Intervention	For 40 year old man (coronary heart disease prevention model) ¹	For 45 year old man (meta-analysis application) ²
Stopping smoking	4.9	3.84 (3.68 to 4.04)
Reducing blood pressure	0.9	0.83 (-0.07 to 1.79)
Lowering cholesterol	1.2	-0.01 (-0.78 to 0.66)

suspicion, particularly with cholesterol lowering interventions, that adverse effects may be seen on non-cardiovascular mortality.⁴

I have used a different method to calculate potential gains in life expectancy with a reduction in risk factors, using observations from meta-analyses of intervention rather than "modelling out" the effect of the risk factor.⁵ The table shows the benefits calculated by Grover and colleagues using the coronary heart disease prevention model for a 40 year old man and compares these with figures I calculated using the data from meta-analyses of intervention for a 45 year old man. While the estimated benefits of stopping smoking and reducing blood pressure are of similar magnitude, the effect of cholesterol lowering treatment is much greater when the model of prevention of coronary heart disease is used, largely because of the three factors I have outlined.

Prevention of coronary heart disease needs a concerted attack on risk factors, with smoking way out in front as the most important. Possibly the newer drugs to treat hypercholesterolaemia will be shown to reduce cardiovascular mortality in relatively low risk subjects. In the meantime, it is important both for patients and for doctors not to overestimate likely benefits from treating 40 year old men free of coronary heart disease and with a serum cholesterol concentration of 6.2 mmol/l.

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- 1 Grover SA, Lowenstein I, Esrey KL, Steinert Y, Joseph L, Abrahamowicz M. Do doctors accurately assess coronary risk in their patients? Preliminary results of the coronary health assessment study. *BMJ* 1995;310:975-8. (15 April.)
- 2 Grover SA, Abrahamowicz M, Joseph L, Brewer C, Coupal L, Suissa S. The benefits of treating hyperlipidemia to prevent coronary heart disease. *JAMA* 1992;267:816-22.
- 3 Law MR, Wald NJ, Thompson SG. By how much and how quickly does reduction in serum cholesterol concentration lower risk of ischaemic heart disease? *BMJ* 1994;308:367-72.
- 4 Davey Smith G, Pekkanen J. Should there be a moratorium on the use of cholesterol lowering drugs? *BMJ* 1992;304:431-4.
- 5 Yudkin JS. How can we best prolong life? The benefits of coronary risk factor reduction in diabetic and non-diabetic subjects. *BMJ* 1993;306:1313-8.

Authors' reply

EDITOR,—We agree with John S Yudkin that there are many problems inherent in a statistical modelling approach to estimate the benefits of a reduction in risk factors. We disagree with him, however, about whether there are only three problems and whether those he identifies are major.

Yudkin suggests that the first major problem is that the benefits of a reduction in risk factors may be apparent only after a substantial lag period. We agree that there may be a lag before the benefits of treatment are seen in primary prevention trials, and we have built a variable lag period into our model.¹ What is not clear is whether this is due to a biological delay associated with the benefits of treatment or simply a statistical artefact resulting from few fatal events among either treatment or control groups in the first year or two of a randomised clinical trial, which makes it difficult to appreciate the cumulative difference over the short term. Consistent with the second possibility is the recently published Scandinavian simvastatin survival study, in which Kaplan-Meier curves for major coronary events among treatment and

control groups diverged in less than one year while all cause mortality diverged at approximately 1.5 years.² Moreover, even if there is a two year lag for the benefits of treatment to manifest themselves, the net effect on long term life expectancy for a 40 year old man may be relatively small. For instance, when we use our model the difference in life expectancy is 1.23 years without a two year lag and 1.16 years with a lag.

We agree with Yudkin that the risk of coronary disease may not be totally reversible, particularly in the context of a reduction in blood pressure.³ None the less, we note that our estimates of the benefits of reducing blood pressure are nearly identical with his results based on a meta-analysis of outcomes of clinical trials.

Finally, we agree with the important concern regarding the potential adverse effects that may be associated with cholesterol lowering treatments. We have always emphasised that our model simulations have not been adjusted for a potential increased risk in non-coronary death associated with lipid lowering treatment.⁴ To assume, however, that the results of a meta-analysis can identify this relation without any a priori hypothesis or clear cut biological explanation is somewhat simplistic. For instance, there is no explanation of why the increase in traumatic death seen in some primary prevention trials is generally not seen in secondary prevention trials. The Scandinavian simvastatin survival, a large clinical trial, did not show any evidence of increased non-coronary death associated with lipid modification.

