determine the level of services rather than to ration special services to particular patients, and it would be up to the government to decide the level of services offered to people. Smokers might argue that the revenue generated by their smoking sustains more than just the NHS budget.

Secondly, failure rates derived by statistics do not apply to individual people. It is unethical to deny a patient the benefit of any treatment simply to reduce failure rates. Even the authors admit that the success rate of the operation is not spectacular. Probably there is a stronger case to look at the operation itself than at the imperfect people who have it.

The third argument is that the damage caused by smoking is self inflicted. If we extend that argument we might be tempted to deny services to people who do not adhere to a "healthy" lifestyle or strict medical advice; we would end up with an NHS treating only saints.

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Higher complication rate not confined to smokers

EDITOR,—Coronary artery disease is generally associated with one or more of the risk factors of smoking, obesity, underlying diseases like diabetes, and the all elusive genetic factors. Apart from patients who are genetically predestined to develop the disease (if such is really the case), most patients have a risk factor resulting from "a remedial cause."[1] Consequently, according to M J Underwood and J S Bailey, they should not be offered coronary bypass surgery since there is a higher risk of postoperative complications and the cause is remediable.[1] Unfortunately, the authors do not expand on what should be done in such cases, especially when a person is symptomatic and in urgent need of intervention. Their plea regarding resources does not hold as in the long run conservative management is just as expensive as surgery, even without quality of life being considered.

I am glad that general surgeons have not had similar ideas since they too often have to perform surgery in patients who have a remediable cause of their disease and a higher rate of postoperative complications. Fortunately, they believe, as I do, that life saving surgery should be performed despite the risks of postoperative complications in all groups of patients and that to disenfranchise certain groups would be unethical.

If all patients who had a higher risk of postoperative complications after coronary artery bypass grafting were eliminated cardiothoracic surgeons would have a lot of spare time on their hands to carry on debates like this one.

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Inform, don't punish

EDITOR,—The issues in the controversy over whether smokers should be offered coronary artery bypass surgery[1] may be better understood if the option of denying treatment is considered in a group that is not dissimilar—patients with peripheral vascular disease.

Smoking is the single most important risk factor in the onset and progression of peripheral vascular disease, with a correlation higher than that for ischaemic heart disease.[2] Ninety per cent of patients with peripheral vascular disease smoke, and in those who continue to smoke there is an increased incidence of occlusion of the graft after reconstructive surgery[3] and possibly an increased incidence of amputation. But although smoking may worsen peripheral vascular disease, few data suggest that stopping smoking improves it.[2] The uptake of advice to stop smoking is low even after targeted counselling[4]; and at least some smokers may have a different psychoneurotic profile from that of non-smokers.[5]

On the basis of this information, what treatment should we deny or offer to someone with arterial disease who continues to smoke against advice? Should we deny all surgical and medical treatments for peripheral vascular disease; deny all surgical treatments and offer only medical ones; deny reconstructive surgery but offer amputation when needed; in amputation deny reconstructive procedures and offer only emergency techniques like guillotine amputation; deny prosthetic rehabilitation after amputation and offer only wheelchair mobility; in providing a wheelchair deny expensive cushions; deny treatment for any complications related to smoking such as chest infection; and, finally, in the event of death deny burial but offer cremation so that it can all end up how it started—in a puff of smoke?

I agree with Matthew Shiu.[1] In self inflicted health damage, clinicians should warn their patients against all possible risks and try to persuade them to contribute actively and fully to their wellbeing. It should not be in clinicians' remit to dish out punishments—in different degrees and by arbitrary decrees—to the recalcitrant many for indulging in acts that may be prejudicial to their health but are not illegal.

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Heartsink hotel revisited

EDITOR,—As the consultant ophthalmologist whose resignation Brian McAvoy blames for "the patients of non-fundholding practices hav[ing] no ophthalmology service . . . at . . . local hospital and hav[ing] to travel up to 50 miles to . . . regional (sic) hospital,"[1] I can say that this is untrue.

The local service continues. For eight years I fought for its survival. Failing in the prevailing financial climate to achieve proper staffing, I resigned because the consultant rota was one in two with no juniors, which caused difficulty replacing my sole colleague, who retired. Nurses' comprehensive skills were fragmented and replaced by untrained or inexperienced staff to save money for managers.

Weekend closure of the department (despite my resignation threat) was imposed. There is no nurse with eye experience in hospital; I chase keys for every casualty referral. I offered to stay on as sole consultant, with continuous first on call (provided weekend emergencies were referred to the nearest properly staffed district department, 40 (not 50) miles away), but the offer was deemed "unacceptable."

I stayed, but later, with a long term locum employed, heard that an earlier applicant for my job was now accredited, so I resigned immediately. He was appointed. He came.

