



**SARS**  
Society of Academic & Research Surgery

**THE PLACE OF RESEARCH AND  
OTHER EDUCATIONAL EXPERIENCE  
IN UK SURGICAL TRAINING**

**GUIDANCE FOR  
SURGICAL TRAINEES**

**April 2010**

Association of Surgeons of Great Britain and Ireland

*ISSUES IN PROFESSIONAL PRACTICE*

The Place of Research in UK Surgical Training



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Association of Surgeons of Great Britain and Ireland

## ISSUES IN PROFESSIONAL PRACTICE

# THE PLACE OF RESEARCH AND OTHER EDUCATIONAL EXPERIENCE IN UK SURGICAL TRAINING: GUIDANCE FOR SURGICAL TRAINEES

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ISSUES IN PROFESSIONAL PRACTICE

The Place of Research in UK Surgical Training

## FOREWORD

ASGBI is delighted to publish these guidelines for surgical trainees, which have been prepared by the *Society of Academic and Research Surgery*. They are presented as part of the Association's **Issues in Professional Practice** series, which offer guidance on a wide range of areas impacting directly on the daily professional lives of surgeons.

The guidelines were produced following a SARS Consensus Conference held at the Royal College of Surgeons of England, and modified on the advice of the following professional groups: Association of Surgeons of Great Britain and Ireland; Association of Surgeons in Training; Heads of Schools of Surgery; Research Board Members of the Royal Colleges; and Presidents of the Speciality Associations.

Continued research and education remain pivotal to the development of our surgical trainees and this publication, *The Place of Research and other Educational Activities in UK Surgical Training: Guidance for Surgical Trainees*, summarises the available opportunities and attempts to clear the often muddled waters with respect to the various research and educational pathways open to trainees.

The Society of Academic and Research Surgery hopes that this publication will compliment the **Issues in Surgical Practice** series, and we would welcome your further comments addressed either to myself at: [editor@asgbi.org.uk](mailto:editor@asgbi.org.uk) or directly to the Editorial Secretary of SARS at: [sking@rcseng.ac.uk](mailto:sking@rcseng.ac.uk)



**Michael Wyatt**  
**Honorary Editorial Secretary, ASGBI**



## **THE PLACE OF RESEARCH AND OTHER EDUCATIONAL EXPERIENCE IN UK SURGICAL TRAINING: GUIDANCE FOR SURGICAL TRAINEES**

**This document provides guidance to surgical trainees on undertaking research and other educational activities during their surgical training. Major points are presented in the overview; while specific information and guidelines are detailed in the full report and are intended as a reference both for trainees and more generally for research active and academic surgical groups and departments.**

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**Produced by the Society of Academic and Research Surgery (SARS). The following were invited to comment: Association of Surgeons in Training (ASiT); Heads of Schools of Surgery; Research Board Members of the Royal Colleges; Presidents of Specialty Associations. This booklet has also been endorsed by the Council of the Royal College of Surgeons of England.**

Association of Surgeons of Great Britain and Ireland

**ISSUES IN PROFESSIONAL PRACTICE**

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## 1. OVERVIEW

A period of time spent undertaking surgical research is of benefit to both the trainee and to the healthcare system: Ultimately the purpose of research is to provide the evidence necessary to make surgical practice and wider patient care more effective and efficient.

### Benefits of research:

A period spent in research will:

- Equip surgical trainees with both core research skills and transferable skills, including critical analysis.
- Provide trainees with an understanding/experience of disseminating results in the form of presentations and publications.
- Enrich on-going research themes; provide a platform for future research; and enhance translational research.
- Provide experience in applying for research funding.
- Contribute to career development.
- Develop future leadership skills.
- Encourage an analytical approach to clinical treatment.
- Contribute to the quality of care agenda

**Therefore, SARS strongly recommends that all surgical trainees undertake research.**

### Type of research to be undertaken:

- Surgical research and educational activities should be flexible to accommodate the full range of career intentions.
- All surgical trainees should have an appreciation of basic research methodology (Intercollegiate Surgical Curriculum).
- Leading to formal qualifications or other designated outcome measures (e.g. publications).
- Formal qualifications are usually Masters level training; or higher research training leading to MD/MS/PhD.

