- 13 Reinwein D, Benker G, Lazarus JH, Alexander WD, European Multicenter Study Group on Antithyroid Drug Treatment. A prospective randomized trial of antithyroid drug dose in Graves' disease therapy. *J Clin Endocrinol Metab* 1993;76:1516-21.
- 14 Weetman AP, Pickerill AP, Watson P, Chatterjee VK, Edwards OM. Treatment of Graves' disease with the block-replace regimen of antithyroid drugs: the effect of treatment duration and immunogenetic susceptibility on relapse. *Q J Med* 1994;87:337-41.
- 15 Lazarus JH, on behalf of the Radioiodine Audit Subcommittee of the Royal College of Physicians Committee on Endocrinology and Diabetes and the Research Unit of the Royal College of Physicians. Guidelines for the use of radioactive iodine in the management of hyperthyroidism. *J R Coll Physicians Lond* 1995;29:464-9.
- 16 Franklyn JA, Daykin J, Drolc Z, Farmer M, Sheppard MC. Long-term follow-up of treatment of thyrotoxicosis by three different methods. *Clin Endocrinol (Oxf)* 1991;34:71-6.
- 17 Sugrue D, McEvoy M, Feely J, Drury MI. Hyperthyroidism in the land of Graves: results of treatment by surgery, radioiodine and carbimazole in 837 cases. *Q J Med* 1980;193:51-61.
- 18 Cusick EL, Krukowski ZH, Matheson NA. Outcome of surgery for Graves' disease reexamined. *Br J Surg* 1987;74:780-3.
- 19 Thjodleifsson B, Hedley AJ, Donald D, Chesters MI, Kjeld M, Swanson J, et al. Outcome of subtotal thyroidectomy for thyrotoxicosis in Iceland and north east Scotland. *Clin Endocrinol (Oxf)* 1977;7:367-76.
- 20 Falk SA. The management of hyperthyroidism. A surgeon's perspective. *Otolaryngol Clin North Am* 1990;23:361-80.
- 21 Neis C, Sitter H, Zielke H, Bandorski T, Menze J, Ehlenz K, et al. Parathyroid function following ligation of the inferior thyroid arteries during subtotal thyroidectomy. *Br J Surg* 1994;81:1757-9.
- 22 Burrow GN. Thyroid function and hyperfunction during gestation. *Endocr Rev* 1993;14:194-202.
- 23 McKenzie JM, Zakarija M. The clinical use of thyrotropin receptor antibody measurements. *J Clin Endocrinol Metab* 1989;69:1093-6.
- 24 Hollingsworth DR. Neonatal hyperthyroidism. *Pediatr Adolesc Endocrinol* 1985;14:210-22.
- 25 Scott GR, Forfar JC, Toft AD. Graves' disease and atrial fibrillation: the case for even higher doses of therapeutic iodine-131. *BMJ* 1984;289:399-400.
- 26 Nakazawa HK, Sakurai K, Hamada N, Momotani N, Ito K. Management of atrial fibrillation in the post-thyrotoxic state. *Am J Med* 1982;72:903-6.
- 27 White HD. Aspirin or warfarin for non-rheumatic atrial fibrillation? *Lancet* 1994;343:683.
- 28 Sawin CT, Geller A, Wolf PA, Belanger AJ, Baker E, Bacharach P, et al. Low serum thyrotropin concentrations as a risk factor for atrial fibrillation in older persons. *N Engl J Med* 1994;331:1249-52.
- 29 Faber J, Galloe AM. Changes in bone mass during prolonged subclinical hyperthyroidism due to L-thyroxine treatment: a meta-analysis. *Eur J Endocrinol* 1994;130:350-6.

(Accepted 17 June 1996)

Training for excellence in the inner city: an interview with Richard Savage and Clare Vaughan

Douglas Carnall

See pp 555, 565

Recruitment to general practice is at its lowest level for 30 years, and many vocational training schemes report difficulty in attracting new trainees. Spurred on by the aging population of south London, and with the advantage of £1.3m of development money resulting from the Tomlinson report, the south London organisation of vocational training schemes (SLOVTS) has perhaps been able to cope better than most. Its chair, Richard Savage, a general practitioner and course organiser, and Clare Vaughan, an assistant adviser, have devised and implemented many innovative training posts for general practice over the past two years, and their approach seems to be bearing fruit: most of the doctors who have finished the training scheme are now entering practice in south London. They talked to Douglas Carnall about the causes of the crisis and the measures they have implemented to counter it. Clare Vaughan died in the week following the interview (see obituary, p 555).

