Medical education in the USA – adult-friendly?

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Summary

In the United States of America, the Area Health Education Center (AHEC) system of training residents has allowed high-quality postgraduate education to flourish. This paper describes the evolution of the AHECs in the context of medical education over the past 50 years. The arrangements for programme administration and design, resident assessment and appraisal, training of trainers in educational methods, and the accreditation of training programmes are discussed. The fast-evolving UK postgraduate education scene can learn some useful lessons from the US system.

Keywords: education; USA

In the USA, as in Britain, the rising costs of healthcare have led to changes in the way that funding is provided. Some of these changes impact directly on medical education which is not, separately funded in the US. Despite these difficulties, teaching enthusiasts provide outstanding education for residents, employ adult education principles widely and approach their teaching in a scholarly way.

During a month-long fellowship visit to North America in April/May 1997, sponsored by Wyeth Pharmaceuticals and the National Association of Clinical Tutors, I was the guest of the Area Health Education Centers (AHEC) in North Carolina and in Massachusetts, where the primary mission to educate doctors has led to interesting initiatives.

US medical education in the last 50 years

Since 1989 in the UK, the cost of training of junior doctors is separated from the cost of clinical services. Training costs are met by the postgraduate deans, who also set the required educational standards.

In the USA, funding arrangements for postgraduate (residency) training are more complex. The National Institutes of Health (NIH) distributes some 7 billion dollars annually for medical research which goes mainly to university medical schools where it is used, in addition to research, to support residency programmes. Units training doctors also benefit from federal money as part of Medicare income, which is paid for medical services to the elderly by any healthcare provider but more generously to units hosting residency programmes. Medicare income for training is calculated partly according to resident numbers

(unevenly, however, as historical costs were used to establish these payments; some New York hospitals receive \$200 000 per resident, others in the union only \$60 000). Medicare income also relates to volume of clinical work done by the units, which can increase their income to help with training costs by attracting more patients.

In the 1940s to 1960s teaching establishments competed vigorously for NIH dollars and the success of each department depended on its research output. In the 1970s to 1990s the emphasis in university departments of medicine is moving towards attracting Medicare and private health insurance income, which depends largely on volume of service provided. In neither era has education in the academic centres been funded expressly but has occurred in the slip-stream of the 'more important' (directly funded) activities of research and direct healthcare.

There are two parallel university systems in the US, private and state. The private sector, which includes such venerable universities as Harvard, Duke, Tufts, and Boston, are supported by philanthropic trusts (sometimes, as in the case of Duke in North Carolina, founded on the tobacco industry, to the continuing embarrassment of its alumni). State universities, such as that of North Carolina (the oldest state university, founded in 1789) and Massachusetts, are funded from state-raised taxes. It costs undergraduates about \$7000 a year to attend a state university, and \$25 000 to attend a private university, although numerous bursaries and scholarships are available for the less affluent. These institutions all provide undergraduate, postgraduate (residency), and continuing medical education based in their university hospitals and departments of family practice and compete for NIH, private insurance and Medicare funds to support them. Hospitals training residents receive a greater payment from the Medicare budget per clinical case treated, in recognition of the costs of training. This extra money is known as the 'pass through'.

In the past, patients have occasionally been treated by residents and had little or no direct contact with a trained specialist. This led in one famous case to the University of Pennsylvania Hospital being fined \$30 million for double billing (the specialist sent personal bills for patients seen by his juniors when he was away on vacation). From July 1996 Medicare payment rules for teaching doctors specify clearly that the attending physician (consultant) must personally see each patient, take a

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history, examine, make clinical decisions and document the findings in the notes to justify payment. These rules mean that each attending physician must spend more time personally with patients, which has led many to complain that this leaves too little time for teaching and direct supervision of residents.

The notion of a conflict between service provision and time for other activities, especially training, will be sadly familiar to consultants in the UK, under constant pressure from their employing Trusts to bring in more purchaser income every year. We, however, have the power and money of the postgraduate deans to support us in our efforts to maintain and improve the training we provide for tomorrow's specialists. In the US, the funding for training is not given to an agency charged with the accreditation of residency programmes, as it is to the UK postgraduate deans. Many I spoke to in the USA wish it were.

Adult education principles in US post-graduate education

THE ROLE OF THE AHECS

For reasons already given, medical education in the US has not always received as much time, attention and funding as it could have. The initial objective of most qualified doctors was to specialise; that way lay wealth and status. In the late 1960s the specialty of family medicine gradually took shape, however, and it became the policy of state and federal government to encourage more doctors to enter it. Many, particularly poorer and rural, parts of the nation were under-provided with even basic medical services and this led to the development of the AHEC programmes.