### Timing and duration of research:

- Timing - at appropriate time points throughout the surgical training scheme (e.g. between foundation, core, higher training blocks).
- Duration - continuous throughout the surgical training scheme or as “time out”

**SARS recommends flexibility in the type and timing of research undertaken, to accommodate the trainee’s career plans.**

## 2. REASONS FOR UNDERTAKING A PERIOD OF RESEARCH DURING SURGICAL TRAINING

A period of time spent undertaking surgical research is of benefit to both the trainee and to the healthcare system served: Research enhances patient care through advances in treatment and provision of patient choice.

### Enriched educational experience

UK surgical training strives for excellence aiming to provide a “*world class education for a world-class healthcare*”. Developing and maintaining a culture of research is a cornerstone of this aspiration. This requires exposure and training in research which ideally would be delivered prior to consultant appointment, enabling the clinician to continue to participate in research throughout their career. From an individual perspective, this investment in developing research skills will enhance their professional development as well as the quality of their clinical practice.

The trainee benefits by developing an appreciation of the difficulties of innovative work and by studying a specific field in depth. He/she learns the discipline of study design including practical and theoretical knowledge of statistical methodology; an ability to review relevant literature critically; and how to complete the study by publication. A central element of such training is to provide a cohort of surgeons conversant in research methodology, prepared to engage in research through their consultant careers.

The trainee is further exposed and may be involved in seeking funds for future research work. This exercise provides invaluable training in relevant finance issues, applicable both to academic and future clinical work; for example, such skills will benefit the consultant surgeon as a manager, e.g. in developing unit strategy or building a business case.



Regardless of the type or duration of research undertaken (see **Section 4**), the trainee should aim for one or more of the following achievable goals, as appropriate: All trainees should have an understanding of the research process. For those wishing more active participation, such as presentation of own work at a national or international meeting, co-authorship of peer-reviewed publications, co-authorship in a grant application, a recognised higher degree (e.g., MSc\*) would be beneficial, but is not an absolute requirement. For those wishing to also be active in laboratory research or significantly involved in Clinical Trials or Outcomes studies an MS/MD/PhD\* level of training would be appropriate – with the PhD as the most widely recognised international standard of scientific training. These qualifications provide objective evidence of achievement and demonstrate a broad range of skills.

\* MSc = Master of Science; MS = Master of Surgery;  
MD = Doctor of Medicine; PhD = Doctor of Philosophy

## Enriched healthcare system

“Research” is primarily scientific analysis to improve patient treatment. The skills learnt in research are transferable to a wide range of working environments. In depth study can contribute to future translational applications in the clinic, enhancing development of particular specialities. Generic skills enhance the capability of the individual clinicians. Participation in clinical trials may also be of direct benefit to the patients, in terms of quality of care as well as outcome.

Within this context, research undertaken by surgical trainees will not only enhance patient care (now and in the future) but also provides a healthcare system with the clinical and academic leaders of tomorrow.

## 3. STAGE OF SURGICAL TRAINING FOR RESEARCH TO BE UNDERTAKEN

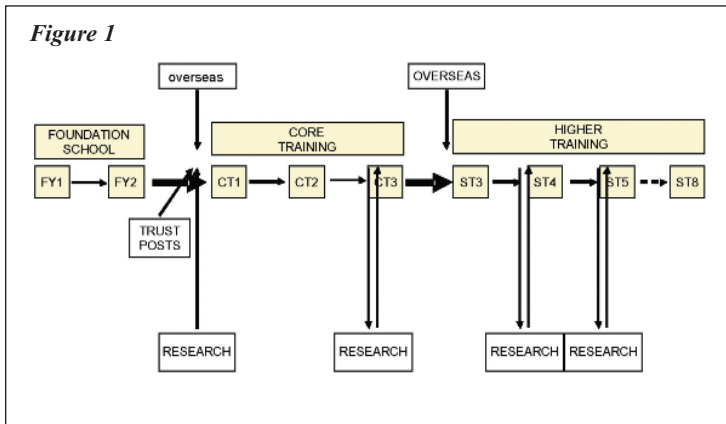
The stage in the training pathway at which research is undertaken should be flexible and will depend on the facilities available and planned career pathway of the individual. Currently, there are various strategies for a trainee to undertake research, endorsed by different regions/deaneries.