Finally, the focus of our paper was the accuracy of doctors' predictions of the reduction in coronary risk. Comparing their estimates with our computer model, we concluded that doctors may systematically overestimate the benefits of modification of coronary risk factors. If Yudkin is correct in stating that our computer model overestimates the benefits of modification of risk factors for some groups of people, then these conclusions are even more valid.

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- 1 Grover SA, Gray-Donald K, Joseph L, Abrahamowicz M, Coupal L. Life expectancy following dietary modification or smoking cessation: estimating the benefits of a prudent lifestyle. *Arch Intern Med* 1994;154:1697-704.
- 2 Scandinavian Simvastatin Survival Study Group. Randomised trial of cholesterol lowering in 4444 patients with coronary heart disease: the Scandinavian simvastatin survival study (4S). *Lancet* 1994;344:1383-9.
- 3 Collins R, Peto R, MacMahon S, Herbert P, Fiebach NH, Eberlein KA, et al. Blood pressure, stroke, and coronary heart disease. Part 2. Short-term reductions in blood pressure: overview of randomised drug trials in their epidemiological context. *Lancet* 1990;335:827-38.
- 4 Grover SA, Abrahamowicz M, Joseph L, Brewer C, Coupal L, Suissa S. The benefits of treating hyperlipidemia to prevent coronary heart disease: estimating changes in life expectancy and morbidity. *JAMA* 1992;267:816-22.

Hospital security

EDITOR,—We wish to draw attention to an important incident that occurred in Princess Alexandra Hospital Trust, Harlow, partly because of the need for increased hospital security. The cardiac team was called to the paediatric ward when an asthmatic child had a respiratory arrest. The anaesthetics registrar ran towards the ward but found that the corridor was blocked by a door operated by a number code, which had been installed earlier that week. Not knowing the code and being unable to attract attention, the registrar took a circuitous route through another security door, for which he knew the code. The ward door, which was usually operated by a buzzer linked to a video camera, was being held open by a member of staff, who did not know that there were any other doors between the main hospital and the paediatric ward. Overall there was an estimated four minute delay before the child was attended by the cardiac team.

While recognising the importance of security for staff and patients, we urge those responsible for installing new systems to consider the implications for emergencies. Our hospital resolved this problem by using the same code on all doors. The code number is printed on stickers, which are attached to bleeps. Other possible solutions include a central override facility, an override button on each door that sounds an alarm indicating that security has been breached, and a system that uses swipe cards. The hospital resuscitation officer should be involved in the planning and running of such systems to prevent similar incidents occurring.

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Handling scientific fraud

Pearce's editors were not to blame

EDITOR,—In his editorial on the Pearce affair Stephen Lock states that the review of the clinical trial was clearly inadequate.¹ He is amazed at the credulity that the *British Journal of Obstetrics and Gynaecology* showed in publishing the trial, on the basis of his observation that over three years Pearce purported to have collected 191 women with a syndrome so uncommon that a major referral centre (unnamed) saw only one or two new cases a month. I imagine that even editors of the *BMJ* sometimes have problems with superficial and uncritical referees' reports.

After receiving a clinical referee's report recommending publication of the paper Professor Chamberlain delegated editorial responsibility to me. At an editorial meeting in November 1993, attended by Professor Chamberlain and all four editors, I gave a detailed account of the paper, noting the relatively large number of cases (although the time span of their recruitment was not stated in the manuscript) and suggesting that the source must be a tertiary referral centre. Pearce confirmed that it was, and his assertion was accepted. His acknowledged skill in ultrasound examination could be expected to attract large numbers of women with recurrent miscarriages to his pregnancy loss clinic. The paper was then sent to a statistical referee, and among 11 enumerated points in his report was one asking the authors whether "all [his emphasis] women with RSM [recurrent spontaneous miscarriage] associated with PCOS [polycystic ovaries] in a particular time interval were invited to take part in the trial." The revised manuscript responded to the question and gave the time interval.