In 1972, a highly influential policy document, *Medical education and the nation's health*, was published by the Carnegie Commission.¹ It prompted government to use the incentive of good, well-funded postgraduate training programmes in general (internal) medicine, paediatrics, obstetrics/gynaecology and family medicine to attract newly qualified doctors to communities away from academic centres. The goal was to encourage these doctors, once trained, to settle in the same area to practise. These AHEC programmes were eventually set up in 40 of the 50 states.

The AHEC programmes have a primarily educational function and are funded by state governments (although federal money was provided to set them up). Those in wealthy states are better funded than those in less well off states. North Carolina, a relatively wealthy state, opened its AHEC programme in 1972 and extended it state-wide in 1974. It is regarded as among the most successful in the union. This success has had much to do with the energy and vision of Dr Eugene Mayer, its director until his premature death in 1995. The programme's goal is "to meet the primary health care needs of the state by improving the distribution, retention and quality of health care professionals". This now includes nursing, dental and public health studies, pharmacy and

rehabilitation therapists. The educational remit of the AHEC extends to the provision of continuing medical education for practising healthcare workers.

There are nine AHECs in North Carolina. Since 1974 nearly 600 new primary care residency positions have been established, of which AHECs support 290. Since 1977, 61% of the AHEC trained family practice residents have stayed in the state to practise and about 40% of these have settled in towns with populations under 10 000. The mission of the AHECs to increase the availability of family and generalist practitioners in the more remote parts of the state is gradually being achieved.

Another, more prosaic, incentive to practise in remote and ill-served areas of the US is financial. Many doctors have had to borrow to go through the expensive medical training and qualify with debts of as much as \$50 000—70 000, increasing with interest every month. Despite reasonable salaries for residents many find it impossible to get on top of these debt burdens. For these doctors Public Health Service Scholarships are available, which offer 'forgiveness' of loans in exchange for years working in less desirable, more deprived parts of the country.

There are parallels between the AHECs in the US and general practice training in the UK. In both cases a new start, some 25 years ago, concentrating on the importance of training doctors, allowed standards to be set against which training could be monitored. In the USA, as in the UK, educationally enthusiastic community-based doctors were ahead of their hospital colleagues in the application of known adult education principles to the teaching of juniors, and still lead moves towards the wider application of these valuable ideas. The US Society of Teachers of Family Medicine, with a membership of thousands, sets the national pace in this area. The society promotes a scholarly attitude to medical education. A visit to one of the society's annual meetings is an enormously stimulating experience for any UK doctor with an interest in education.

FACULTY DEVELOPMENT DEPARTMENTS: THEIR ROLE IN TRAINING TRAINERS

The success of the North Carolina AHECs in recruiting residents relies in part on the reputation the posts have developed for providing good training. The trainers are all faculty members of the University of North Carolina at Chapel Hill, the headquarters of the AHEC administration. They are generally doctors who are attracted to the work by its emphasis on training, unlike some others for whom teaching is a duty accepted only for the access it provides to clinical activity. The university, like many in the US, has a Department of Faculty Development, which addresses the needs of faculty members to improve their skills in non-clinical areas, including research methods, management, and education.² At the Department of Faculty Development of the University of Massachusetts, for example, 80% of the department's activity is devoted to improving teaching skills. Most new faculty members

attend a protracted course during their first year on the staff. The department staff includes adult education experts, who have developed specific courses for faculty members interested in deepening their understanding of adult education principles and their applications in resident training.

Good educational practice in residency programmes in the AHECs

RECRUITMENT OF RESIDENTS

Each of the residency programmes in North Carolina has considerable freedom to construct its training schedule. The director of the programme takes charge of the arrangements and ensures that residents are satisfied. The units all produce professional, glossy brochures, designed to attract applicants, which describe the programme curriculum, facilities for learning and clinical practice, evaluation and assessment arrangements, details of the training sessions available, educational supervision systems in use, and gives a photograph and profile of each trainer. The splendid brochure of the Asheville AHEC includes photographs of the wonderful mountain scenery and describes in irresistible terms the quality of life to be had there. These brochures reveal the characteristic American pride in what they do well and a willingness to be compared to others. How many UK senior house officer and registrar training programmes produce information of this quality for potential applicants? Perhaps we should be more willing to promote ourselves and what we are proud of in our teaching and to set out in detail our educational achievements for the information of would-be trainees and to challenge other units to better us.

