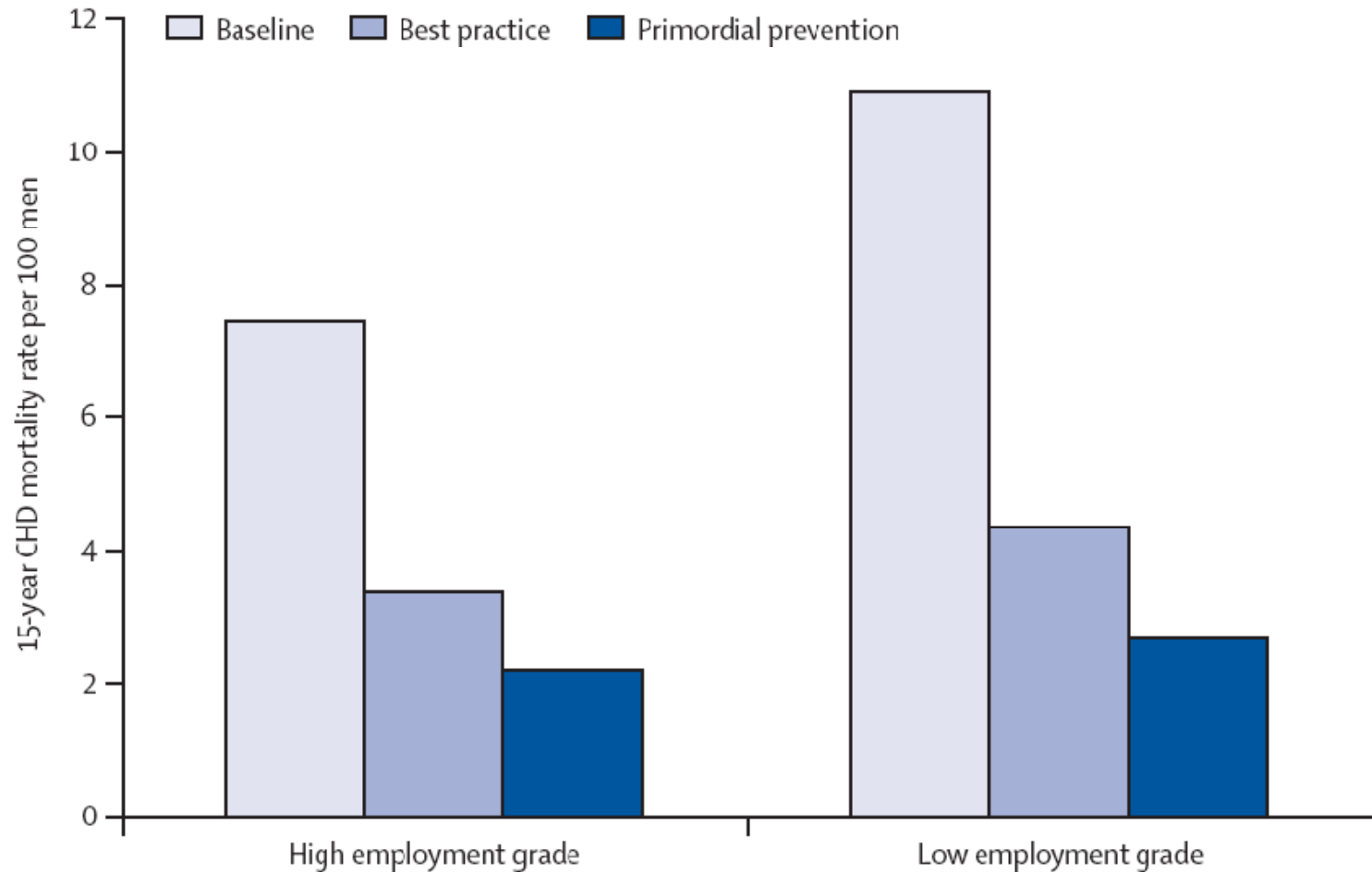


Thomsen RW et al., Br J Clin Pharmacol 2005;60:534-542

Intervention Model to Reduce Socioeconomic Inequality

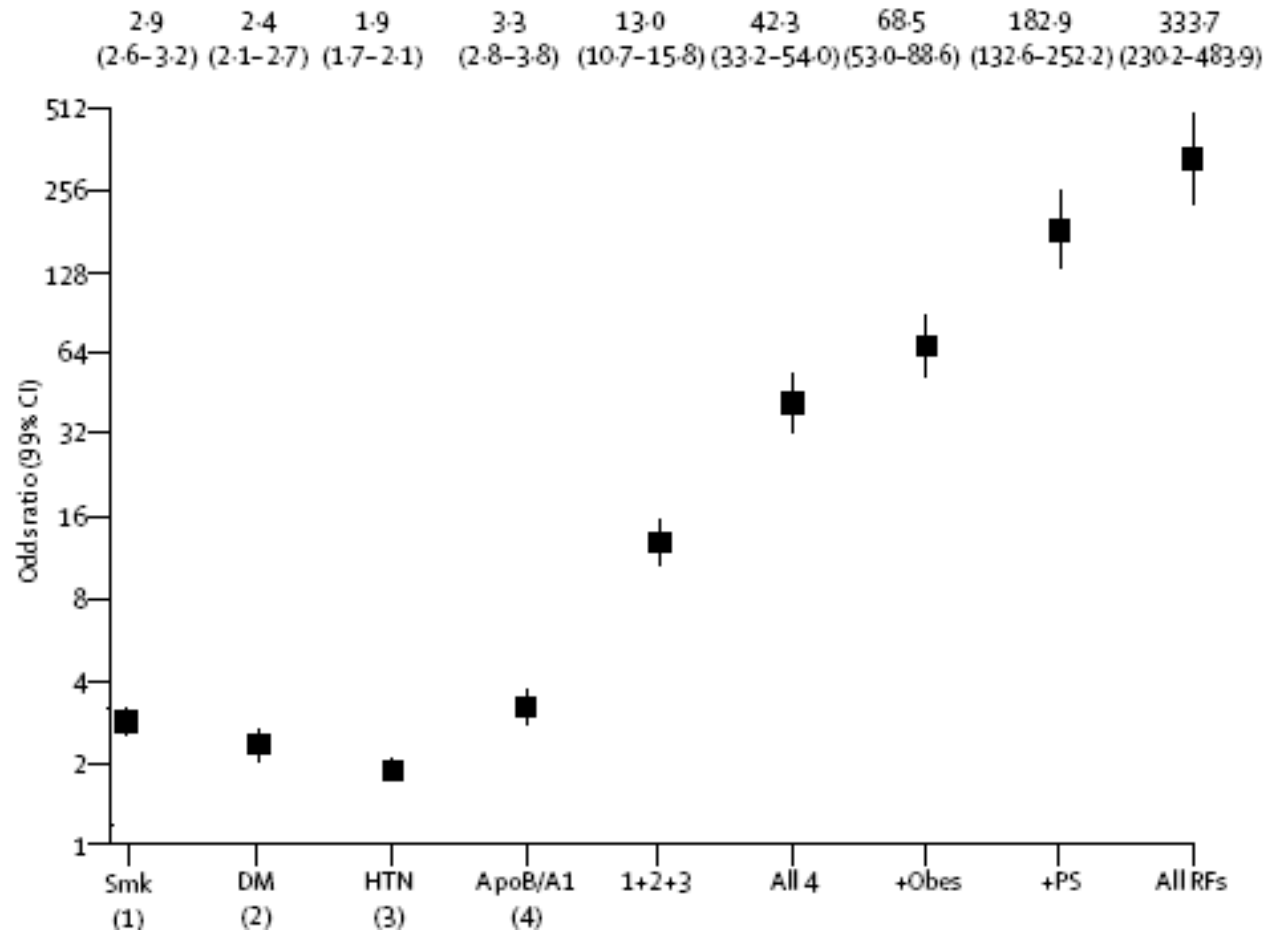
- Whitehall Study population
- Intervention:
 - Systolic blood pressure ↓ 10 mmHg
 - Total cholesterol ↓ 2 mmol/L
 - Blood glucose ↓ 1 mmol/L or halving DM II