DC: Much has been made recently of the fact that recruitment to general practice is at its lowest level in recent times. What are your views on why that is?

RS: It's hard to know where to begin. I wonder whether medical schools have the correct process to recruit students with the qualities that general practitioners need to have. At my first lecture at medical school, the first lecturer to say anything to us said, "You're extremely privileged to attend this medical school because 70% of you are going to be hospital consultants," and I think this ethos still exists.

Perhaps we should scrap the second MB and substitute parts of the second and third years of the British School of Osteopathy's course, which is absolutely brilliant. It's all about people—what people think about disease, how they respond to it when they get it, and what it means to them. I think that science is wonderful and exciting, but it's not the whole answer.

One could go even further back and look at the way that the concept of a career in medicine is sold to children doing their A levels and at the way that the media shape public opinion about the profession. The negative presentation of the lot of general practitioners

in the medical press has not helped our cause, but it is true that general practice has become a much more complex and bureaucratic pastime, which is a fact that young doctors are picking up on now. At the same time the changes that are occurring in hospital medicine have led to greater certainty of outcome if they choose to become specialists.

CV: Besides which, medical education still hasn't really cracked the problem of giving people life skills and management skills so that they can look after themselves. New entrants to our scheme are woefully ill prepared in these areas. The 1990 contract has also undoubtedly had an effect. One of the reasons why I became a general practitioner was to be able to make choices and to be able to imprint my personality on the way I worked. The autonomy and freedom that went with general practice is something we hold very dear, and the past six years have imposed values that we've never bought. A lot of stuff has come our way with no negotiation and has reduced our sense of being in control of our professional lives, which is deeply demoralising. That demoralisation shows itself in being stubborn and wilful and resistant to change and not getting on with the jobs that can be done.

RS: The past six years has shown how incredibly efficient the old system was if it was done properly and how much it benefitted the patients. Increasingly, people who are ever more cast adrift in society come to their general practitioner, who, without being too judgmental or directive, gives them some sort of sense of where they're at. That's an incredibly important part of our job, an incredibly rewarding part of our job, and it's sort of got lost.

CV: We have a lot of work to make up in managing patients' expectations, but the bedrocks of primary care—the variety, the patients, the stories, the companionship, the local contacts with hospital colleagues—are all still there. It's too easy just to see the bits that put you off in the short term when you're making a decision as a junior doctor.

DC: So let's move on to the junior doctors that you're training. Have the south London vocational training schemes seen number of entrants falling off in the same way that seems to be happening nationally?

Earlier this year, Clare Vaughan (centre, holding scroll) received the Fellowship of the Royal College of General Practitioners with Richard Savage (next left) and other colleagues from the south London organisation of vocational training schemes

RS: Yes we have. But what's been interesting is that we don't think the quality has been going down. We've seen numbers fall, but we've been enormously lucky that it is only this year that we haven't been able to fill our schemes—other schemes have not been able to recruit at all for the past 18 months. We've been very fortunate, possibly because of the innovations in training that we've introduced.

DC: How did they come about?

CV: We had a think tank of course organisers about two and half years ago, when it became clear that there was some Tomlinson money to be used, and looked at the information that had come into us from the half day release and the peer support programmes to find the dissatisfying parts of training. Part of the problem lay with the senior house officer jobs—some were very rigid and inappropriate—but we also found that trainees' expectations were different. Fifteen years ago if you hadn't got into a partnership within six months of finishing training you had a problem—that attitude has just turned completely round.

So we set up innovative posts more appropriate for excellence in the inner city, had a marvellous sort of gardening programme in our current jobs to make sure that education and service were balanced again, and interviewed all those who'd trained in south London over the past five years to get their views on training and to find out what were they doing now. Lastly, we addressed the problem that the graduates from three year vocational schemes are regarded as fully fledged—but they're not.

