pathology present in impaired glucose tolerance is complex. We approached the problem of determining whether Lp(a) is a possible factor in why such subjects develop coronary artery disease by examining them before clinical coronary artery disease was established.

Rather than suggesting that the pathological process—for example, impaired glucose tolerance—accounts for differences in Lp(a) concentration, we suggest that differences in either Lp(a) concentration or the size of the apoprotein(a) isoform in such subjects could account for their subsequent development of coronary artery disease. To this end a larger long term prospective study is required, not so much to avoid the bias from the effect of inheritance of the apoprotein(a) isoform, but to examine the effect of the potential differences in this on the development of coronary artery disease in what is a common condition.

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Diets that protect against coronary heart disease

EDITOR,—As we share the same views we enjoyed John Yudkin's letter¹ about our article.² We agree that an association between raised blood cholesterol concentration and coronary disease does not denote that cholesterol in itself causes the disease and that changes in diet and lifestyle will reduce the incidence of and mortality from chronic diseases. There is a need to define the extent of lifestyle changes required to modify risk factors in coronary disease. In the United Kingdom a modest increase in certain risk factors among South Asians is enough to cause more coronary deaths than in British people with higher overall levels of risk.³ In India chronic diseases including coronary disease are emerging rapidly,⁴ although dietary saturated fat and cholesterol and energy intakes are as good⁵ as those in the American Heart Association's step I diet. These paradoxical observations may be related to the duration of lifestyle changes; such changes are relatively recent among Indians compared with the British.

The development of a risk factor seems to be a protective response of the body in an attempt to fight against changes in lifestyle. Most investigators believe that obesity is the best example of maladaptation of our bodies in response to increased intake of energy and reduced physical activity. Hypertension develops when the body is unable to adapt to increased consumption of salt or alcohol. Hypercholesterolaemia may be the result of maladaptation to increased intakes of saturated fat and cholesterol. Reducing any of these risk factors without altering the lifestyle factor concerned would mean preventing our bodies from fighting the effects of the lifestyle factor. A gradual increase in a risk factor, as has happened in British people, may allow the body to fight the lifestyle factor more efficiently and provide better adaptation, as compared with an abrupt increase in risk factors, as has been observed among South Asian immigrants, in whom lifestyle changes are of more recent origin.⁶

In the Indian study of survival after infarction our aim was to achieve maximal change in nutritional lifestyle.² Our success in this may explain the improved survival compared with survival in other cholesterol lowering studies. Many *BMJ* readers have written to us asking how we achieved such good adherence to dietary advice. The answer is that we emphasised foods to eat rather than those to restrict. Patients were advised to eat tasty fruits such as guava, papaya, banana, and musk melon before meals to displace foods rich in saturated fat and cholesterol.

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Value of Dundee coronary risk-disk

EDITOR,—Soaked in Hugh Tunstall-Pedoe's bath water and left at the bus stop,¹ the rejected baby² thinks it appropriate to comment. We set out to enhance the usefulness of the Coronary Prevention Group and British Heart Foundation's guidelines by showing what happens if you put them into practice.³ We were not trying to assess the Dundee risk-disk. We discovered what we already knew—that the guidelines are complicated—but we also made some unexpected discoveries. One of the most important was the high proportion of patients at high unifactorial risk who are likely to be excluded from special care if the guidelines are implemented without modification. This does not mean that we are Luddites who reject the multifactorial approach—indeed, we have often written in its support—but we realise that we are not just dealing with cardiovascular morbidity in our clinical practice. We do not advise patients who smoke 20 cigarettes a day to stop smoking just to reduce their risk of a heart attack, but we do regard smokers as needing special care.

As working general practitioners, we found that the guidelines left some unanswered questions. How many patients would be in the general risk group? How many of the patients allocated to special care would already be under regular review? We think that the tables and figures 3 and 4 in our paper are an important service to users of the guidelines. We did not intend to "cause unnecessary difficulties for readers." In contrast, figure 5, which indicates the percentage of those at risk who might slip through the guidelines, is perhaps a difficulty for the guidelines' originators.

Our main comment on the Dundee disk was that the Dundee score is of more use than the rank. Our reasons are clearly stated. Firstly, the distribution of risk is highly skewed, so the actual difference in risk between those in the back two thirds of the metaphorical bus queue is relatively small. To make the queue analogy work you have to arrange the queue at different distances from the stop so that those at the back are bunched together and have a long way to run to catch the bus.

