adequate careers advice for young doctors. In future careers advice and counselling will be made available, particularly for those doctors who are stuck. Such doctors may be given a four year extension of contract or may be recommended for retraining in a new specialty or for general practice, for the staff grade, or for regrading as associate specialist. Exceptionally, they may be offered a five year rolling contract. For British graduates advice and counselling will include mandatory referral to the clinical tutor for those who after two years as a senior house officer in the same specialty have not been shortlisted for a career registrar post. When, as is planned, the total length of registrar and senior registrar training is reduced these grades are likely to merge into a single "higher" training grade, a sensible development. An appendix giving some manpower projections based on simple modelling similar to previously published work^{7,8} draws the inevitable conclusion that a "do nothing" option can lead only to longer and more disorganised training, greater dependence on clinical assistants, and increasing difficulty in maintaining clinical services.

The report also analyses responses to the consultation process. Most comments related to the proposed registrar arrangements and the proposed service grade. In response to anxieties among doctors about discrimination the report makes the point that positive or "reverse" discrimination may be necessary to ensure that registrar posts go to visiting overseas doctors rather than vitiating the quota by appointing more British graduates. Emphasis is laid on the minimum requirement for the intermediate service grade being three years' experience as a senior house officer, with a warning that the grade must not be abused at the expense of consultant posts or of women doctors (and others) who merit higher training and consultant status. An academic and research subgroup has prepared proposals which should allay worries about research that surfaced when the original document was published. A joint statement is promised from the DHSS, Joint Consultants Committee, the Committee of Vice Chancellors and Principals, and research interests.

Concentration on a single aspect of the career structure will not overcome manpower problems and nor will utopian schemes that have no chance of gaining general support in the NHS. What is needed is a coordinated package of proposals realistically, but not cynically, calculated to prove acceptable to all concerned. This is the strength of *Achieving a Balance*. All the moves are in the right directions, and the timetable offers a gradual amelioration of staffing and training difficulties. There are no quick remedies, and patience and tolerance will be needed. For example, overseas doctors may well not seek training in the specialties where their services are most sought. Strong pressure for the creation of more senior house officer posts is to be expected, but should authorities succumb to this the average time spent in the grade will rise, thus repeating past mistakes. Aimlessness of purpose at senior house officer level and continued misuse of overseas doctors—squeezing the bulge down instead of up—are real dangers. We cannot in all conscience live with a manpower structure where postgraduate training begins only at the registrar level, except for entrants to general practice. It will be better to broaden the use of six month senior house officer modules beyond general practitioner training to give, in effect, a second preregistration year to everyone, with further modules to afford "equivalent experience" in specialty training.

The volume of work in handling all registrar contracts will be an administrative headache for large regions. Further

resources will be needed to support postgraduate deans, regional advisers, training committees, and regional health authorities in the detailed planning and monitoring of rotations and the progress of doctors passing through them. The commitment to overseas doctors—namely, that visiting registrar training will be equal in scope and quality to career training—must be honoured. Altogether, the reform of the registrar grade in the package is fundamental to the success of the whole. Colleges and faculties might well consider again the advisability of giving general professional training recognition to rotational programmes, with scope for individual variation, rather than to separate jobs. This would certainly strengthen the hand of regional organisations and lead to valuable collaboration with them.

If the proposals in the implementation report are to succeed careful control and good public relations are vital. When he gave evidence to Renée Short's Social Services Committee, Sir George Godber, former chief medical officer at the DHSS, spoke of the need to proselytise, saying of the 1971 progress report that if he and others "had really gone around the country and tried to sell it, I believe we would have succeeded."⁹ Belatedly, doctors and the NHS have another chance to recognise what may be our last hope for years to come to develop a manpower structure that fulfils the NHS's service needs and doctors' career aspirations.

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Psoriatic science

On an average full double decker bus three people have psoriasis. In north west Europe the phenotypic prevalence is 2-3%¹⁻³ but as psoriasis begins at a mean age of 28 years⁴ the genotypic prevalence is nearer 5%.⁵ This common disease is still not fully understood, but recent studies have begun to unravel its pathogenesis.

