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 Inter national 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

spectrum disorders. The proportion in the total population was 22 in 10 000 children, and, because of the method of selection, only two in 10 000 of these children had IQs above 70. These children with higher IQs had the behavioural features of Asperger's syndrome.[5]

The second study examined children aged 7-16 years, born in 1975-83, living in Torslanda (a mainly middle class borough of Gothenburg, Sweden), and attending mainstream schools.[6] At least 71 in 10 000 children had disorders in the autistic spectrum and IQs of 70 or above, and at least half of these children showed criteria for Asperger's syndrome.

Both studies involved population screening followed by intensive examination and diagnosis of selected individuals by means of specially designed schedules for eliciting and recording information relevant to specified diagnostic criteria. The demographic differences between the areas are unlikely to have had a major effect on the prevalence; earlier studies in Gothenburg of children with IQs below 70 gave similar rates for the triad of impairments to those found in Camberwell.[7] It is therefore permissible to combine findings from the two studies to give a tentative estimate for the prevalence of autistic spectrum disorders of 91 per 10 000 children aged under 16 of any level of IQ. Both studies underlined the difficulties of defining the borderlines of the autistic spectrum and of subgroups within it. Diagnosis depends on recognising the complex patterns of behaviour revealed in the developmental history and current clinical picture. This requires training and experience, and even then there is much scope for individual interpretation of the criteria.

Specialist referrals have raised awareness

In 1993 I reviewed 16 studies of the epidemiology of "typical autism," defined in various ways, carried out in Europe, the United States, Canada, and Japan.[8] The prevalence varied from 3·3 to 16 per 10 000. There was no evidence of an increase in prevalence over time. In studies where the authors strictly applied Kanner's original criteria, the observed rates were closely similar. There was some evidence from British and Swedish studies of higher proportions, even of Kanner's autism, among children of parents who had emigrated to Europe from "exotic" countries; one possible explanation might be lack of immunity to viruses in the host country of the type that can cause intrauterine infections.[4] However, immigration cannot account for the fact that professionals from areas where there are no or few immigrants also feel that numbers are increasing. There are no published studies of prevalence among later descendants of immigrants.

Another factor that may contribute to the impression that autism is increasing is a change in referral practices in Britain. Before the 1970s, most children with learning disabilities were admitted to special schools, training centres, or institutions without being referred for specialist diagnosis of the developmental disorder. Nowadays, referral for expert medical diagnosis and treatment is the rule rather than the exception, resulting in greater awareness and interest in such conditions. Psychiatrists in adult mental illness are also beginning to recognise that some people they see have autistic spectrum disorders, especially Asperger's syndrome.

Thus there is no firm evidence for or against a general rise in the prevalence of "typical autism" or other autistic spectrum disorders. The impression that there is a rise could be due to a change in referral patterns, widening of diagnostic criteria for typical autism (which are difficult to apply with precision anyway), and increased awareness of the varied manifestations of disorders in the autistic spectrum (especially those associated with higher IQ). On the other hand, there might be real changes in prevalence, locally or nationally, due to temporary or permanent factors. Some recent research on typical autism suggests that complex genetic factors may have a major role in its aetiology.[9] However, in a minority of cases, mostly comprising people who are severely disabled, other physical causes may be implicated.[3,4] It is possible that there are interactions between genetic susceptibility and other physical factors. There is also some evidence that mothers of children with typical autism are of higher than average maternal age.[10] If this is a real association, changes towards later childbirth[11] might affect the prevalence of typical autism and possibly other autistic spectrum disorders.

Counting the numbers of children diagnosed in clinics is not an appropriate method of investigating changes in prevalence. Methods of early detection now being explored, based on observations of the development of joint referencing and pretend play in 18 month old children,[12] might facilitate the serial studies of incidence and prevalence that would be needed to demonstrate changes in prevalence in years to come.

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