Liberation brought fresh rewards: time, job satisfaction. The "caravan" is a personally designed, purpose built mobile clinic, equipped as I choose, without delays. I employ a skilled nurse, on a proper grade, providing comprehensive, personal, continuity of patient care. Soft option?—we tow our mobile clinic through the wildest parts of England in all weathers at all seasons.

I take issue with McAvoy over his inappropriate use of the emotive word "privately." Work as an independent provider without charge (except through taxation) to NHS patients of fundholding general practitioners is NHS work, not private practice. The fees charged to the fundholder compete with those charged by NHS hospitals.

Unhappy with even a temporarily two tier NHS, I fought the reforms but have to live with them. Unhappy that I cannot help patients of non-fundholding general practitioners directly, I help them indirectly by reducing waiting lists.

If ever any local health authority wishes to purchase services for patients of non-fundholding general practitioners from me as an independent provider, I hope to oblige.

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1 McAvoy BR. Heartsink hotel revisited. *BMJ* 1993;**306**:694-5. (13 March.)

Upper age limit for cervical screening

EDITOR,—In our study on the smear histories of all women in the Dundee and Angus areas diagnosed as having cervical neoplasia in 1989 and 1990 we concluded that women over the age of 50 were unlikely to develop this disease if they had had at least two consecutive smear tests at three yearly intervals with negative results, with the last no more than two years previously.[1] To substantiate these conclusions further we repeated the same exercise for 1991 and 1992. Altogether 47 461 smears were taken during this period from a population of about 170 000 women aged 16-59 (1991 census report). Twenty four cases of cervical intraepithelial neoplasia and 21 cases of microinvasive and invasive carcinoma of the cervix were detected in women over the age of 50. Again, most of these women had not been adequately screened.

On case analysis on the basis of three yearly screening we found two cases in which the patient had an adequate screening history (two or more smear tests done at three yearly intervals, with the last at least two years before the abnormal result leading to diagnosis). One woman (aged 54) had grade III cervical intraepithelial neoplasia; the other (aged 58) had microinvasive squamous cell carcinoma of the cervix (stage Ia_1) and, on review, had had a false negative result on smear testing four years before diagnosis.

Analysis on the basis of five yearly screening identified one case of cervical intraepithelial neoplasia (grade III) in which the woman had an adequate history of negative results of smear tests (two or more negative results at intervals of four to five years with the last at least three years before the result leading to diagnosis). Seven women with cervical intraepithelial neoplasia (two with grade I, two with grade II, and three with grade III disease) and one woman with adenocarcinoma of the cervix stage Ib had a history of negative results of smear tests which on analysis seemed to be adequate for

this screening interval but did not strictly fulfil all the criteria.

By analysing the smear histories of all women over the age of 50 living in the Dundee and Angus areas who were diagnosed as having cervical neoplastic disease in 1991 and 1992 we extended out initial study to cover four consecutive years. In 1991 and 1992 a total of 47 461 smears were taken and 710 cases of cervical intraepithelial neoplasia were diagnosed. Altogether 15·5% of smear tests were done to detect the 3·4% of cases of cervical intraepithelial neoplasia that occurred in women over the age of 50. A total of 17 793 smear tests were required in women over 50 to detect one new case of grade III cervical intraepithelial neoplasia over four years. This, in our opinion, strengthens the conclusions of our earlier report.[1] Reallocation of resources might have prevented the one case of prevalent invasive disease during the study period in which screening at three yearly intervals had been adequate.

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1 Van Wijngaarden WJ, Duncan ID. Rationale for stopping cervical screening in women over 50. *BMJ* 1993;**306**:967-71. (10 April.)

Uses of heparin

Withhold in acute ischaemic stroke

EDITOR,—We disagree with the statement made by C N Chesterman and B H Chong that low molecular weight heparins, used to prevent deep vein thrombosis in patients with stroke, can be given "without increasing clinically important bleeding."[1] We believe that the safety of both unfractionated and low molecular weight heparin has not yet been clearly established in patients with acute stroke.

We have recently published a formal statistical overview of all the randomised controlled trials comparing low molecular weight or standard unfractionated heparin with control in patients with acute stroke.[2] We identified 10 small trials including a total of 1047 patients with acute ischaemic stroke. The primary analyses were: deep venous thrombosis detected by iodine-125 scanning or venography; mortality during the study period; and haemorrhagic transformation of the cerebral infarct. Our data agree with those of Chong and Chesterman in that there was clear evidence that heparin substantially reduced the risk of deep venous thrombosis in patients with acute ischaemic stroke.