 - Smoking cessation
- Or primordial prevention
- 15 years risk of CMD death

Modelled Effect of Intervention on Coronary Mortality by Social Status



Tobias M, Rodgers A, Lancet 2008;372:1612-1613

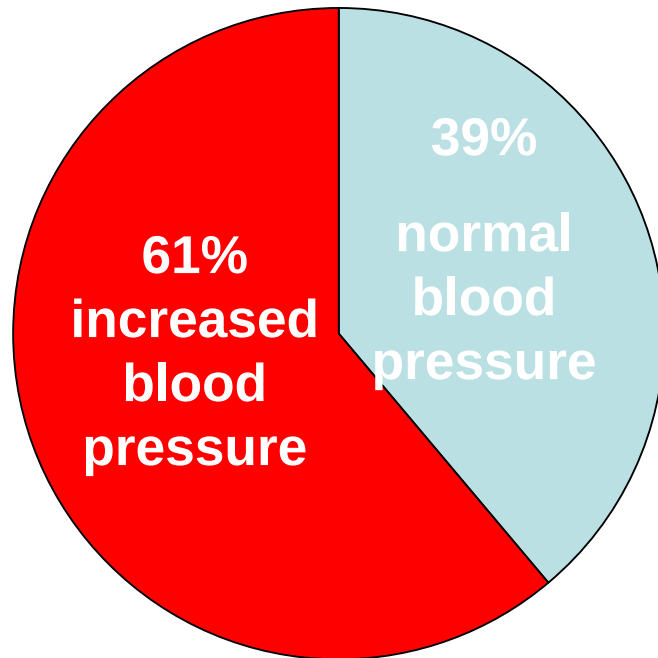
Multiple Risk Factors and Myocardial Infarction (INTERHEART Study, n=29,972)



