

1. Introduction

a) FOREWORD

What do we expect of the Trained Trauma and Orthopaedic (T&O) Surgeon?

The Specialist Advisory Committee (SAC) in T&O Surgery has already defined the Standard at which a surgeon would be assessed as having completed their training and at which they might be deemed ready for the award of the Certificate of Completion of Training (CCT).

“A surgeon with CCT will have been trained in the generality of Orthopaedics and Trauma when they have been assessed as having completed the competencies laid out in the Orthopaedic and Trauma curriculum. The syllabus is for the generality of Trauma and Orthopaedics and this will be assessed in the summative Intercollegiate Specialty Board Exam which trainees must have completed by the end of their training. This will form part of the trainee’s portfolio which will also include workplace based assessments, the evidence of previous learning agreements and RITA assessments. The Portfolio will be assessed in its entirety at the final RITA G assessment prior to the recommendation of the award of the CCT.

Towards the end of training in the generality of the discipline the overwhelming majority will have begun to develop a subspecialty interest prior to CCT. This will continue post CCT and is likely to be formally assessed in a subsequent peer review process.

Such an individual will then be able to join and lead a multidisciplinary team which will receive, assess and definitively manage the majority of patients who need emergency treatments. They will provide a similar service for a range of common Orthopaedic conditions. In both Trauma and Orthopaedic services they will recognise the need to refer rarer and prescribed conditions for more specialised definitive management.”

PMETB presented the partners involved in the organisation and delivery of training with the challenge to develop and introduce a competency based curriculum in which the knowledge, attitudes and skills required for a trainee to be judged as worthy of a CCT are explicitly defined and assessed.

In this document we in T&O surgery present our curriculum. The methods, syllabus and processes to deliver that curriculum are outlined together with

assessment tools necessary to ensure that the trainees enrolled in T&O surgical training from 2007 onwards can demonstrate that “The Standard” has been achieved.

The Trainees in T&O have been familiar for several years with the tools of competency assessment laid out in the Orthopaedic Competency Assessment Project. Those tried and tested tools have now been further developed and used to support the delivery and assessment of the syllabus. Trainees and Trainers alike should have confidence in processes involved and view the “New” Curriculum as an opportunity to further standardise training throughout the United Kingdom ensuring a very high quality of CCT recipient. This document is inevitably just the beginning of the next phase in T&O education. We intend to build and strengthen the process of training and assessment as the lessons from the introduction of this new curriculum emerge.

For the future we hope that all concerned, especially the Public and Patients, will welcome this initiative as being in the best interests of those receiving T&O care and ensure that only those appropriately supervised and trained surgeons deliver that care through out the UK .

Clare Marx
Tony Banks
Lester Sher
David I Rowley
David Pitts

b) SCOPE & PURPOSE

Purpose

This Curriculum is produced to guide Orthopaedic training in the UK by providing accessible information for both the trainee and the trainer, who are seen as its primary audience. The Curriculum aims to make the links between the surgical education process as a whole and assessment processes in particular absolutely clear. It is written bearing in mind that all of its proposals must be feasible in the present workplace not just in an aspirational future. Although the Curriculum is a technical document written primarily for a professional orthopaedic audience it also seeks to provide transparent guidance for all, in particular the general public and patients.

Target Audience

There are a number of Stakeholders for whom this document has been created:

- Validating bodies
- Collaborating groups
- Training Program Directors
- Trainers
- Trainees
- Employers

It is written for a professional audience, accessible to the general public / anyone who has a role in T&O Training.

Guiding Principles

During the development of the Orthopaedic Competence Assessment Project (OCAP, see historical overview section 1-5) tools and methodology in T&O initial interviews with trainers and trainees gave rise to a series of guiding principles. These principles informed the OCAP programme and have now been adopted to underpin the design process of the new orthopaedic curriculum.