The red scaly patches of psoriasis⁶⁻⁹ are characterised by inflammation¹⁰ and by hyperproliferation of cells in the epidermis.¹¹⁻¹⁴ Away from the patches, in the apparently normal skin, epidermal cells are also hyperproliferative^{12,14} but there is no inflammation. Any primary biochemical defect should account for hyperproliferation of epidermal cells. It should be specific for psoriasis, be present throughout the skin, and be absent from other inflammatory or proliferative diseases.

Epidermal keratinocytes normally take three weeks to turn over; those in a psoriatic plaque take only three days.¹⁴ Hyperproliferation of keratinocytes accounts for enlargement of the germinal compartment,¹⁴ impaired epidermal differentiation,¹⁵ increased enzyme activity,¹⁶ and many molecular biological abnormalities.¹⁶ But when grown in culture, keratinocytes from patients with psoriasis proliferate at the same rapid rate as those from healthy people.¹⁷ So keratinocytes themselves are not the cause of the problem. When whole psoriatic skin from a lesion is grafted to the nude mouse the epidermis maintains most of its pathological features for at least six weeks.¹⁸ Thus the prime defect is in the skin.

The dermal fibroblast may be the seat of the disease.¹⁹ Compared with those from healthy people cultured fibroblasts from patients with psoriasis synthesise more protein and glycosaminoglycans,²⁰ are hyperproliferative,²¹ and have an exaggerated proliferative response to serum.²² In health, living dermal elements control the differentiation and function of the overlying epithelium.^{23,24} Dermal fibroblasts from either normal or psoriatic skin have been combined with normal epidermal keratinocytes in a novel form of tissue culture—reconstructed human skin.²⁵ In this model, fibroblasts from patients with psoriasis induce hyperproliferation in normal keratinocytes, whereas normal fibroblasts do not.²⁵ Furthermore, adding supernatant from cultures of normal fibroblasts slows proliferation of normal keratinocytes in culture, whereas adding supernatant from cultures of psoriatic fibroblasts does not.²⁶ Normal and psoriatic fibroblasts, grown on one side of a permeable collagen membrane, differentially stimulate proliferation of keratinocytes grown on the other (I C Mackenzie and I Leigh, personal communication). Thus diffusible dermal factors, released from normal and psoriatic fibroblasts, influence keratinocyte proliferation. In patients with psoriasis these factors may be altered.

Blood borne or neural factors must act on psoriasis because general changes occurring in the body affect the disorder. Psoriasis often begins around puberty and the menopause and the eruption waxes and wanes over the whole body at the same time. The importance of blood borne influences is also illustrated by the Koebner or isomorphic phenomenon, which is the appearance of psoriasis at a site of trauma.²⁷ At any moment a third of patients may be affected²⁸ and it occurs either at all sites of trauma or not at all.²⁸ It can be prevented by vascular occlusion²⁹ or by prior cutaneous injection of the patient's own serum collected when the disease is in remission.³⁰

Calcium may play a pivotal part in psoriasis. In vitro, keratinocyte proliferation is affected by changing concentrations of calcium.³¹ Hypocalcaemia has coincided with exacerbations of plaque psoriasis³² and generalised pustular psoriasis,³³ and improvement has followed calcium replacement.³⁴ Calmodulin, an intracellular calcium receptor protein, activates phospholipase A₂ and other proinflammatory enzymes and both calmodulin and phospholipase A₂ are increased in the epidermis of patients with psoriasis, both where there are plaques and where there are not.³⁵⁻³⁷

Inflammatory and immunological changes are numerous in psoriasis. Phospholipase A₂³⁸ and lipomodulin³⁹ stand sentinel at the gateway to arachidonic acid metabolism.⁴⁰ Neutrophil invasion^{41,42} is mediated by arachidonic acid metabolites⁴⁰ and other substances^{43,44} which are abnormally abundant both in psoriasis and in many other inflammatory disorders. Circumstantial evidence suggests that psoriasis

may be an immunological disorder⁴⁵⁻⁴⁸ and macrophages and T cells are present in early lesions.⁴⁵

A working hypothesis for the pathogenesis of psoriasis might be that genetically abnormal dermal fibroblasts fail to exert their normal controlling influence on keratinocyte proliferation. Otherwise innocuous systemic circulating factors may then amplify this hyperproliferation and lead to clinical signs of psoriasis.