A number of schemes aim to offer the surgical trainee a wide range of choices in terms of type of research (formal/informal) and time spent on research (e.g. «opt out» time for an MSc or part-time



intercalating research and clinical work, see **Section 4**). For example, the clinical training scheme proposed for the London School of Surgery envisages several points along its time-line at which a period can be spent in research; e.g., at each stage between foundation, core and higher training (see **Figure 1**), or within academic foundation programmes which intercalate surgical training and research, for trainees interested in a career in academic medicine. “Intercalating” schemes with defined time parameters and supervised research are associated with high success rates.

**Figure 1**



**SARS endorses the scheme proposed for the London School of Surgery, recognising its flexibility within the current surgical training structure.**

Opportunities are now available for trainees who have shown potential and who would like a career in academic surgery to formally incorporate research into their training. Some medical students choose to undertake research at an undergraduate level (e.g. MB PhD scheme) and further primary research for such trainees is not desirable. Post doctoral studies are, however, encouraged for such individuals provided appropriate research facilities and funding, e.g. grants from The National Institute for Health Research (NIHR) and the Medical Research Council (MRC) are available.

The Academic Clinical Fellowship and Clinical Lectureship schemes are part of an initiative funded by the NIHR to facilitate an integrated clinical academic training pathway and to cultivate “new blood” Senior Lecturers. The Academic Clinical Fellowship (ACF) is aimed at core surgical trainees who can formulate and undertake research with the aim of progressing to a Clinical

Lectureship. Ideally the period of time spent in an ACF post should allow the trainee to apply for funding to support future academic activities, for example a Clinician Scientist award, during which time a higher degree should be the goal. Clinical Lectureships are aimed at doctors with a PhD/MD (or equivalent) who have commenced their specialty training. The Clinical Lecturer must then obtain a Certificate of Completion of Training (CCT) by the end of their time in post. It is acknowledged that in order to be clinically competent and yet still contribute academically during academic surgical training it is likely that the individual will either need to train longer or become highly specialised. It is envisaged that the academic surgical trainee will, after CCT, continue in one or more post-CCT fellowship posts.

#### 4. ACTIVITIES WHICH CONSTITUTE RESEARCH AND LEVEL OF RESEARCH TO BE UNDERTAKEN

The depth and duration of the research undertaken depends on the individual and their career intentions, with those planning to undertake an academic pathway expected to spend a longer period in research. Currently, formal research and educational options fall under three broad levels: the basic requirements as set up by the Intercollegiate Surgical Curriculum, Mastership-level training, and higher research training leading to MD/MS/PhD. Activities which are widely accepted as research or educational are outlined in *Table 1*.

##### Basic requirements

The Intercollegiate Surgical Curriculum (ISC) program has set basic research standard requirements to be met for each trainee (<http://www.iscp.ac.uk/> see **Appendix 1**). These requirements progress through the training time line and are considered in the research viva part of the inter-collegiate exit examination.

##### In depth research

This can range from a limited short term project (as an informal period of research) that results in the publication of one paper in a peer review journal, or a systematic review; to undertaking a formal higher research degree, either by participating in a Masters programme or by undertaking a more formal period in research culminating in the submission of a MD or PhD thesis.

**i) Masters programme (MSc)** (see **Appendix 2**)

A Masters programme usually involves both structured course work of core and selected modules as well as hands-on research leading to a thesis component. Some programmes do not involve a research element but are nevertheless worthwhile if the content is of interest and benefit to the trainee's ultimate career intentions. This on average takes a year if undertaken full-time, but may be extended to two to three years if considered part-time. Some MSc courses can be undertaken as distance learning programmes. Those undertaking such Masters programmes rarely fail to complete.

An MSc should be considered by those who wish to have a greater understanding of the academic process, but who do not necessarily wish to be at the forefront of academic surgery, although opportunities to progress to a higher degree and/or to produce further publications may exist at a later stage.