A radical alternative

“A problem cannot be solved by the same technology used to create it” (Einstein)

In the current surgical training environment there have already been major changes that radically affect the amount of time and resources available. Designing a curriculum that merely revised the existing paperwork was never an option. It was clearly necessary from the beginning to provide a clear structure to what, in many cases, was an unstructured activity.

In designing the materials and delivering the curriculum we have tried to learn from our experience and that of others. Historically we observed in the JCHST Competence Working Party that there were difficulties moving forward that were attributable as much to change management and innovation issues as to the actual content of the assessment task. The curriculum has been designed with the intention of gaining as much support from the Orthopaedic community as possible in order to facilitate the innovation process.

Competence focused

The acquisition of operating experience is an important factor in surgical training and so any curriculum to be used “in the workplace” should be competence focused. Competence may be defined simply as

“... an individual's ability to perform in the workplace to the required standard ... competences are the descriptions of the constituent parts of performance which answer the question ‘what do people have to do to be effective in various parts of their job?’”¹

There are debates about the nature or meaning of the word competence. One conceptual standpoint states that a competence is simply a demonstrable ability to do something, using directly observable performance as evidence. Another understands competence as being a: ‘holistic integration of understandings, abilities and professional judgments, where ‘competence’ is not necessarily directly observable, rather it is inferred from performance’.²

The integration of these two aspects acknowledges a much greater level of complexity within surgical competencies and avoids the problem that individuals may well be able to demonstrate that they can ‘do’ something, but that does not necessarily mean that they understand what they are doing or why until they give evidence for it.

Within our particular competence model we must look not only for the three key domains i.e. knowledge, skills and attitudes, but also for the unique combination of those domains in areas such as professional judgement.

The development of professional judgment is a key outcome of surgical training, and allowance must be made to maintain the dynamic tension between the separate aspects of competence in an attempt to allow a clear assessment of whether a trainee possesses sufficient competence in individual skill areas to prove competence in professional judgement.³

Flexible and easy (intuitive) to use

Each programme, and every trainer, will wish to

¹ Standards in Competence Framework, UK Cabinet publication

² Michael Eraut. Developing Professional Knowledge and Competence. Falmer. 1994:172-181

³ these notes on competence are adapted from work originally written by D. Pitts for the ISCP in consultation with Danae Goodsmann

retain a degree of individuality, whether of organisation (4, 6 or 8 month attachments) or specialty selection. It is intended that the curriculum design will be able to recognise this, whilst providing a consistency of standard and outcome.

Able to adapt to new developments (open architecture)

The curriculum should not be such a ‘finished product’ that it cannot benefit from work that will not reach maturity before it is already in use. Many innovations, especially in social technology settings, have a lengthy gestation period. From the beginning, every effort has been made to ensure that the curriculum’s architecture is sufficiently open to allow synergy with new developments. A full integration of the orthopaedic curriculum with the orthopaedic e-logbook, for example, is work in progress.

Adaptable to a variety of contexts

Each programme delivers its orthopaedic service (and training) in an entirely different “geography”. If trainees are to be taught in the work place then the curriculum tools must in some way take into account this difference between the work places in which they are being assessed. These workplaces differ not only in the facilities for education but also in the length of attachments, frequency of supervised sessions and attitudes to training and teaching (naturally some of these factors vary within each centre and between trainers). T&O has tried to limit the effect of these differences by creating a “delivery mechanism” (from the OCAP) which is currently facilitating the implementation of the curriculum.

One element of the trainee’s portfolio

Much surgical training happens in midst of service delivery and is therefore subservient to the needs of the patient. This may severely limit the window of opportunity during which skills may be observed, articulated and evaluated. The hospital environment, where many trainers do not have their own office space and distractions abound, is hostile to finding time and space to meet and talk. Most surgeons join the profession to perform surgery. They acknowledge the need to train but appreciate the evaluation of training to be part and parcel of service delivery.

