*JJMcNeil et al. Journal of Cardiovascular Risk. Feb (2001) Vol.8 #1 p.31.*

A study of the risk factors for coronary heart disease (CHD). 325,428 adults of all ages were screened for total serum cholesterol, smoking habit, systolic blood pressure and diastolic blood pressure, between 1973 and 1975. Outcomes monitored periodically from death certificates.

The six year probability of death from CHD was fit to an equation as follows:

$$1/(1 + e^{(-mrfit)})$$

where mrfit = (0.10918*age + 0.0288*dia + 0.3088*chol + 0.00227*no.cigs –14.6955)



using:
age in years,
dia in mmHg,
chol in mmol/l,
nocigs = no per day

The goodness of fit to this model appeared adequate, but was not extensively discussed.

Comment
The six year probability of death from CHD for an otherwise average 50 year old with, moderate hypertension (105 mmHg), cholesterol at 4mmol/l, smoking 10 cigarettes a day is calculated to be 0.007. That is, 1 in 142. This increases with smoking as follows: 20 a day (1 in 138), 30 a day (1 in 135) and 40 a day (1 in 132). This is a slow trend. Probability is much more sensitive to age and diastolic blood pressure.

The contribution of smoking to the probability of death by CHD appears small (generally 10% for 40 a day) and can be modeled for populations. Such modeling is not new and should be possible for other diseases, provided adequate screening parameters were known in advance.