TEACHER:PUPIL RATIOS

Training is the prime function of the AHECs and the generous funding available allows a good level of dedicated time for training. The level of supervision provided for each resident depends on the resident's seniority and on recent assessments of their progress. At the start, for example, of the family practice residency at Chapel Hill, a resident will see new out-patients alone, but a preceptor will always be on supervision duty in the next room to discuss the patient when the resident has seen them and will then review the patient with the resident. At the Asheville AHEC each resident seeing out-patients is watched on a video monitor in the next room by a preceptor, taking notes on the consultation for constructive feedback afterwards. At the general (internal) medicine residency programme in Greensboro, the three on-call residents will together see, on a 24-hour emergency take, about six patients. The attending (consultant) spends 2 hours the next morning reviewing the admissions on the round, extracting every last drop of teaching value from each case. This firm of a consultant and three residents might be on take for 5 months on alternate days. It will admit the 'indigent' patients who present to the hospital,

ie, those not covered by an insurance scheme and thus paid for by Medicare or Medicaid.

These enviable service-based teaching opportunities arise because the service does not depend for routine clinical work, as it does in the UK, on the trainees. Most hospitalised patients with medical complaints (the Greensboro hospital would admit a total of perhaps 60 per day) are covered by private policies of some kind and are cared for by specialists, working sometimes with a physician's assistant but not normally with a resident. AHEC residents are trained by doctors who are not only enthusiastic trainers but are paid to train in protected time.

RESIDENT ASSESSMENT AND EDUCATIONAL SUPERVISION

In order to pass on from the programme qualified as an internist, paediatrician, family practitioner or obstetrician/gynaecologist, the resident must pass the relevant board exam, for which a curriculum is set. This is a knowledge-based assessment, usually multiple-choice questions. The candidates are provided with a structured programme of tutorials geared to this exam, with at least one session per weekday. Clinical skills and proper professional attitudes, on the other hand, are assessed during service work. This is the responsibility of the residency programme director, who is required by the specialty board to confirm that the resident is 'board eligible', that is, clinically competent and demonstrating, in daily work, proper professional attitudes. Only then may the resident sit the board exam. There is no formal, external, clinical examination analogous to MRCP part II.

In the first few weeks of the residency, each resident is observed taking a history and examining a patient, by a preceptor, who helps to clarify learning needs and confirm basic competence. The process takes about two hours. Further observations, often on video monitor, are routinely made through the programme. The preceptors keep written reports on the residents for later formal review and feedback. At Greensboro, six video recordings of each resident in consultation are made during the 3-year internal medicine programme and are reviewed by all the residents together, with a preceptor, for purposes of learning and formative assessment. Most programmes employ behavioural therapists (psychologists) who also supervise and help residents develop better consultation and communication skills. 'Standardised patients' are widely used for consultation training. These are trained mock patients, often unemployed actors, able to give convincingly realistic histories and even clinical signs. They are valued by the trainers as a means of ensuring that residents are exposed to certain important clinical presentations and that fair comparisons between residents' performances can be made. Practical skills such as arterial puncture, central line placement and pleural aspiration and biopsy are taught by senior residents. At the Wilmington internal medicine residency a 'procedures book' is maintained which records

the number of these procedures each resident has done, who supervised, and whether the resident has successfully completed the required minimum, at which point they may in future proceed unsupervised.

Regular assessments of residents' attitudinal development are also made. Since this involves assessment not just of competence but of day-to-day performance, the assessment requires input from various staff members who work with the resident. Nurses, midwives and other residents, as well as the trainers are therefore required to complete assessment forms on the trainees. These cover punctuality, politeness to patients and other staff, response to requests for patient review, willingness to help out colleagues, personal cleanliness and presentability, and other desirable qualities for a doctor.

The residency programme director chairs routine family 'resident review meetings', at which residents' progress and assessments to date are discussed by all the involved trainers. At the family practice residency at Chapel Hill, the committee includes a senior nurse and a behavioural therapist. These meetings are confidential. Each resident is considered individually in their absence and contributions are expected from all those who work with them. Efforts are made to identify areas of weakness and to establish further learning objectives for the resident. Subsequent feedback to the residents is given individually by their nominated educational supervisor (called their 'advisor'), who meets with them routinely to review any problems and plan learning goals.