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What every doctor needs to know about 11 November

From 11 November, with only a few exceptions, patients will have the right to see computer records that doctors or others may hold on them. The Data Protection Act, which has been introduced in stages, will become fully operational on that day, and the Data Protection Registrar will have powers to enforce compliance. "Data subjects" (patients) will have the right, after making a written request and paying a fee of not more than £10, to be told by the registered "data user" (a doctor, practice, or health authority with computer records) whether any personal information about them is held on computer files; they then have the right to be supplied with a copy of that information within 40 days. Before 11 November Parliament is to be asked to approve an order that will enable doctors to prevent access being given to information they consider "likely to cause serious harm" to the physical or mental health of the patient or another person.

What are the implications for doctors? Firstly, they will need to think more carefully about what is entered into computer files. Secondly, those who recorded personal health data on disc or tape before the idea of patients having a right to see their records was contemplated should consider reviewing and editing such records before 11 November. No such action is necessary with records held solely for research as these are exempt from access rights; and information held solely for word processing falls outside the act. Thirdly, doctors identified as having overall clinical responsibility for the patient who is seeking access to records will be asked by whoever is acting as data protection coordinator to scrutinise within a week or so the applicant's computer record and manual case notes to decide whether any data in the computer record need to be withheld or made more understandable. These doctors will usually need to consult with the other people who have contributed substantially to the patient's record. On the rare occasions when modified access is considered essential the doctor must indicate exactly what part of the computer record should be withheld and why. He should also decide whether the patient should be counselled about the record when it is made available.

How much extra work this will mean is not known. There may well be an initial surge of requests stimulated by the media and the freedom of information lobby. Subsequently requests may correlate with litigation and the numbers of patients under psychiatric care. Distrust of computers may lead some patients to request access, but generally such requests should be viewed as reflecting a breakdown in the mutual trust that should exist between patient and doctor.

Time spent fostering this relationship may reduce the time spent in dealing with requests to see records.

Those who want to know more should consult the excellent booklets explaining the legislation in practical terms that are available free from the Office of the Data Protection Registrar¹⁻⁸; and specific guidance on how requests for access to personal health data should be handled has recently been issued by the Department of Health and Social Security.⁹ At least those who are to function as data protection coordinators should now be familiar with these documents.

In the future the illogicality of treating computer held medical records differently from manual records will undoubtedly lead to pleas for patients to be granted rights of access to their whole medical record. Such a policy of openness was recommended by the Steering Group on Health Services Information,¹⁰ but the practical difficulties of implementing it are formidable.

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Should bronchodilators be combined in chronic bronchitis and emphysema?

There is a new enthusiasm for combining oral theophyllines with inhaled β_2 agonists to achieve better bronchodilatation in patients with chronic obstructive airways disease. Ipratropium bromide and high dose topical steroids may even be added. We need to consider carefully the value of this moderately expensive polypharmacy.

Theophylline has been used for many years, but how it achieves bronchodilatation remains unclear. Earlier notions of phosphodiesterase inhibition appear unlikely,^{1,2} at least at therapeutic plasma concentrations of 10-20 mg/l, and so do intracellular calcium translocation³ or antagonism of either adenosine receptor receptors⁴ or prostaglandins.⁵ In patients with asthma oral theophylline may potentiate the bronchodilatation from an inhaled β_2 agonist without increasing muscle tremor.⁶ A similar useful interaction has now been shown in patients with chronic bronchitis who show some bronchodilatation from salbutamol alone.⁷ In some (but not all) such patients bronchodilatation may be increased by adding ipratropium bromide to an inhaled β_2 agonist.⁸ This