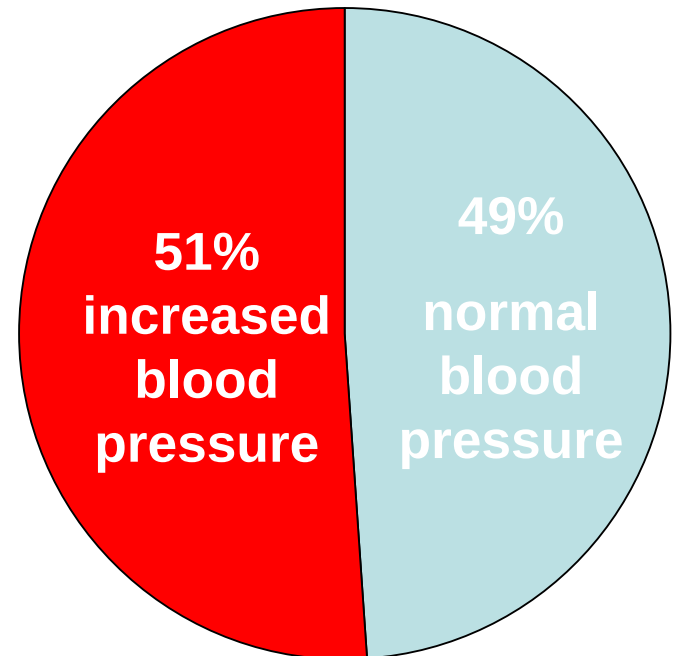
Yusuf et al., Lancet 2004;364:

Hypertension Control - EUROASPIRE II

**Patients with
antihypertensive
life style (N=1,401)**

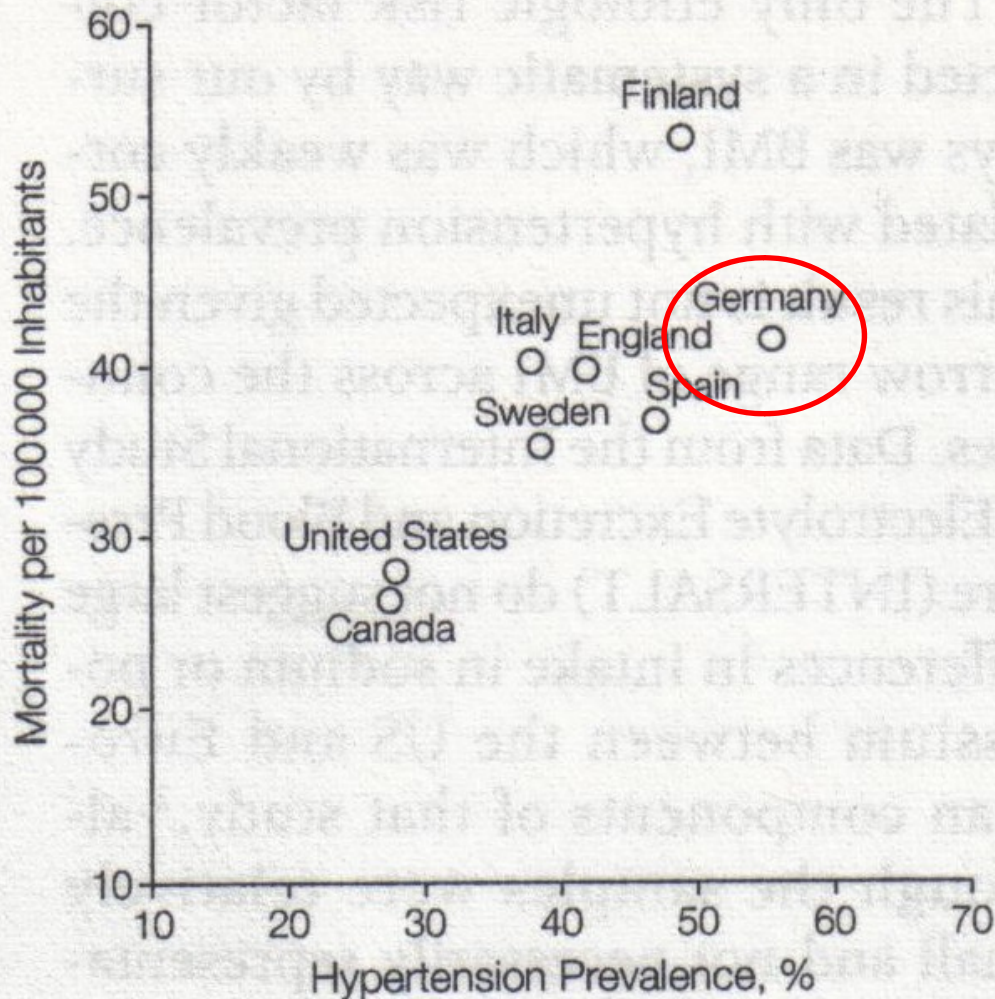


**Patients with
antihypertensive
medication (N=4,827)**



Boersma et al., J Hypertens 2003;21:1831-40

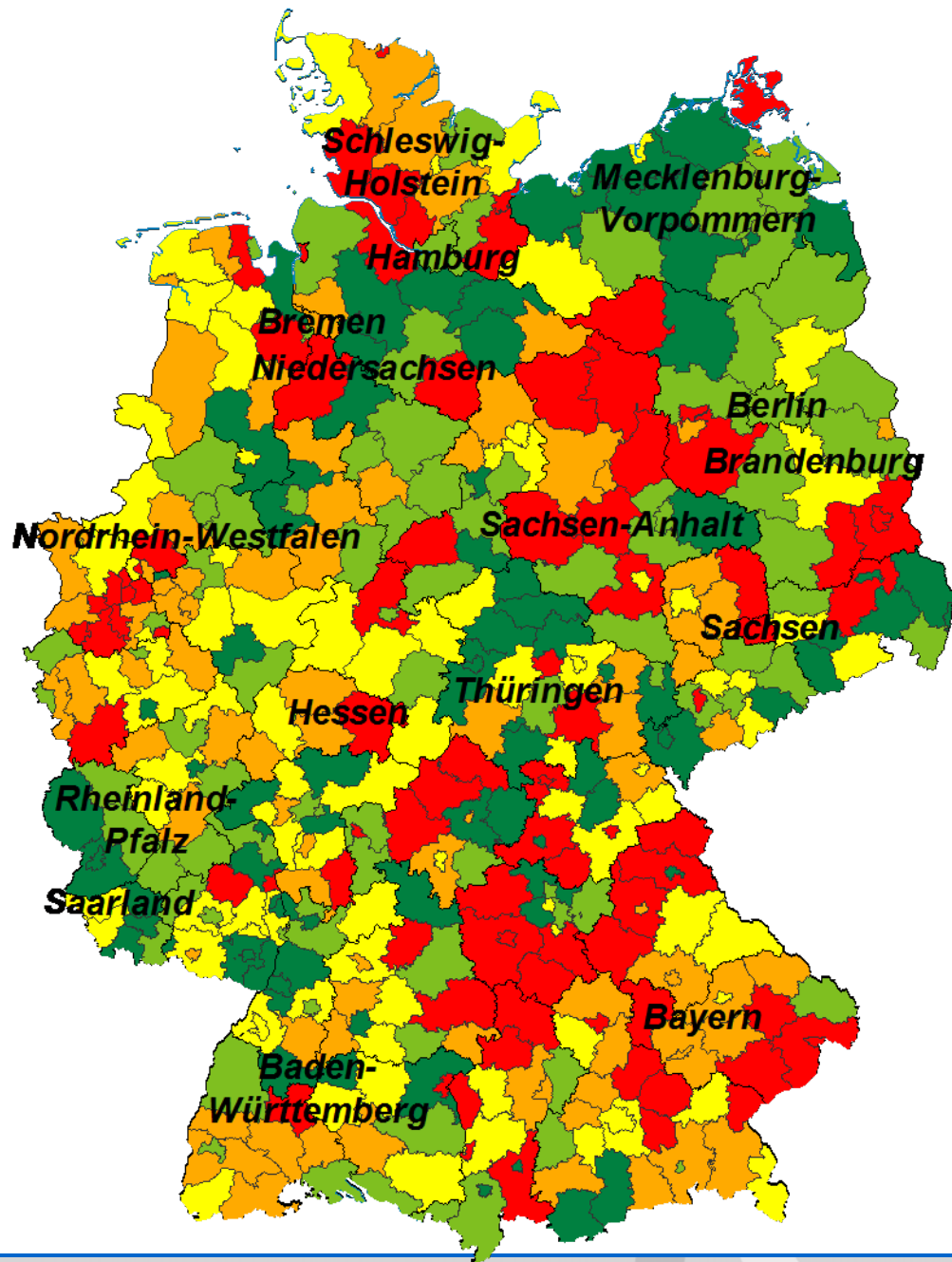
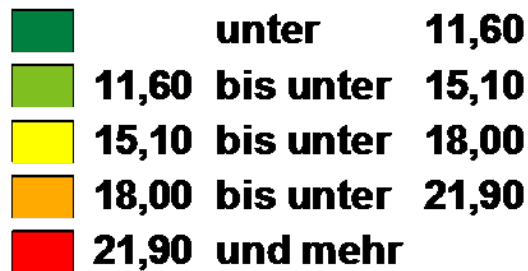
Hypertension Prevalence in Europe and North America