With these factors in mind we have tried (within the curriculum) to keep materials and systems straightforward and sympathetic to the paucity of

time in rapidly changing settings within which to learn complex concepts and tools.

Driven by the trainee

We have put responsibility into the hands of those who hold largest stake in seeing training happen – the trainees themselves! The T&O curriculum requires (and enables) the trainee to take the initiative and responsibility for their own training. The trainer is still the senior partner in the enterprise but the curriculum (through OCAP) provides tools to guide the trainee in getting the best from their trainer in a mutually supportive and mature relationship.

Useable, valid and reliable

From the beginning we have borne in mind that the materials need to satisfy these three criteria. All are thorny issues made more complex in a setting where service, which quite rightly has the patient as its focus, is the primary learning environment.

Validity

Questions of validity (truth) may be addressed in several different ways. Does the implementation of the whole system make a valid improvement in the outcomes of training? Are the index procedures selected for assessments a valid choice? Is the internal structure of each assessment valid in terms of the measures of performance it proposes?

A major problem in this area is the lack of previous measures of training effectiveness. The OCAP process came into being because there was no objective measurement of surgical competence at present. It is impossible to make comparison with anything other than examination results, which only measure a limited area of intellectual competence. Validity remains the key however, and extensive efforts have been made to find answers in this area, not only by detailed validation of index procedures and Procedure Based Assessments but also by keeping the Curriculum in such close proximity to the workplace that face validity is maximised.

Reliability

The curriculum should be understood by all (or most) in the same way. Efforts have been made to base the curriculum firmly in accepted practice so that a firm foundation of agreement can be laid for the future. Trainers will have to demonstrate competence in the use of the curriculum over time.

Usability

The circumstances in which the curriculum will be used dictate that this area is of primary concern. "It might be valid and reliable but can you use it in a practical situation?" Efforts have been made to ensure that the curriculum can be used in real life contexts within the constraints of time, user skills and attitudes.

Holistic in approach

The Competence Working Party guidelines, resonating with PMETB's own later guidance incorporated "generic skills" such as communication and teamwork into our thinking from the start. It was clear from conversations with training directors that many problems encountered amongst trainees had their roots in the area of personal effectiveness. In the past many of these problems were not identified until year 3 or 4 of training but it is desirable that they are recognised at a much earlier stage in order to ensure a solution. This also raised the problem of the trainers' ability in this area. For this reason materials have been included that will help both sides to develop their awareness and competence in these vital skills.

Formative and summative

The notion of a summative assessment where a trainer (possibly external) observes a trainee's performance in a pass/fail scenario was rejected at an early stage after two pilots. On one hand there seemed to be insurmountable logistic and resource problems but more importantly training in the workplace is an ongoing activity and assessment should resonate with its formative nature. It was decided that all workplace assessments should be formative, giving feedback to the trainee to inform and guide their future performance. It was noted, however, that such assessments would, as a whole, be a useful summary of the trainee's ability to learn and progress. The successful completion of a PBA for example is not seen as a license to operate in that procedure but as a single component of a wider assessment of the trainee's ability to learn operative procedures and perform them on a variety of patients with differing degrees of severity and complexity in their condition.

Electronic application

It has been clear from the beginning that to gather

data from a workplace based curriculum requires electronic application to facilitate this. Sadly the levels of IT "literacy" encountered in OCAP pilots were highly variable and, more importantly, access to IT resources in NHS Trusts is extremely patchy (according to 2006 OCAP data). We have therefore sought to demonstrate the possibility of an easy transfer to a digital system whilst maintaining a paper-based system as the primary resource in these early stages while agreements are reached.

c) DEVELOPMENT PROCESS FOR THE NEW ORTHOPAEDIC CURRICULUM

Creation of the new Orthopaedic Curriculum could legitimately be seen as evolutionary based on consensus within the profession. The present work builds on substantial foundations laid over a period of years by a variety of individuals.