There are several MSc courses available from different Universities and the one selected will depend on the trainee's career intentions. MSc programmes differ considerably in varying aspects such as time commitment, duration, reputation, choice of elective modules, styles of teaching, and profiles of fellow students. Equivalent qualifications in areas not normally encompassed within surgical research are included in this list, but trainees should be encouraged to consider a wide range of activities which will in future contribute to patient benefit and the provision of care (see **Appendix 2**). Examples include:

An **MSc in Surgical Science** provides an understanding of the principles of surgical science usually by considering subjects such as molecular biology, immunology, and infection and by developing skills in computing and statistics, as well as learning research design, methodology, data analysis and presentation. Within the umbrella of Surgical Science, there are numerous MSc courses which focus on specific surgical specialties. The supervised research project usually culminates in a bound thesis of around 100 pages which is reviewed at a formal viva.

The **MEd in Surgical Education** provides grounding in principles of surgical education, and contemporary teaching methods as well as introducing appropriate educational research methods. Both undergraduate and postgraduate areas of surgical education are rapidly growing fields and an MEd represents a useful formal qualification for surgeons interested in a career in this area, who may take up teaching or educational leadership roles in deaneries, surgical colleges, schools of surgery, universities or hospitals.

**MA in Surgical / Medical Law** provides trainees with a grasp of legal and ethical medical concepts and a practical knowledge of how the law works.

An **MSc in Public Health / Health Services** provides useful training for surgeons interested in eventually taking up managerial roles, such as clinical/medical directorships and helping shape health policies, either country-wide or globally.

**Master of Business Administration (MBA)** should be considered by trainees planning an active role in Surgical Management. The core modules generally include business statistics, economics, organisational behaviour, accounting, human resources management, marketing, operations management, and business strategy.

Note: MBAs are on average 5-10 times more expensive than other Masters programmes.

## **ii) MD/PhD**

A more formal period in research can culminate in the submission of an MD or PhD thesis. Working towards an MD takes a period of two years and a PhD three years in continuous research. A number of universities have tightened regulations on submission deadlines (1-2 years after completion of experimentation) and impose financial penalties for “failure to submit” within the guidelines. Completion with submission, successful viva and acceptance by the University often takes longer than the allotted time and the probability of achieving this is not guaranteed.

PhDs are submitted to the University where the research is undertaken and it is becoming increasingly common to submit the MD to the University where the research is undertaken rather than to the trainee’s alma mater. Indeed, an increasing number of universities will not accept the latter alternative.

An MD or PhD would be expected of a trainee planning a career in academic surgery. There is a vogue that “true” academics do a PhD, however such a higher degree will only be considered an entry qualification for academics and other markers of success such as publications in high impact factor journals, grant funding and collaborations formed will be considered.

## **“Value” of research in career development**

Completed degrees and certificates carry “points” that contribute to a total score for short listing. Generally, degrees by research (MD, PhD) are valued higher than Masters level degrees. Non-completion of a qualification is considered detrimental.

**TABLE 1: TYPES OF RESEARCH AND OTHER EDUCATIONAL CAREER DEVELOPMENT**

**1. Publications**

Literature review and historical research for publication  
Case reports  
Audit / clinical outcomes studies  
Observational studies

**2. Educational research**

Effectiveness of training  
Assessment of technique / robotics etc.

**3. Patient outcomes and psychology**

**4. Formal clinical research**

Clinical trials

**5. Laboratory research**

Anatomy  
Hands-on laboratory biomedical/surgical research  
Laboratory research into other disciplines - e.g, engineering  
Meaningful collaboration with non-clinical scientists  
Direction of a laboratory group

**6. Other educational career development**

Management  
Public health  
Law and ethics  
Economics, politics, etc.

Whereas categories 1, 2, 3 and possibly 6 above may be adequately mastered by a shorter programme of training such as a Masters degree, categories 4 and 5 are becoming more complex and require more intensive study, for example as an MS/MD/PhD. The choice of educational route will depend on how the trainee visualises future career plans.

Formal clinical trials (4 above) are subject to intensive regulation (Ethics, Medicines and Healthcare Products Regulatory Agency (MHRA), Employment Regulation, Law) and require negotiating skills with Sponsors. Trials management is becoming almost a career in itself and a longer period of training and continuing CME\* will be required in the future.

## 5. CONTENT OF RESEARCH

For those wishing to complete a higher degree (MD/PhD) the area studied should clearly be of interest to the trainee. Although desirable that the area be relevant to his/her future clinical discipline, the skills acquired from any higher degree are generic and therefore transferable. Choosing a specific area of study should not reduce opportunities for career progression.

