Eur J Anat, 11 (Supplement 1): 105-109 (2007)

Supporting modern postgraduate surgical training programmes in the United Kingdom through greater use of cadaveric material

R.M. Rainsbury

Raven Department of Education, The Royal College of Surgeons of England, 35-43 Lincoln's Inn Fields, London WC2A 3PE, United Kingdom

SUMMARY

A new Intercollegiate Surgical Curriculum Project (ISCP) has established a new modular framework for postgraduate surgical training. The curriculum has defined the surgical standards that are required before a trainee can progress from module to module. The core conditions within each specialty module have been defined, and the required operative and other skills needed for competent management of these conditions have been agreed.

Full implementation of the new ISCP will commence in Autumn 2007. The Raven Department of Education at the Royal College of Surgeons of England (RCSE) views implementation as a major opportunity to extend the use of cadaveric material to support the new training programmes. To this end, a Core Specialty Skills Project has been launched to build on the Department's experience of practical skills courses based on cadaveric material, by improving access to appropriate facilities in regional departments of anatomy. The aims of this project are to support each module within the 9 surgical specialties by producing a range of educational materials for participants and faculty, in association with the major specialty stakeholders. Use of cadaveric material, supported by step-by-step dissection guides and integrated assessment, will be a crucial component of this programme.

Nine university departments of anatomy have been visited in England, Wales and Northern Ireland to establish the current use of these facilities and the potential for extending their use to provide Surgical Skills courses. Levels of staffing, supply of cadaveric material, current involvement in postgraduate education and the degree of interest in the extended use of services were investigated. Many of these facilities have the capacity to support the ISCP by providing regional access to cadaveric material.

Key words: Surgical training – Postgraduate curriculum – Cadaveric material

INTRODUCTION

Undergraduate medical students today face a somewhat anomalous situation when they qualify in the UK. They pass from a highly structured, relatively well-funded training programme with an explicit curriculum, delivered by faculty with defined roles and responsibilities for teaching, into postgraduate training which is entirely different. Postgraduate training programmes in the UK are

Correspondence to:
Dr Richard M. Rainsbury. Bridge House, Finches Lane, Twyford, Winchester, Hampshire, United Kingdom. Phone/Fax: +44 (0) 1962 712145.
E-mail: drainsbury@rcseng.ac.uk

poorly structured, they lack a curriculum and they are generally poorly funded. Trainers teach without well-defined roles and responsibilities, and much of the training is done on the back of good will.

This problem is heightened for those graduates who wish to pursue a career in surgery. The ever-increasing knowledge base required of medical students is squeezing the amount of time devoted to teaching anatomy, which is being threatened by an increasing number of competing interests. As a result, newly qualified doctors are in double jeopardy. On the one hand, opportunities to learn anatomy are being limited before qualification, while on the other hand there are even fewer opportunities to rectify this situation during the early years of after qualification. 'Foundation' doctors in the first two postgraduate years are now expected to demonstrate a range of generic professional skills before acquiring specialty-specific skills, such as a knowledge of 'surgical' anatomy.

This article sets out the ways in which postgraduate surgical training is being supported through the development of a new surgical curriculum and by the introduction of new initiatives to increase the use of cadaveric material to enhance anatomical knowledge and surgical skills.

These developments will be considered under four main headings:

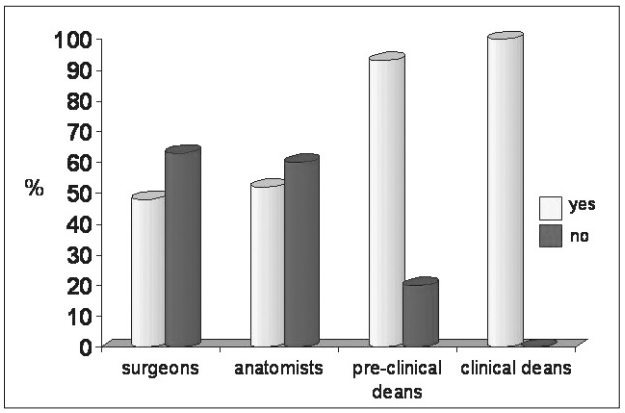
- Current undergraduate teaching of anatomy
- The new Intercollegiate Surgical Curriculum
- Central initiatives to increase access to cadaveric teaching
- Regional initiatives to improve availability of teaching.