TRAINING THE TRAINERS

Faculty Development departments (*vide supra*) provide a number of training courses for the improvement of teaching skills. The Teaching Scholars Programme,³ set up by the lead educationist at the University of North Carolina Faculty Development Department, Frank Stritter, enrolls 10–12 enthusiasts each year in a 2-year programme of seminars, practicals and a publishable research project, designed to enable participants to appreciate the scholarship of instruction. The aim is to raise the status of teaching as a faculty responsibility. In this it does seem to have succeeded; 25% of the attendants to date have been full professors and all specialties have been represented. Department heads nominate applicants for the programme. At the end of the course a graduation ceremony, presided over by the Dean, is held at which a distinguished guest gives an address on an education-related topic. A fellowship ethos has developed among the faculty who have graduated from the programme, who are looked to as expert resources in education for their departments. Many go on to act as course facilitators themselves and most take some formal educational responsibility. The research projects of scholars have led directly to policy changes (eg, the use of training portfolios). Competition to enter the programme is rising and, perhaps most important for the future, to have completed it enhances promotion prospects at the University.

Also at Chapel Hill, an interesting programme to introduce residents to education as a skill has been set up by traumatology surgeon, Samir Fakhry. This course, on Surgical Residents as Teachers, is for second year residents and covers education principles using keynote addresses, role plays, small group work and videos demonstrating good and poor practice. Groups consider tasks such as to devise tips for teaching on ward rounds, in theatre, on the phone, in the corridor, in the clinic, etc. In their fourth year the same residents return to act as teachers on the course themselves and demonstrate their mastery of these skills to the second years.

At the Massachusetts University AHEC, the Faculty Development department runs a programme of four 2-day modules for trainers, 'Focus on teaching of tomorrow', and have also produced a training pack for faculty who are involved in teaching these teaching skills to the AHEC doctors, the Primary Care Futures Project. This covers the Malcolm Knowles' theory of pedagogy and andragogy in teaching, the educational cycle (using the acronym GNOME: Goal–Needs assessment–Objective setting–Method selection–Evaluation) and the model of 'teaching styles' whereby different styles are promoted as appropriate for different situations and individuals and trainers are encouraged to know their preferred (default) style and to vary it. The pack also contains 'networking lists' of useful contacts and experts prepared to act as resources and give advice.

RESEARCHING EDUCATION IN MEDICINE

The Society of Teachers in Family Medicine promotes medical education as a scientific discipline. The Society's very existence celebrates a belief in medical education as a specialty in its own right. At the May 1997 annual meeting in Boston one emphasis was on the measuring of educational activity and outcomes. I attended a workshop, for example, on devising an objective structured teaching examination for the assessment of teaching skills. This technique, still novel, can be used to evaluate the outcomes of 'Training the trainers' courses or simply to check the understanding of basic teaching skills by new staff members.

Residency programme accreditations in the USA

In the USA, the first 3–5 years of postgraduate education are spent on residency training programmes in hospitals or family practices. Further training, in subspecialties, may be obtained on fellowship programmes based in academic centres. The Accrediting Council for General Medical Education (ACGME), a national body based in Chicago, is responsible for confirming the educational suitability of all proposed new programmes and conducts regular programme reviews to ensure ongoing suitability.⁴ The ACGME discharges this responsibility through its 25 Residency Review Committees (RRCs), one for each of the primary specialties. The ACGME sets out standards which apply to all units hosting resi-

dency programmes, referred to as 'general requirements'. Each RRC sets standards for length of course, content of programme, levels of supervision, hours of work, availability of specific learning resources, etc, which are set out clearly as 'special requirements'. Both general and special requirements for each specialty are published annually.⁴ Each residency or fellowship programme is run by a programme director, whose responsibilities are also clear. For example, it is stipulated that "... residents should be involved in creating and revising the curriculum document and the programme-approved document should be distributed to and discussed with all residents, particularly as they start new rotations ...". The sponsoring unit is expected to provide an environment conducive to learning, assistance and support to the programme directors, assurance that residents are properly supervised, evaluated, and counselled, and to ensure that necessary educational resources are available. High standards for educational practice are set by the ACGME and monitored by the RRCs.

RRC CONSTITUTION

Each RRC has 12 members; four are nominated by the American Medical Association, four by the appropriate specialty college or society (eg, the American College of Obstetrics and Gynecology), whose concern is primarily educational, and four by the relevant certifying board (eg, the American Board of Obstetrics and Gynecology), which certifies doctors as qualified to practise in the specialty upon completion of training and sets the examination that must be passed.