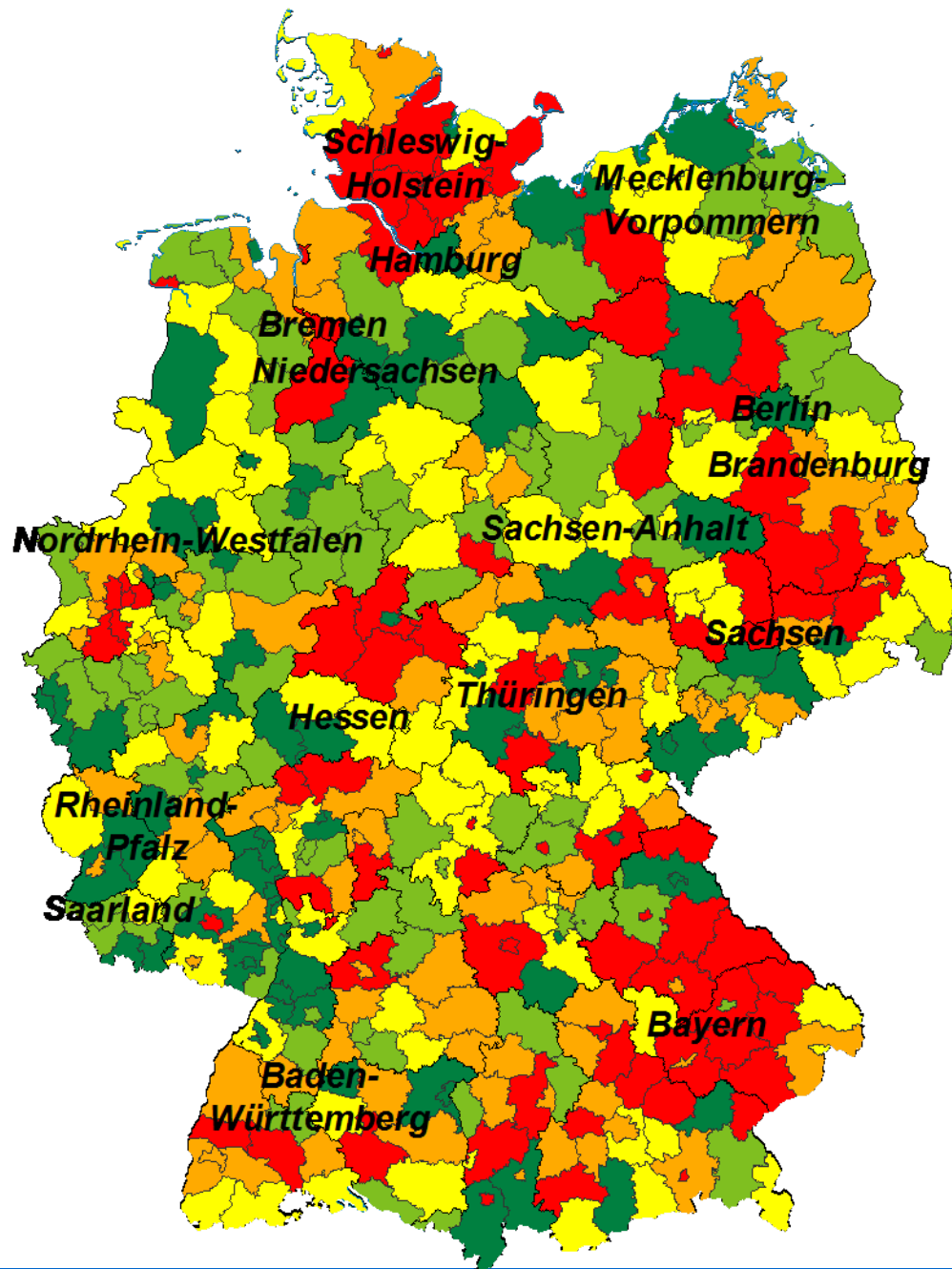
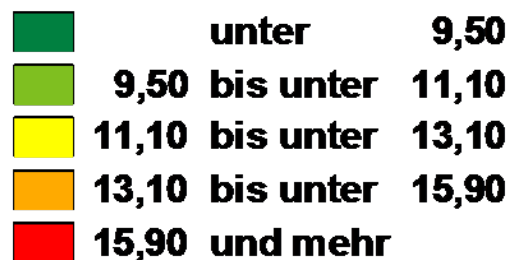
Prevalence of Hypertension and Stroke Mortality in 6 European and 2 North American Countries