In practical terms, the interest should be a broad one, as it is unlikely that any research group or unit can offer a project which fulfils all the trainee's research aspirations. This is because the aspirations are often out of proportion to what can actually be achieved within the time frame of the higher degree research period.

The research team will already have an established interest and will want to continue to develop this which could be at odds with the trainee's plan. However, it is generally accepted that working broadly within the field of interest is sufficient for the trainee's professional aspirations.

The broad interest could be:

- i. Disease based, for example; Breast disease, gastrointestinal problems or vascular disease. In depth specific study within a given disease area, for example within vascular disease, in pathological spheres such as aortic aneurysm, carotid disease, peripheral vascular disease or venous disease, is possible. Skills are transferable and should not limit career opportunities within the chosen field.
- ii. The trainee needs to have an idea as to whether they wish for a clinical or laboratory based project or a mixture of the two. Health services research, demographics of disease and quality of life studies are other emerging research themes. Techniques employed in each area will vary.

## 6. SELECTION OF A RESEARCH UNIT

Several factors need to be taken into account when selecting a research unit.

### *i) Likelihood of a successful outcome*

It is important to select a research team and project which is likely to deliver the intended outcomes.

**SARS strongly recommends that trainees should consider and take advice on the feasibility of undertaking his/her proposed study within the planned allocated time period.**



An indicator of potential success is the track record of the supervisor and the unit. This can be assessed by considering the number of successful higher degrees completed, the research publication record of supervisor and unit and grant funding obtained. In terms of research governance, an increasing number of universities advocate dual supervision (for instance from a clinician and a scientist), particularly where a project will be principally laboratory-based.

Face to face discussion with previous and present research fellows provides invaluable information with regards to the dynamics of the research unit, in particular the degree of supervision and support provided. The development of research networks between surgical trainees undertaking research in different units will also help to provide further details.

The surgical trainee must have open discussions with a potential supervisor, prior to an interview, to obtain an impression of their enthusiasm, commitment and ease of developing a working relationship.

A planned research project needs to be achievable in the time frame. The more structured the outline of the project is before the trainee starts and the more experienced the team are in undertaking the planned techniques the more likely it is to work.

### ***ii) Funding availability***

Before starting a research project it is important for the trainee to determine the funding streams and confirm what is actually available and what still needs to be applied for.

### ***iii) Added value***

Trainees should familiarise themselves as to which other aspects of formal research training may be provided by a host institution. Formal training in laboratory techniques, statistical courses, courses on how to apply for grant funding or how to write a scientific paper and teaching in Information Technology may be available. These transferable assets contribute to the generic value of a research post.

### ***iv) Ancillary commitments***

Many surgical trainees are concerned that a period away from clinical work will result in a regression of clinical skills. Research posts that offer a clinical component are popular. They are often vital to provide some of the funding for the project. However, any ancillary, non-research commitments have to be assessed closely since the clinical work could be menial and of no clinical or



research benefit; the time away from the research project may be so great as to hinder the likelihood of obtaining a higher degree.

#### **v) Career progression**

Most trainees undertake research within their own country. Studying abroad can put added pressures on social commitments, completion deadlines and post-research placement. However, for those with a clear academic interest, working in the correct unit anywhere in the world can provide an unequalled learning experience.

As outlined in **Section 2**, desirable and achievable goals for the trainee after the period of research include: a degree (e.g. MSc, PhD), co-authorship of peer-reviewed publications, and co-authorship in a grant application.

### **7. RESEARCH FUNDING (see Appendix 3)**

Research is expensive; funding is required to pay the trainee's salary, bench fees and University registration fees. Usually the Research Unit will obtain the funding. However, it is best for the trainee to plan ahead and closely co-ordinate with the unit in advance to help secure funding.

Often monies will come from several different sources. Funding can be secured from several bodies. Monies from certain grant giving bodies are sometimes held in higher regard than that from others. This arises from the fact that certain grant giving bodies are considered more prestigious and competitive and to obtain such funding is an honour for the institution. Furthermore, being the recipient of a fellowship from, for example the Wellcome or the MRC is personally prestigious for the trainee. However, this should be placed in context since fellowships are the exception rather than the norm. For the purposes of achievable research, all ethically obtained monies are desirable and their availability ensures that the trainee can complete his/her task.