Current undergraduate anatomy teaching

A survey carried out on behalf of the British Association of Clinical Anatomists (Gogalniceanu et al., 2006) was sent to 15 UK medical schools. Responses from 13 led to four main conclusions about the current provision of anatomy teaching.

First, the overwhelming majority of anatomy is taught in the first two years at medical school, with little evidence of integration of anatomy teaching with clinical studies throughout the undergraduate curriculum. Second, dissection is still used by a large proportion of medical schools, although it may be gradually phased out with the progressive introduction of non-science subjects into the undergraduate curriculum. Third, the mean time devoted to teaching anatomy in the UK is comparable to that in other western countries, but is lower than before. Lastly, the views of anatomy teachers and of surgeons regarding the adequacy of anatomical knowledge are at marked variance with the opinions of the deans of medical schools (Figure 1).

Figure 1. Proportion of respondents confirming that newly qualified UK doctors have an adequate level of anatomical knowledge (from Students' Anatomy Teaching in the UK study).



As a result of this survey and rising concerns about the demise of anatomy teaching in the UK, there is an urgency to encourage Departments of Anatomy and Surgery to collaborate in new initiatives which support postgraduate anatomy teaching, particularly anatomy which is relevant to surgical procedures. This should be readily available at all levels of training, and based on national standards embodied in a national curriculum. Moreover, the traditional model where the bulk of anatomy is taught in the first two undergraduate years should be reviewed. Opportunities for integration with clinical training through specialty modules and projects for those students pursuing a career in surgery should be developed and expanded.

The New Intercollegiate Surgical Curriculum

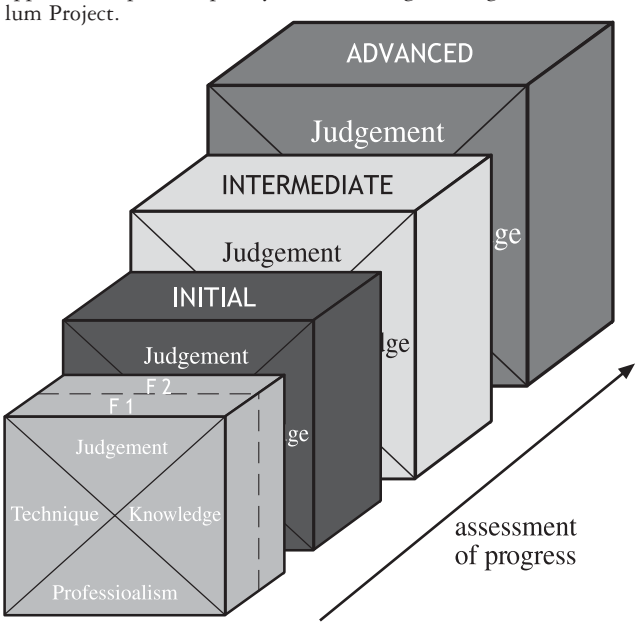
The relatively unstructured approach to postgraduate surgical training in the UK, coupled with a need for uniformity with other countries within the European Community, has led to a major reform of postgraduate training and education. This was embodied in a major initiative, the Modernisation of Medical

Careers (MMC) project, which was launched by the Chief Medical Officer in the UK in 2003 (UK Department of Health, 2003). MMC proposed postgraduate training programmes which are structured, modular and modern in design. In addition, they allow much greater flexibility to meet the rapidly changing needs of the National Health Service, as well as the needs of trainees wishing to take career breaks for research or other reasons. Moreover, the new programmes provide international uniformity and compliance with the European Working Time Directive.

