### Description of ACF Programme:

**Title:** Neurosurgery  
**Duration:** 3 years

### Lead NHS Hospital/Trust and contact details:

Southampton General Hospital  
Southampton, Hants SO16 6YD  
Tel: 023 8077 7222

### Research Institution in which training will take place:

Southampton University  
University Road  
Southampton  
SO17 1BJ

### Research Objectives:

The objectives of the training programme are for the trainee, over three years:

1. To undertake the equivalent of 27 months full-time specialist training in Neurosurgery, in the accredited Wessex Training Programme at the Wessex Neurological Centre and a total of 9 months within an appropriate Research Division in the University of Southampton Faculty of Medicine over a 3 year period.

2. To undertake generic research methods training through a programme run by the Faculty of Medicine’s Postgraduate School.

3. To develop a research proposal for an externally funded research training fellowship under the supervision of Professor William Gray

4. To obtain relevant training in research design, methods and systematic review.

5. To submit applications for Clinical Training Fellowships in national competition, usually from CRUK, MRC, Wellcome Trust or the Department of Health. These may be in partnership with the Surgical Royal Colleges.

### Arrangements for protected research time:

The ACF will have protected time for research training during the second, and if necessary the third year of the ACF programme. Clinical backfill is funded by the 25% additional salary support provided by Modernising Medical Careers, over the two to three year period. This configuration has been agreed with the Postgraduate Dean and the Specialist Training Director in Neurosurgery (Mr J Duffill, Consultant Neurosurgeon, SUHT). There would be considerable flexibility in allocation of sessions within the training programme so that the gradually increasing
emphasis on research training as compared with clinical service training might be accommodated during the second and if necessary, the third year. The size of the surgical training environment in Southampton and the diversity of the neurosurgical specialisms mean that a number of different backfill arrangements are likely to be used, funded by the 25% additional salary support. Our favoured approach will be for the academic trainees to have a six month block of research time at the end of Year 2 so that another trainee can be placed in a six-month slot. Visiting Fellows, flexible trainees, or possibly LATS trainees will be used. We are frequently approached by overseas surgeons in training who seek a short period of experience in our specialist unit. This could easily cover the six-month period the ACF will spend in full-time research training in Year 2. If necessary there will be a further three-month block of research time in Year 3 for further training fellowship applications.

Description of research component of programme:

Active research areas within the Division of Clinical Neurosciences include the pathophysiological processes underlying traumatic brain injury, epilepsy, brain tumours, stroke and neurodegenerative diseases. Research covers a broad spectrum from identifying biomarkers of acute and chronic brain injury (ranging from traumatic brain injury to Alzheimer's disease and epilepsy), genetic differences affecting outcome following brain trauma, research into regenerative medicine including the response of adult neural stem cells to seizures and brain injury and the role of inflammatory mediators in acute neurodegenerative conditions, such as stroke. A wide range of techniques are available from patient-based studies through to the use of cell culture models. There is a major emphasis on translational research and a long history of clinical trainee involvement in laboratory research. University Neurosurgery is also currently involved in a number of large scale clinical trials on traumatic brain injury, (Rescue ICP, Synapse, STITCH and RAIN), vascular brain injury (STASH CLEAR III and STICH2) EO6 study of vagal nerve stimulators in paediatric epilepsy, and monitoring of ‘at risk’ brain tissue post injury. Epidemiology and clinical trials methodology would also be appropriate. Seven neurosurgical trainees have completed MDs or PhDs through this system in the last 10 years.

The Southampton University Hospitals NHS Trust position is based at Southampton General Hospital and, during this period, the Academic Clinical Fellow will undertake generic research training as well as specialist research training, utilising the unique resources of the appropriate research division. The divisional structure of the School of Medicine may be found on the website at www.som.soton.ac.uk/research/divisions/

Most of the Divisions were rated 5 or 5* in the Research Assessment Exercise 2001. Mostly neurosurgical trainees have in the past undertaken research in the Division of Clinical Neurosciences. Research within other Divisions may be equally appropriate depending on the trainee’s area of scientific interest. There are active collaborative research links between the Division of Clinical Neurosciences and the wider Southampton Neurosciences Group, as well as the Physical Sciences (Engineering, Photonics and Computer Science through the Life Sciences Interface Initiative) which would be of particular value to training future clinician neuroscientists.

Description of clinical component of programme:

The trainee will join the Wessex Specialist Training Programme in Neurosurgery, which is co-ordinated through the Wessex Deanery. Experience offered includes the training needs of future
consultants in all aspects of Neurosurgery, as well as academic career development. The post will lead to accreditation (CCT) in Neurosurgery with an established interest in one of its subspecialties. The three years will be spent in clinical posts at the Wessex Neurological Centre at Southampton General Hospital. The programme of specialist training in Neurosurgery is approved by JCHST through the SAC in Neurosurgery.