• Pre 2001

At this point the orthopaedic curriculum documents were in the form of the BOA's "blue book", syllabus of Clinical Knowledge which has formed the foundation for the present Applied Clinical Knowledge syllabus. This was agreed after extensive consultations by the Education Committee of the BOA in partnership with the Specialist Associations. At this point a number of experiments were already underway on the use of Learning Outcomes and development of Learning Agreements although very little had been produced in a coordinated form. Experimental developments in competence assessment had been undertaken as early as 1994 (Pitts, Ross 1994) and in the latter part of this period, following on from the Bristol enquiry, the JCHST formed a Competence Working Party under the Chairmanship of Professor Galasko.

• 2001 – 2006

The JCHST Competence Assessment Working Party met for a three year period under the chairmanship of Prof Galasko. Its recommendations were accepted in 2002:

1. That surgical competencies should include the following:
 - a) Generic or transferable
 - Communication skills
 - Teaching / learning skills
 - Personal effectiveness
 - Management skills

- b) Clinical
- Knowledge of basic sciences
 - Knowledge of theoretical clinical sciences
 - Knowledge of clinical skills
 - Decision-making
 - Surgical skills
 - Post-operative management
 - Research
2. That all trainees should be assessed by means of a portfolio containing the following elements:
- Learning agreements, which should be drawn up by trainers and trainees, which pay due deference to the experience of the trainees and the facilities available from the training
 - A research portfolio which should follow the current JCHST guidelines dealing with personal research, assessment of the research of others and evidence of audit
 - An operative log book which should demonstrate learning through reflection on complications experienced
 - An accumulation of performance-based objective assessments derived from ward, clinic and operative exposure concentrating on the most common operations performed
 - A reflective diary of meetings attended and locally delivered educational events
 - A competence map linking the methods of delivery, assessment and curriculum content, to ensure no serious gaps
3. That a number of experiments should be encouraged in order to develop materials to support the portfolio process.

The *Orthopaedic Competence Assessment Project* was established in December 2002 through industrial sponsorship with the aim to:

“Improve the quality of Higher Surgical Training in orthopaedics through the introduction of a competence based portfolio of coaching and assessment tools”.

The project brought together materials (and expertise) already in various stages of development

and implementation, assembling them as a coherent whole in order to further develop both the materials and the skills needed to use them effectively. The project team, working together with the British Orthopaedic Association and the T&O Specialist Advisory Committee, has now produced a competence based portfolio of educational tools which have been piloted and validated. This body of work has formed the basis of orthopaedic higher surgical training UK-wide since August 2005

The *Intercollegiate Surgical Curriculum Project* (ISCP) began its work in 2003, and since then, the Department of Health has funded two subsequent ISCP project phases, including, the current phase – a national pilot of the changes proposed – which commenced in September 2005. Orthopaedics has contributed extensively to this project whenever the opportunity has arisen and the Procedure Based Assessment tools originally developed in orthopaedics have formed the model of all specialties. So far the ISCP has failed to deliver a usable curriculum for T&O, this has driven the need to produce this curriculum.

• **Present**

An editorial group was convened by the present Chair of the Orthopaedic SAC to draw together the work that had been done through both OCAP and the BOA to create a fit for purpose Orthopaedic Curriculum to be submitted for PMETB approval. This working group has drawn together material from a number of sources to create the present document which it is anticipated will form a focus for considerable discussion, debate and refinement following its review by PMETB.

• **Future**

Subject to the appropriate funding having been identified it is proposed that the Orthopaedic Curriculum will be reviewed through a specially created sub-committee of the SAC. This group will review material and debate on an ongoing basis throughout the year with a yearly face to face meeting at which amendments to the Curriculum will be ratified and a new document issued if necessary. Membership of this group will be decided by the Orthopaedic SAC and will include representatives from the BOA and the British Orthopaedic Trainees Association as well as a lay member.