The Intercollegiate Surgical Curriculum Project (www.iscp.ac.uk/) was developed in response to the MMC project, and has enjoyed a high level of support from a wide range of stakeholders. These include the Department of Health, who funded the project, and the MMC group, as the new curriculum has generated a framework which is relevant to all medical disciplines. The ISCP has also enjoyed support from the four Royal Colleges, the Specialty Associations and the Postgraduate Deans. The project has evolved through four phases – curriculum development, a needs assessment, national pilots to test new strategies, and finally full implementation which is taking place in 2007.

A new educational model has emerged during the development of the ISCP (Figure 2). It describes a structured apprenticeship which is embodied in the training programme. This programme is divided into three modules – initial, intermediate and advanced. For each module, the explicit incremental standards in the domains of judgement, knowledge, professionalism and technique have been identified and agreed. Progression from module to module is dependent on the assessment and demonstration of competence in each of these domains, in all 9 surgical specialties.

Figure 2. Educational model representing the 'structured surgical apprenticeship' developed by the Intercollegiate Surgical Curriculum Project.



One of the major developments of the new curriculum is support for the principle of competence-based progression, rather than progression based on 'time served'. Moreover, in the domain of knowledge, the standards regarding the knowledge of surgical anatomy required in each module are being developed. An appropriate level of anatomical knowledge based on an agreed standard will have to be demonstrated before progression from module to module can take place.

The Postgraduate Medical and Education Training Board (PMETB) is a new regulatory body which is responsible for the assessment, quality assurance and accreditation of postgraduate training programmes, based on a range of agreed standards. In surgery, compliance with the standards laid down in the ISCP will be a key factor in the assessment exercise. Moreover, any training programme which fails to provide the core components of the curriculum, including experienced faculty, methods of assessment, facilities and educational technology, including inanimate and cadaveric models, will risk loss of accreditation and ultimately, loss of recognition. For the first time, the ISCP provides a very powerful lever to ensure the provision and maintenance of adequate resources for postgraduate surgical education. It also meets the need for a more explicit, structured approach to surgical training, delivered in a shorter working week. It has highlighted the requirement for cadaveric facilities, coupled with an initiative to provide regular cadaveric teaching, both centrally and in a wide range of regional university facilities.

Central initiatives to increase access to cadaveric teaching

With the opening of the Raven Department of Education at The Royal College of Surgeons of England (RCSE) in 1993, the role of the College changed overnight. Up until then, the College had been responsible for certification of the training and education of surgeons by holding examinations, and by

issuing diplomas to successful candidates. By establishing this new Department within the College's central London building, the College's role was extended to become a provider of education. This led to the development of a wide range of surgical workshops, teaching practical surgical anatomy to postgraduate trainees, as well as to consultants.

Over the intervening 14 years, these workshops have expanded to provide hands-on training for all 9 surgical specialties. In 2006 alone, the Department organised more than 60 practical anatomy workshops in all specialties, catering for all levels of experience. Moreover, the new Human Tissues Act of 2004, which came into force in September 2006, will facilitate much greater use of cadaveric material for surgical training in the years that lie ahead. New aspects of this Act which will improve access to human material include:

- A single, standardised, signed and witnessed consent form which will enable prospective donations.
- Specific consent for the retention or photography of parts for educational purposes can be given.
- The terms of donation will for the first time enable the explicit use of cadavers for demonstrating and practicing surgical techniques.
- The rules on the length of retention of body parts have been relaxed.

In light of the developments heralded by MMC and the ISCP, the RCSE has developed central and regional strategies to provide practical support for postgraduate surgical training at all levels. The central strategy is embodied in the Eagle Project, a multimillion-pound project to redevelop the anatomical workshops and education facilities in central London, coupled with the development of a range of new specialty course materials (Rainsbury, 2006). The Eagle Project will provide a large spacious innovative cadaveric workshop in a modern, state-of-the-art environment. The workshop will incorporate the very latest educational technology and equipment and will accommodate up to 50 participants. Eight bespoke stainless steel operating tables will be arranged around a central convenor's table. All tables will be fully height-adjustable and air conditioned, and each will be served by a range of services, including suction, aspiration, irrigation, AV, IT, fibreoptic lighting and equipment for image-guided orthopaedic and neurosurgical procedures. This facility will make a clear statement of the RCSE's support for the continued use of human cadaveric material in surgical training at all levels of experience.

