

EDITORIALS

Examining the Royal Colleges' examiners

"In what manner are the examiners elected? Are they elected by the profession or any part of the profession whose interests are equal to those of the whole, and are they responsible to the profession at large for their conduct? Neither the one nor the other"—*Lancet* 1824; i: 205.

Membership or Fellowship of a Royal College is an essential qualification for a specialist career in British medicine, *de facto* if not *de jure*. The examinations, taken by a high proportion of graduates,^{1,2} provide the general public's main guarantee of medical specialists' competence. An outsider might reasonably expect both the law and the colleges' own professional pride to require public demonstration of the examinations' conduct and effectiveness. Neither is the case. With a few honourable exceptions,³⁻⁶ the colleges publish little about their examinations. Within the past decade not one Royal College has published in British-based general or medical education journals any paper evaluating its examination. The silence has not always been so deafening: in the preceding fifteen years there was a flurry of such studies,⁷⁻¹⁰ but sometimes because the authors were being pressed.¹¹ Candidates have little good to say of the examinations, and many have anecdotes about their conduct, some of which have been published;¹² these reminiscences often raise disturbing questions.

The excessive secrecy shrouding the examinations is shown by a simple question: how many candidates take an exam and how many fail? A letter to the Royal Colleges and Faculties administering the thirteen registrable examinations elicited this information for only seven examinations. The Royal Colleges of Physicians, Pathologists, Psychiatrists, and Surgeons of Edinburgh, Glasgow, and England either replied that the information was confidential or not available, or did not reply at all. This almost obsessive secrecy about what one College called "sensitive information about our examination system" has been noted before.^{13,14} Secrecy presumably serves little purpose since some colleges do provide information. Thus, the Royal College of General Practitioners provides a graph of pass rates since 1973; equivalent information was shown at a closed Royal College of Physicians meeting¹³ but not published. In other countries more information seems to be available¹⁵⁻¹⁷ and more

research is sponsored by certifying boards,¹⁸⁻²⁴ sometimes reflecting byelaws requiring research and development.²⁵

Information about pass rates is provided by the colleges to the General Medical Council's Education Committee under the Medical Act of 1983, but was not publicly available before 1985 because the Royal College of Physicians of London requested that it should be kept confidential. Subsequently, occasional details have been published.^{26,27} The pass rates for graduates of medical schools in the British Isles for the years 1984-85, 1985-86, and 1986-87 were:

<i>Exam</i>	<i>Primary</i>	<i>Final</i>
FFA RCST†	59, 65, 54	38, 27, 31
FRCR: Radiodiagnosis	68, 66, 68	43, 54, 59
FRCR: Radiotherapy	53‡	37‡
FRCS (E)*	30, 31, 25	49, 56, 54
FRCS (Engl)*	32, 34, 30	37, 38, 40
FRCS (G)*	40, 44, 37	60, 52, 35
MFCM	86, 95, 93	67, 82, 96
MRCGP	..	74, 74, 75
MRCOG	62, 52, 54	56, 70, 55
MRCP (UK)*	40, 39, 39	40, 38, 39
MRCPath*	84, 58, 63	53, 46, 60
MRCPsych*	65, 61, 62	67, 60, 63

*Pass rates still described by college as confidential or not available, or no reply received to inquiries, †now FCAAnaes, ‡median rate for all entrants for past 4 years, .. no examination set

The median pass rates at primary and final examinations are 59% and 54%. Colleges that regard the information as confidential have lower median pass rates (40% and 53% for primary and finals) than those of the less secretive colleges (61% and 56%).

Are such pass rates low or not? Since pass rates can take any theoretical value between 0 and 100%, what is an appropriate rate? If exams are too easy poorly qualified candidates pass, whereas if they are too hard good candidates become disillusioned and leave the specialty. Pass rates can be used explicitly to control the flow into a specialty—low rates reflect high demand and a higher commodity price—and may indicate perceived status within the profession,²⁸ with a low rate signifying difficulty and high status. Examinations also provide revenue for the colleges (perhaps £500 000 a year for the Royal College of Physicians), and a lower pass rate will increase income (one candidate commented that passing first time would ensure that he bought the college no more than one case of decent claret).

How are pass rates decided? There is little information but the assessment is probably norm-

referenced: a fixed proportion of candidates passes, the precise proportion depending on the balance of hawks and doves among the examiners. Internal evidence suggests that in the past the pass rate for MRCP part I was set at 50%,¹¹ and a remarkably candid statement from the (then) Faculty of Anaesthetists²⁹ suggests that 50% has also been used, with slight modification from year to year. For the three years 1984 to 1988, the overall pass rates at part I MRCP were 34.6%, 34.7%, and 34.7%, for 3534, 3749, and 3893 candidates, respectively; this remarkable numerical coincidence, to one part in a thousand, provides compelling statistical evidence for norm-referencing as is now accepted in the MRCP (UK) examination regulations now acknowledge that a candidate's performance is assessed "in relation to that of the other candidates". The alternative approach is criterion-referenced assessment, by which competence is assessed against specific predetermined criteria, and any proportion of candidates may pass an examination.³⁰ Educationists have little doubt that this is the superior method; in the absence of published criteria, it seems doubtful whether any college uses it.