#### **Government grant funding bodies**

- i. The **National Institute for Health Research (NIHR)** aims to increase the volume of applied research in the NHS for the benefit of patients and the public. This body makes significant financial grants. But the number of grants to the surgical community is low (3%). This may be due to the particular focus for funding which is currently not compatible with the more mainline research topics within the surgical fields. However, NIHR offer several research fellowships aimed at providing support over the range of a clinical research career:

- ii. The **Medical Research Council (MRC)** mission is to improve human health through world-class medical research. The MRC support research in all major disease areas, ranging from laboratory-based science to clinical trials. The MRC works closely with the NHS and the UK Health Departments.

### Charitable grant funding bodies

There are a large number of such bodies, which range from very large and general institutions such as the **Welcome Foundation** to pathology specific charities such as the **British Heart Foundation**, **Cancer Research UK** and **CORE**, to disease or institution specific foundations. Each has their own methods of application and competition varies widely. The size and duration of financial support as well as the expectations also vary considerably. Specialist surgical societies may also have specific research funding streams, e.g., **Heart UK** for cardiac surgery grants.

### Royal College research fellowships

The various Royal Colleges of Surgeons provide annual research funding schemes for surgical trainees who may provide valuable salary and equipment costs. Trainees should investigate these avenues according to their collegiate affiliations, since these funds are usually specifically designated for surgical research.

### Industry funding of research

Industry funds the majority of biomedical research. For surgical techniques most new developments involve equipment in which industry has a major interest and often other funding bodies are less orientated towards. To ensure that the funding remains transparent and ethical it is recommended that: Oversight should be by academic institution; funding is awarded to institutions not individuals; Contracts must not be restrictive; and all potential conflicts should be disclosed.

### NHS Trusts' funding of research

Research opportunities are currently provided by some Trusts creating extra posts to comply with the European Working Time Directive (EWTB). In practical terms, the Trust funds posts with a defined clinical commitment (e.g., 25-50%) to fill gaps in the rota and a percentage time free to carry out research. While such a scheme provides wages, the trainee still has to negotiate for a viable research project and adequate funding.

**SARS recommends that such schemes are encouraged as a way of dealing with the chronic shortage and vagaries of funding; provided there are adequate safeguards in place in the contract and that the opportunities built into the post are deemed to contribute to the trainee's career progression.**

## APPENDIX 1:

The Intercollegiate Surgical Curriculum programme basic research standard requirements to be met develop as the trainee progresses through their training time line

### ISCP ST1-ST2 CURRICULUM ACADEMIC ACTIVITY

#### Objective

An introduction to research methodology and to teaching others.

Research: Ability to perform a simple research study and present the results.

Teaching: Ability to teach small groups such as medical students.

#### Knowledge

Research: Knows basic concepts of research methodology.

Teaching: Knows basic concepts of teaching methods.

#### Clinical Skills

Research: Ability to analyse published evidence.

Teaching: Ability to teach small groups.

### ISCP RESEARCH CURRICULUM ST3-ST5

#### Objective

To demonstrate a rigorous approach to research through at least one of the following:

- a successful application to the ethics committee
- successfully completing a formal audit application
- presenting to a local mortality and morbidity meeting
- presenting to a national meeting.

#### Skills

- To be able to pose a research question (clinical, basic or population health)
- Develops a proposal to solve the research question:  
Conduct an appropriate literature search on the research question
- Identify, consult and collaborate with appropriate content experts to conduct the research
- Propose the methodological approach to solve the question
- Carries out the research outlined in the proposal
- Defends and disseminate the results of the research
- Identifies areas for further research that flow from the results

#### Behaviour - Practical Activities

- Ethics application
- Formal audit application
- Presentation to a national meeting
- Publication in a peer reviewed journal

## ISCP RESEARCH CURRICULUM ST6-ST8

### Objective

To demonstrate a rigorous approach to research through: the publication of a paper in a peer review journal; or participation in a systematic review with defined outcomes; publishing guidance at trust, regional, specialty or national level.

### Knowledge

Builds on the knowledge obtained in the initial and intermediate stages of training.

### Skills

Builds on the skills acquired in the initial and intermediate stages of training using the knowledge acquired by using scientific evidence.