RS: What we discovered was that half of our product from Guy's and St Thomas's Hospitals had disappeared—gone off to Australia or New Zealand or got out—but, even more interesting, half of them came back to be doctors in south London after a number of years. We looked at why they wanted to go, and they said that they didn't feel clinically fully trained—they wanted to hone their skills—and they didn't feel that they had sorted out their own lives enough to commit themselves to a life in general practice. So we set up the vocationally trained associate scheme. These are salaried jobs with three sessions in one practice, four in another, and something like a half day release course run not by a doctor but an educationalist, leaving two sessions for a project or some personal development. It also frees the associates from the managerial burdens which a lot of recently trained general practitioners shy away from. It has been very successful. It's now in its third year, and of the first cohort we have five principals out of eight, four

working in south London. We're now looking at extending this sort of training to a fifth and sixth year and tying in an education programme which can be accredited for a higher degree in general practice.

DC: You said that a lot of the old hospital posts were irrelevant to practice. What have you done to change that?

CV: We invented new posts, such as the one with the homeless, rootless, and addicted, and we paired hospital posts with their community equivalents—for example, pairing three months of hospital paediatrics with three months of community paediatrics. We've done the same with psychiatry, and even in some of the more intransigent specialties like obstetrics and gynaecology the trainees now spend a month with community midwives, with the termination service, doing early pregnancy counselling, and all of the sorts of things that you actually need for practice.

DC: And have there been cries of pain from the consultants deprived of their labour force?

RS: We've found that money is an extraordinary opiate. These are funded posts, and after 16 years of negotiation that got us absolutely nowhere we came back and said, "Right, we'll pay you for three posts," and the doors were thrown back. Interestingly, it is the young consultants that have the ability to accommodate this change. King's College Hospital produced a very good scheme with the help of the young consultants which was actually aimed at women's health rather than traditional obstetrics and gynaecology, and we've been able to replicate this at Guy's and St Thomas's Hospital.

DC: Is the logical extension of your scheme for trainees to spend all of their time in general practice and go into the specialist environment when they have something specific to learn from it?

RS: We want to do this, but I think that the profession's administrators will strongly resist it. Ideally, trainees would be based in general practice for three years, with tailor made packages each of less than six months in the specialties. There would be less of a service element to them, so the money would have to be found to pay for the education.

CV: This approach mirrors the changes that are taking place in specialist training, and one of the things that we've been trying to do with these innovations is to point out to our hospital colleagues that we can be useful to them as they implement Calman. We've got 25 years of experience of formative assessment, which is not the traditional teaching hospital mode, and they've got to get some of that into Calman. It is about making the division between primary and secondary care less rigid and less traditional. The thing that I think that we need at the moment is the confidence to carry on doing it. It is going to be very difficult for us to manage after Tomlinson unless someone picks up the tab, frankly, and unless someone does so, all this will just be lost.

DC: I wonder if the things that you're doing—high quality experiential learning, protected time for education—are setting people's expectations up too high, and don't carry through into practice?

RS: Well, the Guy's and St Thomas's scheme has had this philosophy since the mid-1970s, and the spin off from that has been that we've had young practitioner groups since then. All you've got to do is find four or five other doctors who want to meet, and meet month after month after month. No one's bothered to write it up because it works.

CV: From the other perspective, when I worked as a GP tutor we changed the lecture programme to a Friday club with lunch and parking and all the things that would bring 'em in. Then we started to inch funny bits into the

standard programme: we asked them to bring things—an account of a patient, or an idea; or we'd hand over sessions to individual general practitioners. And they were very popular—everyone wanted to turn up to hear the neighbouring practice talk about how they tackled a problem. We played with this for about 18 months, and evaluated it every term, and, although the wonderful lecture from Mr So-and-so about such-and-such always came top in the evaluation, and the other things below it, they still came every week.

RS: Whilst we evangelise about our view of the world, and what we're trying to establish, it's only a part of the way. There are some doctors who would not like to learn in this way, and that's perfectly OK. But there are some doctors who would actually benefit from this, and we don't want to deprive them of the opportunity. Both approaches are valid.

