confirmed in subsequent trials and has changed our understanding of the mechanisms underlying antipsychotic treatment. Previous attempts to develop new antipsychotic drugs had been influenced by the dopamine hypothesis, supported by the observation that all effective antipsychotic drugs exhibited some degree of D₂ dopamine receptor antagonism.⁹ The fact that clozapine is only a weak D₂ blocker suggests that mechanisms other than D₂ blockade must be relevant for the control of positive symptoms. We do not know which of the neurotransmitter mechanisms affected by clozapine (dopamine receptor subtypes, serotonin, or α adrenergic effects) is responsible for its benefits in patients who are resistant to treatment. Another drug with evidence of enhanced effectiveness, risperidone, has D₂ and 5HT₂ receptor blocking properties.¹⁰ Clarifying the mode of action of more effective drugs is likely to provide a key to understanding treatment resistance.

Imaging links symptoms and brain function

Other approaches are also bearing fruit. Functional imaging techniques have considerable potential for examining the relations between psychotic symptoms, performance in neuropsychological tests, response to drug treatment, and blood flow in different regions of the brain. Positron emission tomography has shown that different symptom patterns in patients with schizophrenia produce different patterns of cerebral blood flow.¹¹ Functional magnetic resonance imaging, which does not involve ionising radiation and permits multiple repeat examinations, may clarify the relation

between symptom patterns, drug effects, and regional brain function. Such work may allow the considerable theoretical advances that have occurred in schizophrenia research over the past 20 years to start to be translated into therapeutic benefit for current sufferers.

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Education for educating surgeons

Time for a professional approach

Surgeons in Britain have long taken pride in their plentiful practical experience, on which their clinical skills are based. Much of this experience was gained through emergency operations performed without any supervision during the night. One survey reports that 76% of surgeons had performed operations for the first time without supervision (J Wilson, personal communication). One trainee described his training as merely "an opportunity to have access to patients." But experience without training increases confidence not competence.¹ This version of self directed learning is no longer appropriate, if it ever was. Changes in the patterns of working and in patients' expectations dictate a more formalised and professional approach to the training of surgeons.

Between them, the New Deal² and the Calman report³ are reducing the time available to train a surgeon from 13 years at over 100 hours a week to eight years at 56 hours a week—a reduction by nearly two thirds. The resulting increase in the conflict between service provision, experience, and training is well illustrated by the Oxford trauma service. The service is now delivered by consultants, and junior doctors' hours have dropped from 104 to 58 a week. As a result, the average number of operations performed by registrars during their six month attachment has fallen from over 200 in 1993 to just over 160 today—a decrease of around 20%. Of these cases, the proportion performed under direct supervision has risen from under 20% to over 50%. But while the registrars report that they are impressed with the improvement in

training, they are concerned that they may complete their training without having gained adequate experience.⁴

If training standards are to be maintained or even improved under these constraints, consultants will have to extract even more teaching value from every case. Apprentice style teaching is the bedrock of surgical training. It can be and has been abused,⁵ but, done properly, it should also prove to be the most suitable platform for the future.⁶ What consultant surgeons need is education in the principles and methods of teaching while doing clinical work. No such training for trainers currently exists in Britain.

Not just teaching operative techniques

At the end of last year, several British surgeons who were interested in training attended a demonstration of a training course designed for orthopaedic surgeons in the United States.⁷ We were shown how and why cognitive skills based on factual knowledge are much better retained if the learning event is linked to a clinical case being managed at the time. A didactic lecture to a large audience in a darkened room may seem cost effective but is surprisingly inefficient at bringing about a real change in practice. We also learnt that training in surgery is not simply a question of teaching operative techniques, because the areas in which most problems with trainees occur are attitudes and behaviour. These areas can also be the most difficult to manage, and require close supervision in the clinical situation if they are to be properly

addressed. Factual knowledge and psychomotor skills can be taught and measured in properly equipped laboratories, but all round competence can be practised and demonstrated only in a real clinical situation.

British surgeons would benefit from a similar course. The aim would be to show the strengths and weaknesses of apprentice style teaching, while providing the skills needed to use it to the full. A two day course could provide the principles of teaching in the clinical environment for consultants wanting to train juniors. For those wanting to be head of a training programme, a member of an examination board, or a college representative, a more comprehensive five day course could explore some of the theory behind the practice, as well as covering the design of a training programme and evaluation techniques.

Training should be service neutral

The question remains as to who is going to organise and pay for this training. Even if the money were forthcoming and attendance on such courses became routine, what of the implications for service provision? Good apprentice style training is enormously time consuming for both trainer and trainee. As a rule of thumb, reasonable training is service neutral, since the extra work obtained from a trainee is balanced by the loss of work caused by the trainer working more slowly in order to teach.⁸ The provision by the postgraduate deans in England and Wales of only half of the basic level salary for trainees (and even the 100% provided in Scotland) does not fairly reward a unit that carries out proper training. The postgraduate deans are ideally situated to define and ensure standards for trainers and trainees, but unless they are given adequate resources for the job they can have little impact.

Perhaps some of the necessary investment could come from the export of skilled workers. Under Britain's last socialist government, many crucial industries paid a levy to finance the

national training of skilled workers—the so called grant levy system. Such an arrangement could well apply in health care, with private hospitals contributing their share in return for the training their staff received in the NHS.

There is a strong case for improving the training of junior surgeons, though working hours, caseloads, and financial considerations all present obstacles. Nevertheless, the royal colleges of surgeons in both Edinburgh and London are enthusiastically supporting the development and implementation of a series of two and five day training programmes. These will provide surgeon teachers with the insight, theoretical background, and practical ideas that they will need to get the best out of their clinical teaching. Good will and enthusiasm must be combined with competence and evaluation.

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Autistic spectrum disorders

No evidence for or against an increase in prevalence

Autism seems to be on the increase. This at least is the feeling of many professionals in the field of child development in Britain, who believe that in recent years they have been seeing more children with autistic spectrum disorders. Autism was first characterised in 1943 by Kanner,¹ who described a group of children with an unusual pattern of behaviour present from birth or before 30 months. He called this "early infantile autism." His essential criteria for diagnosis were social aloofness and elaborate repetitive routines.² Subsequent epidemiological studies have shown that autism is not, as Kanner first thought, a unique and separate condition occurring in children of otherwise normal development but that it is closely related to a range of developmental disorders.^{3,4} These include Asperger's syndrome,⁵ a condition characterised by borderline or normal IQ; social isolation or naive, inappropriate social interaction; intensive interest in only one or two subjects; a narrow, repetitive life style; limited or inappropriate intonation and body language; and poor motor coordination.

Autistic spectrum disorders share a triad of impaired social interaction, communication, and imagination, associated

with a rigid, repetitive pattern of behaviour. Onset is usually at birth or during the first three years of life, but problems can begin later in childhood. The triad can be recognised at all levels of intelligence and can occur alone or together with any other physical or psychological disorder.^{3,4} Under the International Classification of Diseases, the whole range is termed pervasive developmental disorders, but in Britain parents understand and prefer the term autistic spectrum disorders.

Estimates of prevalence are tentative

Only two published studies have attempted to examine the prevalence of all autistic spectrum disorders, one concentrating mainly on children with intelligence quotients (IQs) under 70 and the other on those with IQs of 70 or above. The first study included children aged under 15 years, born between 1956 and 1970, and living in the former borough of Camberwell in inner London who were attending any kind of special school or receiving special educational help.³ Nine per cent of children with an IQ below 70 had autistic