In these studies there was a highly significant reduction in the odds of deep venous thrombosis in the trials of low molecular weight and unfractionated heparin (87% (SD 16) and 84% (SD 9), respectively). However, the effect of heparin on mortality was unclear: allocation to heparin was associated with a non-significant 18% (SD 16) reduction in the odds of death; there was a non-significant 42% (SD 45) increase in the odds of death among patients allocated heparin in the four trials testing low molecular weight heparin and a non-significant 29% (SD 16) reduction in the odds of death in the six trials testing unfractionated heparin. Although the overall non-significant reduction in mortality is promising, these data cannot exclude the possibility that routine heparin therapy for patients with acute ischaemic stroke might be associated with an excess of up to 40 deaths for every 1000 patients treated. Overall there were 173 deaths and only 34 deaths in the low molecular weight heparin trials. Much larger controlled trials comparing low molecular weight or unfractionated heparin with control are needed to provide reliable evidence on the effects of heparin on mortality after acute ischaemic stroke.

Only three trials systematically sought data on the cerebral bleeding complications of heparin. In these three trials, only 15 patients with haemorrhage transformation of cerebral infarction were reported. Since haemorrhagic transformation of a cerebral infarct can be fatal (or at least disabling), we consider that such sparse data are wholly inadequate to assess the safety of any type of heparin in acute stroke.

The totality of the randomised trial data are insufficient to recommend any form of heparin for routine use in patients with acute ischaemic stroke. The International Stroke Trial, which started on 1 March 1993, is a randomised trial comparing immediate subcutaneous standard unfractionated heparin, aspirin, both, or neither in patients with acute ischaemic stroke which aims to recruit 20 000 patients worldwide by 1995; this study should provide, for the first time, reliable evidence on the effects of heparin on early mortality after stroke and on its safety. Other trials testing low molecular weight heparin and heparinoids are underway.[2]

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Ancrod for heparin induced thrombocytopenia

EDITOR,—Heparin induced thrombocytopenia is an uncommon, but serious complication of treatment with heparin. It is characterised by thrombocytopenia, thrombosis, and the presence of a heparin antibody.

C N Chesterman and B H Chong advocate the use of the low molecular weight heparinoid Org 10172 in patients with heparin induced thrombocytopenia who require continued anticoagulation. It should be noted, however, that this compound contains a heparin-like component, as well as heparan sulphate.[2] Furthermore, in their own study 18% of patients with heparin induced thrombocytopenia had an antibody that cross reacted with Org 10172.[2] Treating these patients with Org 10172 is likely to continue the thrombotic process, with serious sequelae. Screening for cross reactivity before treatment is not widely available, nor practical.

Ancrod, a defibrinogenating enzyme, is derived from a snake venom and is unrelated to heparin. Ancrod and heparin probably have similar efficacy and safety.[3] Published case series report the successful use of ancrod in patients with acute thrombosis and heparin induced thrombocytopenia.[4,5]

In view of the potential for cross reaction we believe that ancrod, rather than a heparinoid, is the anticoagulant of choice in the management of patients with heparin induced thrombocytopenia who require continued anticoagulation.

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Students like new curriculum

EDITOR,—Recent guidelines for medical education have focused interest on the need for reform of the curriculum.[1,2] Such discussions have previously been confined to medical educationists and have received little attention in the medical schools. Stella Lowry, however, has brought the debate to nationwide attention,[3] but it seems that only few changes have been implemented at grassroots level.

Since 1990 in Dundee the SPICES model has been progressively applied to the orthopaedic curriculum.[4] This model highlights six changes of emphasis—student centred learning, problem based approach, integrated curriculum, community based approach, electives, and systematic approach—thus shifting learning away from the traditional curriculum centred on teachers and hospitals and taught by individual departments, which has consisted of a standard programme and opportunistic exposure to patients.

Self learning modules on topics designated as being of core importance[1] have been introduced to replace lectures. Students study these independently in booths, using a study guide and slides. Self assessment questions are incorporated, and references to the resource material help students find the answers. Questions concerning problems in patient management have been well received. Students report that they enjoyed the stimulus of solving a clinical problem by their own research. The modules are popular because they can be studied at the students' own pace and in their own time. Discussions in small groups with a staff member provide opportunities for revision. Vertical integration of orthopaedics into the preclinical years has been possible, but horizontal integration to create a combined programme with rheumatology remains a problem.

Changes in current practice as well as government policy mean that fewer inpatients are available for teaching during ward rounds. More learning must now be done in clinics.[5] To maximise this resource our students are encouraged to move freely between clinics to see a variety of cases. The mix of patients that students see is often determined by chance. To create a more systematic approach a structured logbook has been introduced, which lists the core conditions that must be seen. All students must therefore see a set number of these prescribed conditions during the orthopaedic course. An elective study week has been introduced to allow students to choose a specialist aspect of orthopaedics to study in depth.

These changes of emphasis have been appreciated by the students, who are now more actively involved in their own learning.

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