cell lymphotropic virus 1 testing, and diversion of the first few millilitres of donor blood to reduce bacterial contamination are some of the measures introduced. In England, the price of red cells is now £120 per unit. In many hospitals the savings from reduced red cell spending are used to fund specialist practitioners of transfusion and will also be needed to fund alternatives to transfusion. The resultant reduction in income to transfusion services is likely to cause the price of blood to rise further in future.

The recent *Serious Hazards of Transfusion* report, however, shows that the greatest risk to transfusion of receiving the incorrect blood component is in errors related to collection and administration.¹⁰ Errors also occur in prescription, sampling, and requests. To reduce these errors, all staff involved in the transfusion process need training—a major undertaking in large hospitals.

Hospital blood banks are changing in response to these demands. Improvements in screening techniques and automation mean that if red cell antibodies are not present in the patient, blood of appropriate group can be rapidly dispatched, often by a method called electronic crossmatching.¹¹ Donor cells and patient serum are no longer mixed in a traditional cross-match, but the computer checks on blood group and lack of antibodies and allows suitable blood units to be issued.

Provided quick and efficient methods of transporting blood exist within the hospital, blood does not need to be held in case it is needed but only issued if it is going to be transfused.

Lastly, new regulations are on the way as a result of the European directives on blood safety.¹² These need to be incorporated in UK law by February 2005. Blood

centres and banks will need regular inspection, and have to maintain quality systems. Adverse events will need prompt reporting. Most importantly, an audit trail from donor to patient will be needed and current proposals are that records will need to be maintained for 30 years because of vCJD.

Clinicians need to prepare themselves now to face the possible shortages in the supply of blood and take the steps that can reduce the need for allogeneic blood.

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Selecting and supporting contented doctors

Medical students must receive regular, structured, and constructive appraisal

Unhappy doctors often underperform,¹ and by depressing morale in the workplace, they exert a negative influence on recruitment and retention, which are pressing problems in the NHS.² Everything we can do to promote contentedness at work is therefore a worthwhile endeavour in the interest of patients.

Much of the difference in the ways that doctors approach work and perceive the climate at the workplace is a reflection of stable long term individual differences in the doctors themselves.³ In a comprehensive questionnaire study, which included measures of approaches to work, workplace climate, stress (general health questionnaire), burnout (Maslach burnout inventory), and satisfaction with medicine as a career as well as the Big Five personality inventories, McManus et al obtained data on 1668 medical graduates, 12 years after they had entered medical school. They were able to relate doctors' present perceptions of the workplace climate to differences in measures of

personality and learning style, which were already evident at medical school entry, and remained fairly stable when measured again in the final year at medical school and five years later in working doctors. Stress, burnout, and satisfaction also correlate with trait measures of personality taken five years earlier. Neuroticism for example, is a stable trait. It is unrelated to learning styles, but it is a predictor of a surface disordered approach to work, of a perceived high workload in the preregistration house officer year, and of stress. Traits such as extraversion, being open to experience, and agreeableness seem to confer advantages at work.³

We should not allow excuses for workplace environments where systemic conditions result in high levels of reported stress among doctors. But we should take note that it may be possible to partially predict which people will find the medical workplace particularly stressful, and we should be concerned that these people may be more prone to burnout as doctors.

The implications of these findings are far reaching. Should we be attempting to select happier doctors by routinely assessing personality profiles and learning styles at entry to medical school? Evidence shows that validated instruments such as Myers-Briggs profiles have predictive value for choice of specialty⁴ and learning styles inventories for success in a medical career.⁵ But before we replace all admissions tutors by psychometricians, we should perhaps consider how far we can extrapolate from present evidence. Although the work by McManus et al has shown stability for predictive traits over time,³ can we be sure that we should be offering the same profiling tests to mature entrants as to school leavers? How do we rank the "right stuff" personality profiles against evidence of scientific ability or empathetic disposition? How do we ensure that potential entrants, assessed at a time when they have been "going through a bad patch" in respect of temporary problems in their personal lives affecting their mood and outlook, are not unfairly disadvantaged?

So if we lack the confidence in our social engineering skills to populate medical schools exclusively with easy going, contented students, what can we do to support those who struggle and those who encounter dips in their mood? Approaches that apply equally to the undergraduate in medical school as to the doctor already in the workplace would seem appropriate.

At the behest of the General Medical Council, procedures to ensure fitness to practise operate in all medical schools in the United Kingdom,⁶ where committees are given the task to decide whether health or conduct disorders are likely to interfere with safe effective practice. Because livelihoods are at stake, practitioners and students rarely report to such committees, and mental health problems are often concealed. This situation might be improved if fitness to practise committees were seen as more supportive, and earning a reputation for facilitating institutional help for students experiencing difficulties with mental or physical health. The need to debar from practice is rare, and like employers in the workplace, medical schools have responsibilities under the Special Educational Needs and Disabilities Act (SENDA) to support students with conditions that have substantial and long term adverse effects on the ability to carry out normal day to day activities; this includes mental health conditions such as depressive illnesses.⁷

The 2004 annual scientific meeting of the Association for the Study of Medical Education considered ways of assuring more equity across medical schools in fitness to practise procedures,⁸ a topic which is also being actively debated by the Council of Heads of Medical Schools and the General Medical Council. We could develop models of best practice, informed by reliable longitudinal evidence about the likelihood of students achieving a safe productive medical career and by evidence around effective support and rehabilitation for those who struggle.

Careers advice is also critical in this respect. Medical careers are disparate, and finding the right niche is obviously important for long term career satisfaction.²

University careers departments are rarely equipped to advise on medical careers, and as many postgraduate deaneries delegate careers advice to senior clinicians in the medical and surgical specialties, newly qualified doctors may be poorly supported in the initial decisions determining their career paths. The initiative, Modernising Medical Careers, places an emphasis on effective careers advice,⁹ and more work needs to be done on assessing the usefulness of psychological profiling.⁴

Perhaps the most important mechanisms for ensuring contented doctors are those of mentoring and appraisal. The NHS underlines that the explicit purpose of the appraisal system should be to support doctors,¹⁰ and likewise the GMC insists that students must receive regular, structured, and constructive appraisal.⁶ Effective appraisal can detect unhappiness early and promote effective change.¹¹ Likewise judicious admixtures of support and challenge from an experienced mentor can nurture the medical workforce.

Finally, realistic expectations of a modern career in medicine underpin contentedness in the medical workplace.¹² Medical schools must work closely with postgraduate deans responsible for junior doctors to ensure that undergraduate education encompasses not only the necessary subject material but also the appropriate processes to prepare doctors for the rapidly changing environment of medical practice. The messages about conditions for surviving and thriving in today's medical environment must be taken on board in medical schools and workplaces.

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