The neurosurgical clinical service has a strong university academic involvement. There is a consultant complement of 14 of which 2 are full time academics (1 Professor and 1 Senior Lecturer). The service works closely with neurologists, neuro-intensivists, spinal surgeons, neuro-physiologists, neuro-radiologists, neuro-pathologists, neuro-psychologists, neuro-psychiatrists, neuro-oncologists, and rehabilitation physicians, as well as maxillofacial and ENT surgeons within MDTs. Training involves multidisciplinary management of neurosurgical patients and operative neurosurgery. We have state-of-the-art facilities including a 13-bed dedicated neuro-intensive care unit, which provides support for clinical studies of acute and chronic brain injury. The academic trainee will remain on the acute rota for the whole period in post, and the clinical programme will vary, depending on the subspecialty interest being undertaken.

### Milestones and timing of achievement of academic and clinical competencies

#### Year 1

1. Initial clinical training in the generality of neurosciences and passing the new MRCS examination.
2. Attendance at autumn introductory course provided by University of Southampton Postgraduate School of Medicine.
3. Identification of topic of interest for research project and initial literature review.
4. Identification of research questions to be addressed in pilot study.
5. Identification of specific learning needs for the project and appropriate courses.

#### Year 2

1. Continuing clinical training in neurosurgery.
2. Obtaining ethical committee and NHS Research & Development proposals for exploratory project if required.
3. Attendance at relevant internal and external training courses.
4. Initial laboratory or clinical data collection for pilot study.

#### Year 3

1. Continuing clinical training in neurosurgery.
2. Submission of Clinical Training Fellowship application to external funding agencies (this could be completed in year 2)
3. Completion of laboratory or clinical data collection and writing up of pilot research project.
4. Submission of further Clinical Training Fellowship applications if necessary.

How will ACF programme link to CL phase of IAT Pathway?

It is envisaged that a successful fellowship application will lead to a further three years funding culminating in a PhD. Some of this time may be spent in clinical training. This would lead to eligibility to apply for a lecturer position within the Medical Faculty. In the unlikely event of failure to obtain a Clinical Training Fellowship trainee would continue in the specialist training programme within the Wessex rotation and either submit a DM dissertation or make further attempts to obtain substantive funding.

Trainee centredness:

The training will be centred on the trainee’s own needs, identified early during the first year, and there will be dedicated supervision during the post. The fellowship will be tailored towards achievement of successful external funding.

Quality Assurance:

The taught course will be provided through the established Postgraduate School at the University of Southampton School of Medicine, and through accredited Masters level modules, all of which are quality assured through the QAA process. All Academic Supervisors are required to complete the School's postgraduate research supervision training, and the School has an established scheme for identifying and training postgraduate mentors.

Mentoring Arrangements

Mentorship is provided by the academic and clinical supervisors. This is co-ordinated by Professor Gray (Academic Lead) and Mr Jonathan Duffill (Training & Service Lead). Professor Gray is a research council-funded Clinical Scientist who trained in Southampton, spending a period as a Clinical Lecturer from 1996-1998 funded by the Epilepsy Research Foundation as the Sir Desmond Pond Fellow for his post-doctoral research. With Professors Teasdale, Whittle and Pickard, he co-authored a report on the future of Academic Neurosurgery for the Society of British Neurological Surgeons, and is currently the Chair of the Academic Committee of the SBNS. He is therefore in an ideal position to link service and academic/research requirements.

Further mentorship and supervision can be undertaken through the normal governance arrangements for postgraduate research at the University of Southampton School of Medicine. This will include mentorship through supervision of emerging PhD programmes, and senior authorship of research fellowship applications to major funding agencies.

Track record in Clinical Academic Training

The Wessex Specialist Training Programme in Neurosurgery has been successfully training neurosurgical trainees for forty years. It is nationally renowned as being a well-supervised and innovative training programme. The University of Southampton has a long tradition in providing research training for a succession of trainees and clinical academics. In the past many of these
Trainees have undertaken DM programmes, but more recently a high proportion undertake PhDs.

The strategy of allowing neurosurgical trainees to develop research proposals within the multidisciplinary Clinical Neurosciences and other Research Divisions has proved highly successful. In the last ten years seven neurosurgical trainees have undertaken MD or PhD programmes. Two trainees have gone onto successful academic neurosurgical careers. The Division of Clinical Neurosciences currently has thirteen PhD and seven DM students, eight post-doctoral researchers, four Clinical Training Fellowships and one Walport Clinical Lecturer. The division has £5.5 million in active grant funding, £1 million of which is Research Council-funded. Two large MRC bids, both worth circa £600k have recently been submitted.

Trainees who successfully complete the ACF post, and secure an externally funded clinical research training fellowship, would all be potential candidates for a Clinical Lecturer post within the School of Medicine.

Academic Lead (University) for the IAT Programme:

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Deanery Training Programme Director Details:

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Deanery Programme Manager Details:
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