### Behaviour - Practical Activities

- Publication of a paper in a refereed journal as first author
- Successful completion of a higher degree
- Presentation of a study at a national meeting
- Participation in a systematic review with defined outcomes

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## APPENDIX 2:

### List of examples of Master-level programmes offered to surgical trainees

MEd in Surgical Education at Imperial College

<http://www3.imperial.ac.uk/edudev/oldsite/professionaldevelopment/surgicalaleducation>

MSc in Surgical Science at UCL

[http://www.ucl.ac.uk/surgiscience/teaching/msc\\_surgical.htm](http://www.ucl.ac.uk/surgiscience/teaching/msc_surgical.htm)

LLB Medical Law and Ethics, Leicester de Montfort Law School

[http://dmu.ac.uk/faculties/business\\_and\\_law/law/courses/pg/lm\\_medical.jsp](http://dmu.ac.uk/faculties/business_and_law/law/courses/pg/lm_medical.jsp)

MA Medical Law and Ethics, Queen Mary, University of London

<http://www.law.qmul.ac.uk/postgraduate/mamedlaw/#info>

MA in Medical Law, University of Central Lancashire

<http://www.uclan.ac.uk/courses/pg/files/vebioe.htm>

MSc in Health Services and Public Health Research at Aberdeen

[http://www.abdn.ac.uk/graduate/study/taught.php?code=health\\_res](http://www.abdn.ac.uk/graduate/study/taught.php?code=health_res)

MSc in Public Health at the London School of Hygiene and Tropical Medicine, University of London

[http://www.londonexternal.ac.uk/prospective\\_students/postgraduate/lshtm/public\\_health/lead.shtml](http://www.londonexternal.ac.uk/prospective_students/postgraduate/lshtm/public_health/lead.shtml)

MSc in Orthopaedics and Musculoskeletal Science at UCL

<http://www.ucl.ac.uk/prospective-students/scholarships/graduate/deptscholarships/orthopaedic>

MSc in Trauma Medicine at Swansea University

[http://www.londonexternal.ac.uk/prospective\\_students/postgraduate/lshtm/public\\_health/lead.shtml](http://www.londonexternal.ac.uk/prospective_students/postgraduate/lshtm/public_health/lead.shtml)

MSc in Urology at UCL

[http://www.ucl.ac.uk/surgiscience/teaching/msc\\_urology.htm](http://www.ucl.ac.uk/surgiscience/teaching/msc_urology.htm)

MSc in Surgical Technology at Imperial College

<http://www1.imperial.ac.uk/medicine/teaching/postgraduate/taughtcourses/surgicaltechnology/>

MSc in Nanotechnology and Regenerative Medicine at UCL

<http://www.ucl.ac.uk/prosp-students/gradprospectus/biomedical-sciences/surgery/taught/index.shtml>

Tissue Engineering for Regenerative Medicine MRes at Manchester University

<http://www.manchester.ac.uk/postgraduate/taughtdegrees/courses/bysubject/course/?code=06439&pg=2>

MSc in Endovascular Neurosurgery at Oxford

<http://www.medscl.ox.ac.uk/radiology/mscin/mscfolder>

## APPENDIX 3:

### Examples of grant funding bodies

#### GENERAL

The Medical Research Council (MRC)

<http://www.mrc.ac.uk/Fundingopportunities/>

The National Institute for Health Research (NIHR)

[www.nihr.ac.uk](http://www.nihr.ac.uk)

Wellcome Trust

<http://www.wellcome.ac.uk/funding/>

#### DISEASE/ORGAN SPECIFIC

Cancer Research UK

<http://www.cancerresearchuk.org/>

The British Heart Foundation

<http://www.bhf.org.uk/>

Arthritis Research Campaign

<http://www.arc.org.uk/>

CORE

<http://www.corecharity.org.uk/>

The Circulation Foundation

<http://www.circulationfoundation.org.uk/>

Heart UK

<http://www.heartuk.org.uk/>

British Scoliosis Research Foundation

<http://www.bsrf.co.uk/NEWbsrfhome.html>

British Society of Otolologists

<http://www.entuk.org/BSO/>

Healing Foundation UK

<http://www.thehealingfoundation.com/>

Association of Surgeons of Great Britain and Ireland

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**[www.surgicalresearch.org.uk](http://www.surgicalresearch.org.uk)**



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