Wolf-Maier et al. JAMA 2003; 289:2363-9

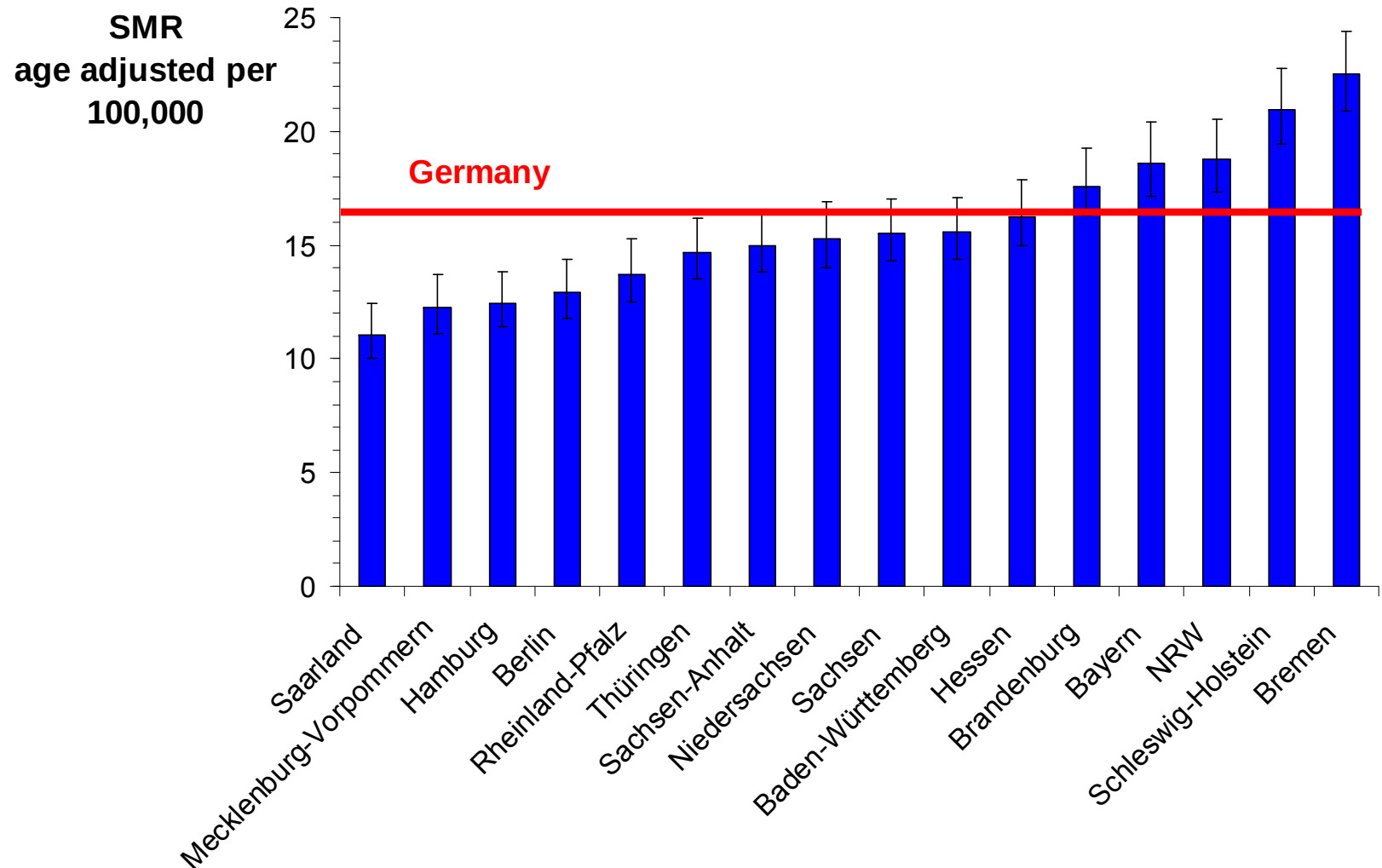
Regional Variation of Arrhythmia Deaths (Germany 2007, n=8,894 Men)



Regional Variation of Arrhythmia Deaths (Germany 2007, n=13,355 Women)