I think that our scheme is valuable in that it exists, but I don't how you broadcast that, especially to people who

may not even begin to understand what it is that we're trying to do. General practice has come of age and its training should no longer be an add on to the hospital specialties, which is how it started off in the 1970s. Vocational training has probably been the single most brilliant innovation in training that this country has produced this century, and yet it is still hanging on the coat tails of the hospital specialties. That's not to say that we don't need the hospital specialties: we do need them and we need their expertise, but we need it in a different way, and it needs to be part of a partnership, not something that is handed down as a grace and favour.

CV: The one thing that we don't need is more research with its inevitable five year lag time. Yes, we're taking risks, but we think we're the best bet that's on offer for giving young principals a sense of general practice as a journey, not a career plateau from which you die in harness at the age of 67—dreadful thought!

Lesson of the Week

Cholesterol emboli may mimic systemic vasculitis

D S Peat, Peter W Mathieson

Multiple cholesterol emboli may cause symptoms, signs, and laboratory abnormalities indistinguishable from those of primary systemic vasculitis

The clinical syndrome resulting from multiple cholesterol emboli is a great mimic. Many organs may be affected: typical features include a purpuric rash, livedo reticularis, myalgia, and acute renal failure. Cholesterol emboli may complicate cardiac catheterisation or arteriography, or they may occur spontaneously, even in patients without previously known vascular disease.

We report on a 73 year old man with acute renal failure in whom clinical signs and laboratory tests suggested a pulmonary-renal syndrome caused by systemic vasculitis but who turned out to have cholesterol emboli. The treatment and prognosis of the two conditions are radically different.

Case report

A 73 year old man was admitted to our hospital with rapidly deteriorating renal function. In the referring hospital chest pain and hypertension had been treated with nifedipine and aspirin. Initial plasma urea concentration was 17 mmol/l and plasma creatinine concentration 222 μ mol/l. Over the next two weeks he became oliguric and plasma biochemical values deteriorated.

On transfer he was unwell with severe dyspnoea at rest, repeated haemoptysis, and profound oliguria. Chest radiography showed bilateral alveolar shadowing. Blood gases while breathing air showed a partial pressure of oxygen (P_{O_2}) of 8.6 kPa, partial pressure of carbon dioxide (P_{CO_2}) of 2.3 kPa, and hydrogen ion of 91 nmol/l. Plasma urea was 65 mmol/l, plasma creatinine 823 μ mol/l, haemoglobin 112 g/l, total white cell count $24.6 \times 10^9/l$, predominantly of neutrophils, but the eosinophil count was $0.44 \times 10^9/l$. Indirect immunofluorescence showed him to be positive for antineutrophil cytoplasmic antibody; antiglomerular basement membrane antibodies were not detected.

Haemodialysis was started, with ultrafiltration to remove fluid, but 12 hours after admission he had deteriorated, with increasing dyspnoea and further haemoptysis. P_{O_2} was 7.7 kPa while breathing 35% oxygen. He was transferred to the intensive care unit and treated with antibiotics, physiotherapy, and 60% inspired oxygen. A

presumptive diagnosis of pulmonary-renal syndrome due to systemic vasculitis was made, based on the rapidly deteriorating renal function, increasing respiratory distress despite fluid removal, and the positive antineutrophil cytoplasmic antibody titre.

Treatment with prednisolone and cyclophosphamide was started; haemodialysis was continued. Five days later his breathlessness was much improved and he was well enough to undergo percutaneous renal biopsy, which

Fig 1—Cholesterol clefts in afferent arteriole supplying glomerulus (haematoxylin and eosin)

Fig 2—Cholesterol clefts surrounded by inflammatory cells, extending through vessel wall, with disruption of smooth muscle cells (methenamine silver)

Department of
Histopathology,
Addenbrooke's Hospital,
Cambridge
D S Peat, senior registrar

Department of Medicine,
Addenbrooke's Hospital
Peter W Mathieson, senior
registrar

Correspondence to:
Professor P W Mathieson,
Academic Renal Unit,
Southmead Hospital, Bristol
BS10 5NB.

BMJ 1996;313:546-7