Secondly, you cannot use the rank directly to predict workload, as had been suggested. The difference between the OXCHECK and Dundee figures does not imply that the Dundee figures are

wrong but simply that populations vary and that the Dundee rank can therefore be misleading as a measure of workload. So, although we see the attractions of the concept of the bus queue, particularly for ease of explanation to patients, we still prefer the score as a practical measure of risk. We also challenge the statement that our preference is "at odds with most users." This statement is based on responses to a questionnaire sent to about 300 purchasers, of whom just over half had used the disk: 37% consistently preferred the rank, 20% preferred the score, 26% used both, and 17% had no preference.

For the record, we think that some of the "unexplained" difference between the OXCHECK and Dundee population risks can be explained by the fact that the Scottish data were accumulated during 1984-6. For example, smoking rates among 50-59 year old men and women in England and Wales fell by more than a quarter between 1984 and 1990.⁴ We would also draw attention to the perception in Dundee that Luton is in "one corner of southern England." It is in fact as near to Birmingham as to the south coast and is nearer to Scotland than to Penzance.

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EDITOR,—It is difficult for a non-cardiologist to understand the controversy about the extent to which the Dundee coronary risk-disk has value when the risk calculations on which it is based seem to be flawed.^{1,2}

The disk calculations do not take into account women's hormonal status: whether they are premenopausal or postmenopausal or are taking hormone replacement therapy, as increasing numbers are. Yet there is accumulating evidence that hormone replacement therapy has a major effect in reducing fatal coronary heart events, especially in women with pre-existing coronary atheroma.^{3,4} Over the years the topic has been reviewed by Gambrell, Beaglehole, and, more recently, Bush.⁵⁻⁷ Bush used epidemiological criteria for causation in assessing the strength of the association between hormone replacement therapy and reduction in risk of coronary heart disease. These criteria included consistency of the association, a proper time sequence, a strong association between the two variables, a change in risk with change in exposure, and biological plausibility.

Tunstall-Pedoe is reported as dismissing the evidence as a myth,⁸ relying instead on a logarithmic plot of coronary mortality in British women which showed no change in gradient around age 50 but failed to take account of time since the menopause.⁹

Women receiving hormone replacement therapy seem to face not only a better quality of life but also a longer life, extended by a decrease in mortality of up to 40% (depending on duration of use of oestrogen) and largely attributable to a reduction in coronary heart disease.¹⁰

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Midwifery and body fluid contamination

EDITOR,—The short report by Josaphat J Kabukoba and Pam Young highlighted a high incidence of skin contamination from patient's body fluids in obstetric and midwifery staff.¹ In their discussion they quoted observations of Braathen *et al* that suggested a possible role for epithelial Langerhans cells as vehicles for HIV infection across intact skin and mucous membranes.² This work was entirely experimental and there is no evidence that it has any clinical significance in the context of HIV transmission from patients to health care workers.

In a summation of prospective surveys documenting mucocutaneous exposure to blood infected with HIV, none of 453 health care workers became infected.³ In contrast, of 1177 episodes of percutaneous exposure, five resulted in infection. Three cases of infection after mucocutaneous exposure have occurred,⁴ and so a risk does exist—but, although no precise figure can be assigned to it, the risk must be very small indeed. A recent editorial in the *BMJ* reiterated the point that seroconversion after mucocutaneous exposure has not been reported in prospective studies.⁵ Furthermore, in specialties where mucocutaneous exposure to blood is common, such as orthopaedic surgery, the prevalence of HIV antibody is determined by non-occupational factors alone.⁶

Kabukoba and Young concluded that "current practices for preventing contamination are inadequate." However, their report does not mention what proportion of those studied were following local infection control guidelines or indeed what these guidelines were. In contrast to this, a study by Marcus *et al* suggested that 37% of exposures would have been avoided if recommended guidelines had been followed.⁷

We believe that appropriate barrier protection and precautions to avoid needlestick injuries should be used universally. However, the argument that non-parenteral contamination of skin and mucous membranes represents an important route of transmission of HIV infection to health care workers is at best speculative and at worst alarmist.