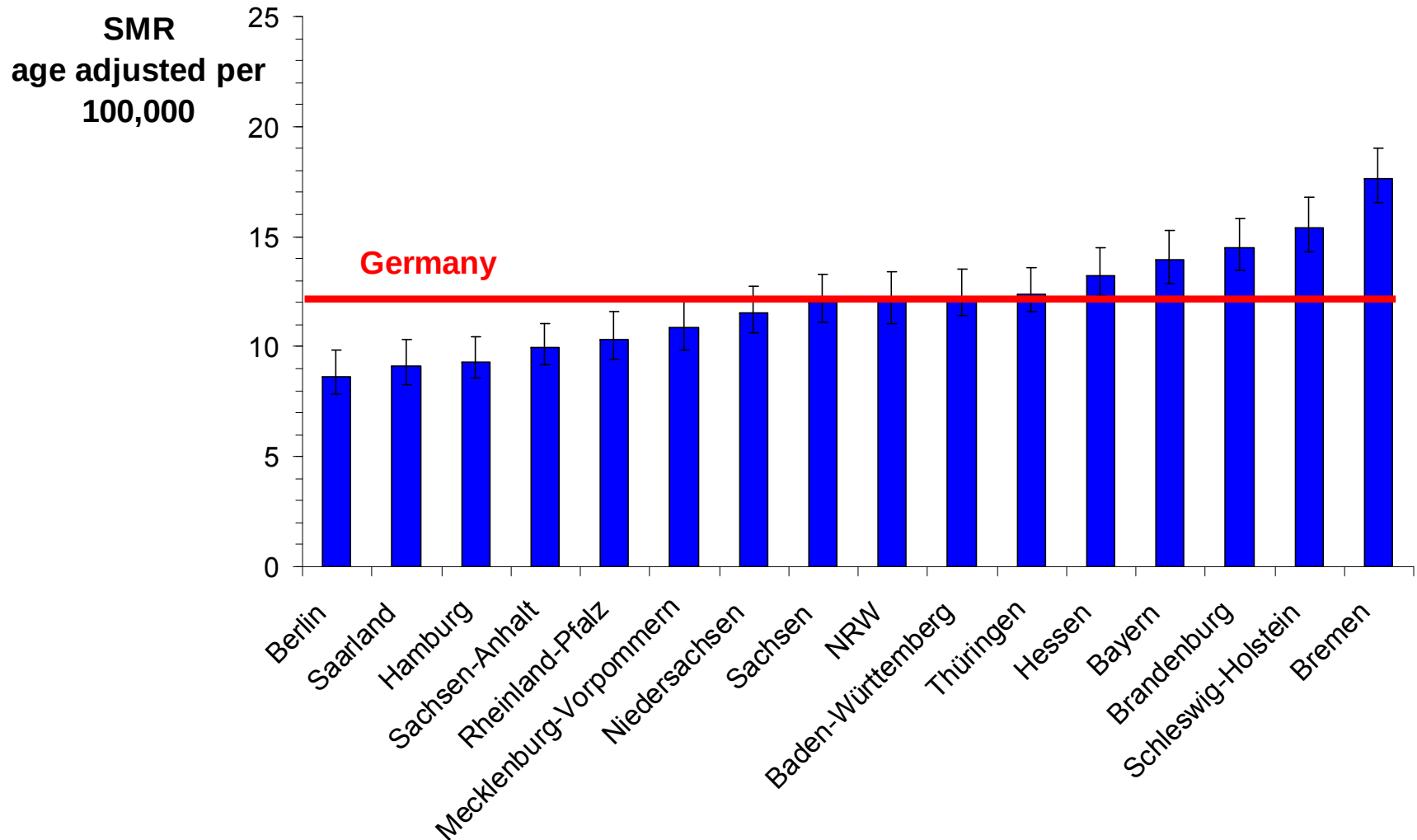


Regional Variation of Arrhythmia Deaths (Comparison of States, 2007, n=8,894 Men)



Regional Variation of Arrhythmia Deaths

(Comparison of States, 2007, n=13,355 Women)



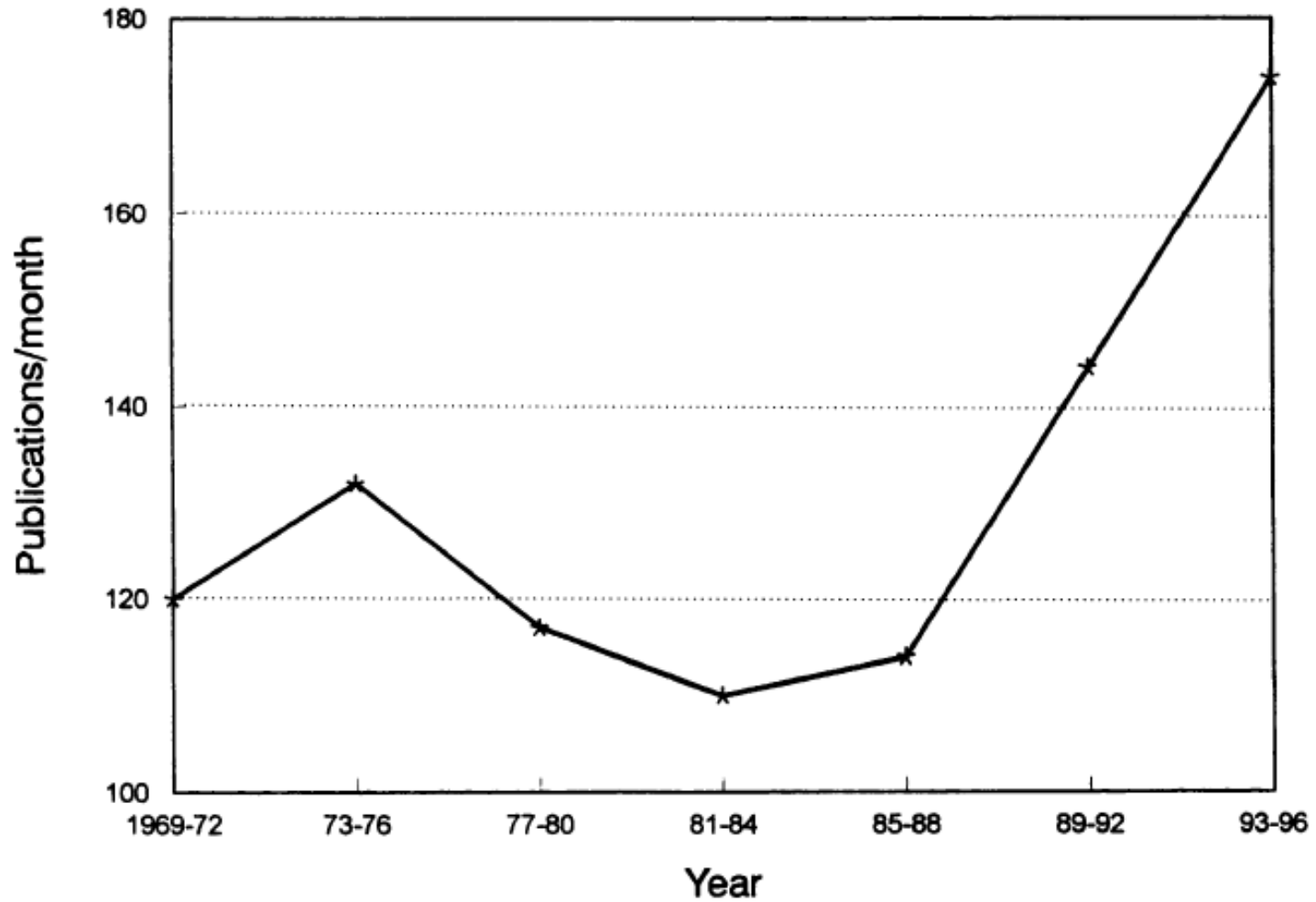
Research Objectives

- Provide valid data on regional variation
- Determine regional differences and temporal trends
- Add available data from epidemiologic studies
- Add available routine data including socioeconomic parameters
- Multivariate analysis to determine respective contribution
- Identify relevant drivers of health