RRC ACCREDITATION PROCEDURES

Each RRC reviews about 120 programmes every year. Clearly members cannot carry out all these assessments in person and the procedure used is as follows. When a programme director notes that his/her programme is due for review he/she applies to the relevant RRC. The RRC then arranges for a visit to the centre running the programme by one of its dedicated 'field surveyors'. These are workers employed specifically for the purpose of programme evaluation and are highly trained, usually holding a PhD in education. For the visit the programme director is required to provide details of the unit's facilities, workload, research activity and publications of each teaching (faculty) doctor, educational activities (including attendance registers), documentation on educational supervision sessions, outcomes of exams taken by residents, hours on and off duty, and other evidence of compliance with the general and special requirements. An 'institutional review' is also undertaken by one of the RRC's field surveyors in a given period; this examines areas touching on the education of all specialty residents (eg, the library, accommodation, etc), and is then available to other RRCs due to inspect programmes at that unit. The field surveyor interviews residents and clinical teachers in the programme and produces a report, drawing attention to the

strengths and weaknesses of the programme and to any failure to meet the standards of the general and special requirements. This report is forwarded to two designated RRC members who, without conferring, decide what they think of the programme. The full RRC meets twice a year to review the recent reports, which are summarised by the pairs of RRC doctors, still without prior conference. The whole committee then normally produces a formal paper citing the programme for good practice, for 'non-compliance' in any area, or as 'causing concern'. Only in case of serious concern does a 'special site visitor' (a senior doctor, usually a past RRC member) visit the unit personally. This is a major step, often the prelude to withdrawal of programme recognition. Provided the initial field surveyor's report is satisfactory the RRC will normally confirm ongoing recognition and advise a date for the next review, from two to four years ahead.

NEW PROGRAMMES

The programme director for any proposed new residency programme must submit to the RRC an application which, if it promises compliance with the general and special requirements, will receive provisional accreditation for a period of no more than 4 years. After this time a formal visit takes place, leading to full accreditation if substantial compliance is confirmed. In the past, this step of obtaining provisional ACGME accreditation, was the only hurdle to setting up, *and receiving automatic federal funding for*, a new residency programme. Thus the ACGME has, unwittingly, been in part responsible for the terrific growth in hospital residencies and the output in the US of vast, some would say excessive, numbers of specialists and sub-specialists. There has been no limit to the numbers of residencies that could be established, given ACGME endorsement of educational suitability.

COMPARISONS WITH THE UK

In most regions in the UK there are several bodies which visit training units to verify a good teaching and working environment. In the West Midlands, for example, regular monitoring visits to each hospital are carried out by the postgraduate dean's educational contract monitoring group, the pre-registration committee, the various Royal Colleges and, in recent years, the task force looking at compliance with the 'New Deal'. These groups each cover areas of ground which overlap. This is an unnecessary duplication of expensive time. Furthermore, much of the information needed for these bodies to make their important judgements could easily be gathered by delegated, trained visitors (analogous to the American field surveyors), thus saving hours of senior consultants' time which could more profitably be otherwise used.

Lessons for UK hospital teachers in medicine

Much of what is good in American medical teaching relies on dedicated time and money

for teachers. The notion of education as a 'medical specialty' is an interesting and, perhaps, valuable one, widely held in the US and actively promoted in the university faculty development departments. We need 'education champions' in British postgraduate medical teaching as never before, as training by the apprentice model becomes less and less realistic in the world of the 'New deal', Calman-style

specialist registrars, and modern 'minimal admission' clinical methods. We can learn much from the AHEC methods I have reported on, however, which could easily be applied in UK practice by simple organisational change. Full blooded emulation of what is best in American teaching will require more dedicated time for doctors to learn to teach better and then to go to their units and do it.

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Medical Anniversary

ARTHUR HILL HASSALL, 13 December 1817

Arthur Hill Hassall (1817-1894) was born at Teddington, Middlesex, the son of a surgeon and the youngest of five children. He became a physician at the Royal Free Hospital where a ward is named after him. He will be remembered as long as Hassall's thymic corpuscles remain ill-understood. Surely, in time, new techniques in immunology and molecular biology will shed fresh light on their function and purpose. He died on 9 April 1894 in San Remo, where he is buried. His portrait may be found at the entrance to Hassall Ward, Newport Hospital, Isle of Wight. Beneath it is the inscription:

NON OMNIS MORIAR
(I shall not all die).

D G James