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EDITOR,—I was pleased that Josaphat Kabukoba and Pam Young recognised the high rate of contamination of the surgeon's forearms while performing caesarean section¹ but was surprised that they did not look at manual removal of the placenta.

The report on HIV infection in maternity care and gynaecology, published by the Royal College of Obstetricians and Gynaecologists recommended that elbow length gloves should be available if gowns with an impermeable sleeve were not available for the manual removal of the placenta.²

Over the past three years I have made numerous inquiries about these items at all the hospitals where I have worked. They are rumoured to exist, but no one has ever seen them or knows where to obtain them. In my present post I at last found an elbow length rubber gauntlet, but it had perished after many years of repeat autoclaving and was no longer of any use.

I have found the following method effective in eliminating the contamination of the forearm with blood while carrying out a manual removal of placenta in an ordinary "permeable" gown wearing an ordinary pair of "short" surgical gloves. After donning a gown in the usual manner, a pair of surgical gloves are taken and all the fingers cut off. Both of the remaining sleeve portions are then pulled all the way up the same arm to the elbow, with some overlap. A second pair of gloves is then worn in the normal manner. This effectively forms an elbow length rubber glove and stops contamination of the sleeve of the gown and forearm with blood.

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Contamination of skin and clothing of A and E staff

EDITOR,—Patricia Littlechild and colleagues found the personal clothing and uniforms worn by accident and emergency staff to be inappropriate.¹ We suggest that staff from all disciplines who are on call for emergencies anywhere in a hospital should wear the type of suits worn in hospital theatres. Such staff include members of cardiac arrest and trauma teams, all doctors with duties in accident and emergency departments, and the staff of intensive care, endoscopy, and maternity units. Staff can quickly discard soiled theatre clothes and maintain personal cleanliness and limit cross infection.

The Expert Advisory Group on AIDS recommended degrees of protection according to the risk category of tasks.² The full range of protective wear is recommended for category A(i) tasks, with potential for uncontrolled bleeding and splattering; gloves and possibly masks and protective eyewear are recommended for category A(ii) tasks, in which contact with blood is probable but splattering is unlikely; and gloves are recommended to be available for category A(iii) tasks, in which no contact with blood is likely. After many incidents of splashing we now take category A(i) precautions

for category A(ii) tasks and wear gloves for category A(iii) tasks in high risk patients.

Skin contamination continues, often because recommendations are not followed and sometimes despite them being followed.³ Inappropriate fabric and design of current wear are often to blame. Cotton gowns are not protective. We have not seen anyone use elbow length gloves for manual removal of placentas. In our survey of one major teaching hospital with eight operating theatres only the orthopaedic theatre stocked water repellent gowns. One anaesthetic room had only a box of disposable latex gloves. One of 12 consultant anaesthetists wore gloves routinely. None of 15 junior colleagues interviewed had read the documents of the Expert Advisory Group on AIDS² or the BMA's *A Code of Practice for the Safe Use and Disposal of Sharps*.⁴

We are convinced that most incidents of splashing are preventable by better instruction and changes in attitudes and practice. This is important because the present suits do not provide overall protection. More long sleeved and high neck (Indian style) protective shirts would help. Junior members of teams are reluctant to adopt protective measures that make them stand out. Consultants or senior registrars can help by good example.

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Personal protective equipment for employees

EDITOR,—In their short report on contamination of skin and clothing Patricia Littlechild and colleagues refer mainly to clothing worn by accident and emergency staff.¹ The discussion of adequate personal protective equipment, which includes "all equipment designed to be worn or held by a person at work to protect him against one or more risks,"² needs to be widened to include that used in all areas where employees of health care organisations may be exposed to any risk while at work.

One of the aspects of the European single market is the implementation of numerous pieces of legislation drawn up by the European Community as health and safety directives. These directives have to be implemented by the member states by 1 January next year. The framework for these new regulations is provided by the proposed Health and Safety (General Provisions) Regulations, which, among many other things, require all employers to assess work practices in which their employees' health and safety may be at risk.³ The proposed Personal Protective Equipment at Work Regulations will require every employer to provide suitable protective equipment to all employees when risks cannot be adequately controlled by other means. When such equipment is deemed necessary the employer must ensure that it is appropriate for the risks entailed. The employer must also take into account ergonomic requirements—that the equipment will fit the wearer and, so far as is practicable, prevent or adequately control the risk without leading to any increased