At the same time, the Raven Department of Education is reconfiguring a wide range of specialty courses based around practical anatomy workshops, to support the new ISCP. Key procedures which have been identified within the new specialty curricula are being incorporated into ISCP-based courses for trainees at initial, intermediate and advanced levels of training. Cadaveric models, dissection guides, synthetic models and animal models comprise the core educational materials supporting these curriculum-based courses. In greater London alone, it has been estimated that the number of courses will have to increase by 60% by 2008, with a doubling of the number of participants to meet the needs of more structured training programmes. The use of anatomical material for training will escalate in step with the anticipated rise in demand for this increasingly popular approach to surgical training.

Regional initiatives to improve the availability of cadaveric teaching

The RCSE has already established partnerships with 6 University Departments in regional universities to enhance surgical education through the greater use of anatomical material. The current programme of courses caters for junior surgeons entering the early years of general surgical training. A National Surgical Anatomy Project has been launched to expand the availability of this kind of teaching be increasing the number of university partnerships (Rainsbury et al., 2007). The purpose of this project is to widen the provision of courses to include more senior trainees, and to make this kind of teaching more freely available to a much wider range of surgical specialties.

Ten university departments of anatomy have expressed an interest in working with the RCSE to extend the use of their facilities to provide access to a new range of courses for postgraduate surgical trainees. A survey of these departments has confirmed a high standard of facilities and of cadaveric preparation. All have the capacity to expand their activities and all have expressed interest in taking on

new work, with the attendant opportunities for staff development and expansion. Most expressed concerns about securing enough cadavers to meet the projected increase in demand, attracting sufficient faculty for training, and finding resources to organise and deliver a regional programme. Fifty per cent of centres visited already support specialty skills courses using cadaveric material, and 60% reported an adequate supply of cadavers.

New systems of quality assurance and accreditation are being developed by the RCSE to support the ISCP. These will encompass trainers, programmes, courses, materials and methods of assessment. The American College of Surgeons has recently developed a system for the accreditation of educational institutes (Pelligrini et al., 2002). There is growing acceptance of the central role of cadaveric material in the training of the next generation of surgeons. The development of systems for quality assurance and accreditation of skills facilities for postgraduate use is likely to have a significant effect on traditional roles and responsibilities of University Departments of Anatomy, and on the use of cadaveric material for surgical training in the foreseeable future.

Conclusion

Changing undergraduate medical curricula and a new postgraduate surgical curriculum are leading to an increased demand for more structured training through the greater use of human cadaveric material. A range of central and regional initiatives are being implemented in the UK to meet this demand, and to support radical changes in the structure of postgraduate training and in the methods of training. New systems of quality assurance and accreditation are being developed to support these changes and to ensure consistency and to maintain standards.

Acknowledgements

The author thanks Dr P Gogalniceanu for permission to use Figure 1 from the Students' Anatomy Training in the UK (SATUK) Study.

References

Gogalniceanu P, Fitzgerald A, O'Connor E and Raftery AT (2005). Students' anatomy teaching in the UK (SATUK) survey – evidence and review of a national crisis in anatomy teaching. *Clin Anat*, 19: 284-289.

Pelligrini CA, Sachdeva AK and Johnson KA (2002). Accreditation of Educational Institutes: a new programme following the old traditions. *Bull and A M Coll Surg,* 91: 9-12.

Rainsbury D (2006). The Eagle Project: phase 1 begins. *Ann R Coll Surg Engl (Suppl)*, 88: 297-299.

Rainsbury D, Barbour A and mahadevan V (2007). College launches National Anatomy Project. *Ann R Coll Surg Engl (Suppl)*, 89: 19.

The Intercollegiate Surgical Curriculum Project. www.iscp.ac.uk/

UK Department of Health. Modernising Medical Careers: the response of the four UK Health Ministers to the Consultation on unfinished business: proposals for reform of the Senior House Office Grade. London: DH, 2003.