Opportunities of Regional Variation – Possible Prevention and Therapy Strategies

- Determine adequate level of access to and quality of medical care
- Determine appropriate diffusion of technology and innovation
- Determine adequate high risk or population based prevention
- Develop health policy considering socioeconomic inequality

Publications on Socioeconomic Factors

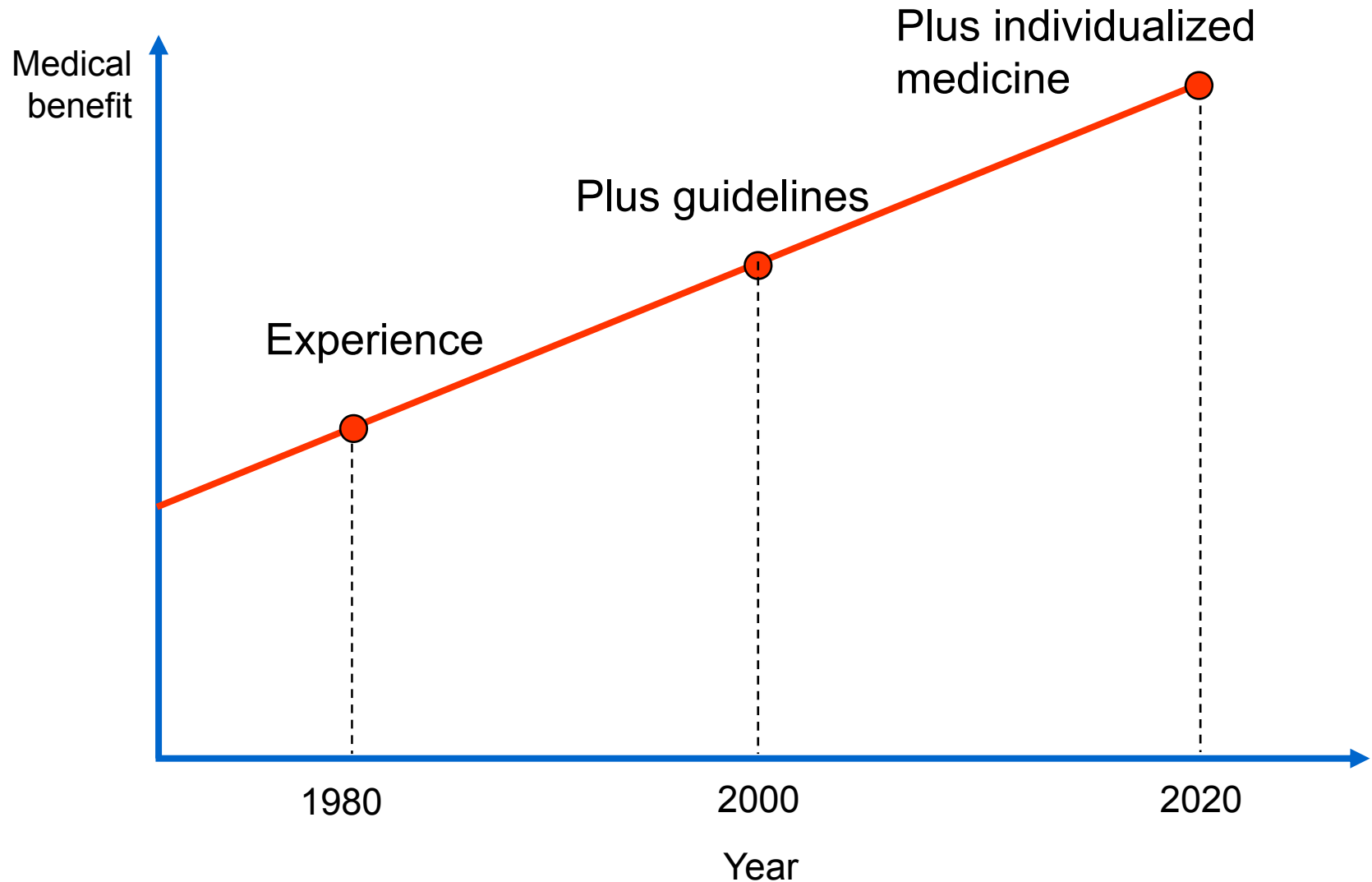


Kaplan GA and Lynch JW, Am J Public Health 1997;87:1409-1411

Conclusion

- Marked international and national regional variation in cardiovascular disease
- Socioeconomic inequality associated with health status, medical resource utilization (see EHRA Whitebook), and prognosis
- Both, regional variation and socioeconomic inequality must be considered in health policy, guidelines and medical care
- Resulting individualized medicine for better medical effectiveness

Effectiveness of Medical Care



No man should speak longer in public
than he is prepared to make love in private

La Rochefoucault (French Moralist, 1613-1680)