Are pass rates too low? That depends on why candidates fail. There are only three possible reasons: the candidates are of poor quality; their training is of poor quality; or the examination is of poor quality. Since medical school entrants have been of progressively higher quality for the past three decades, one could suggest that they should have achieved progressively higher pass rates; low rates can hardly be blamed upon intellectual inability. That leaves only the training or the examinations. Whichever is to blame, the Royal Colleges are responsible, directly or indirectly, for each. The difficulty and paradox are encapsulated by the controversy over the proposals for a three-part examination in surgery,³¹ for which MacLaren's summary³² concludes, "The high failure rates in the existing FRCS examinations are really no credit to our system of training, and, indeed, they are an indication that this . . . remains extremely haphazard. The new . . . examination will be a test of training programmes as well as of trainees . . ."; and perhaps pass rates for training departments will then also need to be published.³³ As Parkhouse once commented "The problem is not so much how to test candidates but how to test examinations".³⁴

The Royal Colleges have a poor record of concern for the public and for doctors who are not members.³⁵ Meanwhile, British society is still seen as dominated by professions whose main aim is "a conspiracy against the public or . . . some contrivance to raise prices",³⁶ and doctors continue to describe colleges as "like clubs".³⁷ This self-congratulatory, inward-looking view is apparent when the Registrar of the Royal College of Physicians notes that from 3000 MRCP candidates each year his college gets "astonishingly few protests or criticisms".³⁸ The argument that it is "as searching and as fair a test as a medical examination can be"³⁸ would be more

compelling if the College were a little more open, and if, at its inception dinner for new Members, the President dwelt less on those whose fathers happened also to be Fellows. Professions with exclusive control over entry have moral and social obligations to be open about selection processes. If they are not, society will eventually take the task upon itself. The Government will question restrictive practices and is unlikely to be reassured by mere mumblings from the robe and chain mafia.

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A BRAIN TRANSPLANT THAT WORKS

A new biology of the brain has been born with the first unequivocal account of a successful human brain transplant.¹ In the Feb 2 issue of *Science*, Lindvall and his colleagues from Sweden and London described a 49-year-old man with Parkinson's disease who had pronounced and sustained benefit following a graft of human embryonic nerve cells into his diseased putamen. This success was founded on many years' painstaking cell and animal work, sheer determination, and the lessons learnt in the past 5 years from pioneering adrenal as well as embryonic transplant surgery. Vital factors for success included the selection of brain (ventral mesencephalic) cells from fetuses of 8-9 weeks' gestational age, the development of an operative technique to ensure maximum cell survival, and the selection of the putamen, where dopamine deficiency is most severe in parkinsonism, rather than the caudate as the transplant site. The results gain credence because the patient was monitored in great detail for almost a year before and after the operation.

How was this success achieved? For most of this century, Cajal's doctrine of the immutability of the nervous system went unquestioned.² However, by the 1960s the work of many neurobiologists (eg, Raisman, Björklund, and Dunnett) had shown that adult as well as fetal mammalian nerve cells can sprout, form synapses, reverse behavioural defects due to brain damage, and live in regulatory balance within a host brain.³⁻⁵ The conditions for successful regrowth of nerve cells were established, with the surprising finding that attempts at repair after focal injury may not be limited to the damaged region.⁶ These animal experiments led the Swedish workers to use human fetal cell grafts in patients with Parkinson's disease, although the first results described in 1988 and 1989 did not conclusively establish the value of this technique.^{7,8} Moreover, other human embryonic tissue transplants in Britain, Mexico, Cuba, Poland, and the USA (Yale and Denver) did not show unequivocal benefit. In patients who subsequently died, definite survival of dopamine-forming graft cells was not shown.⁹⁻¹² However, the Swedish workers persisted, and their last graft met with success.

The patient manifested Parkinson's disease at the age of 37, with tremor and rigidity of the right arm. Initially he responded well to levodopa, but then severe and fluctuating disability developed with rigidity and immobility for up to half of each day. He kept a daily log of his motor symptoms for 11 months before the operation. A preoperative 6-L-[¹⁸F] fluorodopa positron emission tomographic (PET) scan showed severe deficiency of dopamine synthesis of the left putamen, and to a lesser extent of the right. Cyclosporin, azathioprine, and prednisolone were given to cover the transplant of fetal mesencephalic tissue at three sites in the left putamen by stereotaxic surgery. Tissue from four fetuses was used, and the time between abortion and the start of transplant was 2.5-4 hours. By 3 months after surgery, there had been a reduction in "off" periods from 5 to 2 a day, and each period was shorter. Antiparkinsonian drug treatment was kept stable during the day. Improvement occurred in both right and left limb function. Postoperative PET scans showed that the grafted neurons survived and were capable of dopamine synthesis and storage. 8 months after transplantation, the pronounced improvement of motor function persisted.

By comparison with adrenal autografts in animals and man, fetal mesencephalic grafts survive better and produce more comprehensive and long-lasting behavioural effects; they also make synaptic connections. Initial Swedish attempts to place adrenal autografts in the caudate, and subsequently two in the putamen, did not lead to definite improvement.^{13,14} Accounts from Mexico in 1987 described dramatic improvement in two parkinsonian patients, but did not describe other patients who did not improve, got worse, or died following direct implantation of the adrenal gland at open surgery into a bed in the caudate nucleus.^{11,15} The results of another 250 operations in other countries have not been so encouraging, and no centre has been able to replicate the Mexican experience with adrenal autografts.¹⁶⁻¹⁹ However, these experiments have taught us a lot about how best to proceed with human fetal cell grafting into the brain.¹²

Despite the ethical, legal, and financial implications, transplant surgery in Parkinson's disease should now concentrate on fetal cell grafts; there is little or no place for further adrenal surgery. Detailed preoperative and postoperative assessments are crucial, and such surgery will not become widely available for many years. For those opposed to therapeutic abortion on religious or other grounds there can be no advance, but many societies permit therapeutic abortion, and accept that the fetus was dead when separated from its blood supply. In the latest report the mothers gave consent for both abortion and, separately to an independent team, for tissue transplantation. Success in Parkinson's disease will doubtless be followed by similar attempts in Alzheimer's disease and Huntington's disease, and in other forms of brain and spinal injury.

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