bearing in mind that no delay could be attributed to efforts to provide advanced trauma or cardiac life support.

It would be a blow to the care of the seriously ill and injured if the impressions put forward in this article, which are based on theoretical supposition from an area with no experience of extended training, were allowed to override the experience of others who have produced hard data to the contrary.

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Time for action on hepatitis B immunisation

SIR,—The campaign for mass immunisation of health care workers against hepatitis B continues in Dr Roger G Finch's leading article (24 January, p 197). Once again it is suggested that (presumably all) nurses, among others, should be immunised. The justification for this is the reported annual incidence of infection of 4 cases per 100 000 per year for 1980-4.¹

I would not want to deny protection to workers at risk when we have a vaccine which is effective and apparently relatively safe. Expense alone would be insufficient reason to refuse mass immunisation, but safety cannot be disregarded. No vaccine can be completely safe; and this one carries small risks of anaphylaxis and neurological complications. Nurses are by far the largest single group of health care workers and there are probably about 400 000 of them employed by the NHS. Would the risk of immunisation of all of these be greater than the risk of infection?

Although finance is not a reason for failing to immunise it is necessary to accept the financial implications. Nurses alone would cost the NHS about £25 000 000 initially plus the cost of boosters every five years. If the take up were only half it would still be a lot of money and this outlay has to be balanced against the likely benefit. The quoted figure of 4 cases per 100 000 nurses per year is based on 95 cases in the five years—a mean of 19 yearly. Some of these infections will have been acquired occupationally. Within this mean there are variations based on geography and the type of nursing. As the incidence in some parts of Britain—notably London—is relatively high there may be few or none in some other regions; moreover, the higher incidence believed to occur in groups at particular risk implies that other groups may have no additional occupational risk. The above arguments obviously apply to other groups of health care staff.

Local statistics of infection and a breakdown of figures both nationally and locally into subgroups are needed. These would enable the relatively small group who really are at increased risk to be offered the vaccine rather than the "overkill" at present recommended; this strategy would be cheaper, safer, and more sensible. At the same time it must not be forgotten that it costs very little

to teach safe working practices. Many or most sharps injuries are avoidable. Good techniques protect against all microbiological hazards.

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Unemployment and mortality

SIR,—The study by Ms K A Moser and colleagues (10 January, p 86) can be interpreted as showing that men who are at higher risk of ill health are more likely to be unemployed and more likely to die. Our sympathy for the plight of the unemployed makes it easy to envisage that the stress of unemployment might lead to excess mortality from suicide and ischaemic heart disease. However, stress of unemployment is not the main explanation for the observed high mortality rate from lung cancer—standardised mortality ratio (SMR) 286 in 1973, 209 in 1983.

In men a high death rate from lung cancer is a marker for high cigarette consumption (much higher than in the reference population with a prevalence of cigarette smoking of some 40-50%). This consumption must be over several decades; moreover, the malignant transformation occurs many years before the cancer becomes manifest clinically. Therefore in most unemployed men who died from lung cancer most of the required exposure to cigarettes probably preceded unemployment. Longstanding high cigarette consumption probably also played an important part in producing the observed raised mortality from ischaemic heart disease.

Conversely, cigarette smoking is a marker for several features which might make a person more likely to be sacked, selected for redundancy, or not appointed to a job. These include more absence from work through minor sickness and personal or personality problems which lead to alcohol abuse, drug dependence, and broken marriages (and in women single motherhood). Smokers are more likely to have road accidents, to have psychiatric problems, and to have been in prison. Most will not have declared themselves as ill or disabled at census.

Male smokers are more than twice as likely to have wives who smoke. Therefore one might expect to find a higher mortality from lung cancer in the wives of the unemployed. The SMR for lung cancer in wives was 194 in 1981-3. This suggests that the wives also experienced greater exposure to long term cigarette smoking—necessarily mainly preceding their husbands' unemployment. In interpreting the data it is important to recognise that smoking in women has posed more of a health threat since the 1981 census than after the 1971 census.

Medically speaking, and insurance companies concur, a cigarette smoker is a disaster waiting to happen, even if he considers himself to be healthy. If there was an excess of heavy cigarette consumers among those who were unemployed, seeking work, and not considering themselves ill at census then it is not surprising that disaster overtook more of them than of the rest of the population. Initially, because the overtly sick were excluded in the study, the SMR of the unemployed was low, but this could be expected to change quite rapidly, in particular with the development of previously unapparent lung cancer and ischaemic heart disease. These diseases commonly produce death without a long period of symptoms or disability, in contrast, for example, to chronic obstructive lung

disease, which would already have been manifest and creating disability at census.

Because they continue to smoke smokers would seem in general to possess less motivation; they also include more who in various ways "cannot get their act together." Such characteristics render people more likely to be unemployed and also more likely to die prematurely. We should not be deflected from tackling the damaging and poverty inducing habit of cigarette smoking and other lifestyle problems simply because the elimination of unemployment and low income may seem to be a more important objective and might also seem to some to be a more interesting political football.

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SIR,—We find it difficult to see how Dr Smith interprets our paper as showing that "men who are at higher risk of ill health are more likely to be unemployed and more likely to die." We took particular care to point out that men who were prevented from seeking work because of ill health were specifically excluded from the group we followed up. In consequence our cohort were an initially healthy subset of the unemployed and our findings do not therefore relate to those men whose unemployment reflected their ill health.

On the issue of disease causation and the concomitant risk factors associated with the way of life of the unemployed we would not dispute the evidence that cigarette smoking plays an important part in several of the causes we identify. The difficult question to answer is how poverty, unemployment, and lifestyle interrelate both in time and in terms of behaviour patterns. We feel that Dr Smith's model of causal linkage is overly simplistic and inconsistent with the circumstantial evidence provided in our paper.

Firstly, it is worth reiterating the point that we studied a healthy subgroup of unemployed men. In so far as smoking gives rise to chronic ill health as well as increased mortality smokers were probably marginally underrepresented in our cohort when compared with the unemployed population as a whole. Secondly, we indicated how, despite the fact that the unemployed were more likely to be drawn from social groups known to have higher levels of smoking, controlling for social composition did not account for all the excess mortality of the unemployed. Finally, we pointed out that associated research on the sociodemographic origins in 1971 of the unemployed in 1981 suggested that, notwithstanding the previous observation, increased levels of unemployment meant that most of the unemployed came from a broad spectrum of the employed population. Similarities in the mortality patterns of the 1971 and 1981 unemployed and the absence of any reduction in the magnitude of these excesses of mortality thus make it unlikely that the health problems of the unemployed can be dismissed purely in terms of predisposing factors.

Reductions in cigarette smoking and changes in other aspects of lifestyle with adverse health effects are, of course, desirable. However, it would seem from available evidence that they are unlikely to be successful in removing health inequalities unless other problems associated with unemployment and poverty are also tackled.

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