Health Education England

Yorkshire and the Humber

**Sub-Specialty Training**

**Interventional Radiology (Neuroradiology)**

**ST4 – ST6**

**Post and Programme Information**

# INTRODUCTION

This post rotating through 2 Health Education England Yorkshire and Humber neurosciences centres (Hull and Sheffield) offers a unique opportunity to obtain comprehensive training in Interventional Neuroradiology. This post is part of the Yorkshire & Humber School of Radiology and will be coordinated by the specialty leads for Interventional neuroradiology in each centre (Hull – Dr Paul Maliakal and Sheffield – Dr Richard Dyde). Previous interventional neuroradiology experience is not necessary and the 3-year program will cover all aspects of both diagnostic and interventional neuroradiology, (to achieve level 2 competency Interventional neuroradiology). Applicants with previous neuroradiology experience are able to apply and will enter the training program at the appropriate ST level.

Training in interventional neuroradiology will comply with the standards specified in the neuroradiology sub section of the Royal College of Radiologists 2015 curriculum in interventional radiology. The three-year training programme will consist of rotating attachments at each centre. The collaboration of the two neuroscience centres will ensure the trainee receives excellent exposure to all aspects of interventional neuroradiology. It will also allow greater flexibility and tailoring of individual training in the fellow’s final year e.g. opportunity to take part in complex and interesting procedures taking place at another centre.

# Interventional Neuroradiology in HEE Yorkshire and Humber

Interventional neuroradiology in HEE YH is provided by 3 neurosciences centres based in Leeds, Hull and Sheffield, a catchment area including Yorkshire, Humber, Lincolnshire and parts of Derbyshire, covering a population of over 6 million. The service is provided by 6-consultant interventional neuroradiologists, with two consultants based in each neurosciences centre. There is a close working relationship between the Yorkshire interventionalists with case discussion and regular mortality and morbidity meetings held in Hull.

Neuroradiologists from the Yorkshire centres are part of the faculty in Hull Interventional neuroradiology Course.

The current post will be between centres in Hull and Sheffield.

Hull and Sheffield have established neuro-interventional services, providing comprehensive treatment for adult neurovascular & spinal pathology. Treatment of complex aneurysms with flow diverting stents and WEB devices are performed on a regular basis. Both centres regularly perform other neuroradiology procedures such as liquid embolic treatment of cranial and spinal arteriovenous malformations, preoperative embolization of meningioma, vascular spinal tumours, head & neck tumours and palliative embolisation for epistaxis. Regional service for mechanical thrombectomy in patients with large vessel occlusion stroke is currently in development and provided within normal working hours. There are plans to extend the thrombectomy service to weekends and evenings.

Hull has an established spinal interventional unit performing a large volume of vertebroplasty for painful vertebral fractures and radiofrequency ablation for painful spinal metastases as well as a broad spectrum of diagnostic nerve root blocks, myelography etc.

Paediatric cerebral angiography is regularly performed at the Royal Hallamshire Hospital for AVM radiosurgery. Trainees interested in paediatric neurointervention may have the opportunity to gain experience in this field, but it will not be part of core training.

Applicants will be expected to maintain their general radiological competencies whilst undertaking the post. On call may be offered, or even required (but is NOT guaranteed) and if it is, is likely to contain general radiological work.

## The Neurosciences Units

### Hull Royal Infirmary

Hull Royal Infirmary is the tertiary referral centre for Hull and East Yorkshire and parts of North Yorkshire and North Lincolnshire, delivering services to approximately 1.2 million people. Currently there are 7 consultants providing a comprehensive spectrum of diagnostic and interventional neuroradiology. 2 substantive consultant appointments by September 2019 will increase the consultant numbers to 9.

Dr Paul Maliakal and Dr Rajesh Ramaswamy provide the interventional neuroradiology services.

Dr Aubrey Smith is due to start in April 2019.

Hull is also approved by the GMC for subspecialty training in diagnostic neuroradiology with 2 fellowship positions available.

1. **Interventional Neuroradiology**

The neurovascular interventional service is supported by 2 neurosurgeons with expertise in vascular neurosurgery. There are twice monthly neurovascular MDTs, morbidity & mortality meetings and a joint neurovascular clinics attended by the neurosurgeons and the neuroradiologists. In addition, there are weekly neurovascular and vertebroplasty clinics. Hull is one of the most experienced centres in the UK for vertebroplasty. This service is stream lined through twice monthly MDT, weekly clinic and the Radiology Day Unit.

Interventional work is performed on a state of the art Philips Allura Clarity biplane angiography suite. There are 7 interventional sessions covered by the anaesthetic team. This ensures access to emergency neurovascular treatment Monday to Friday.

1. **Diagnostic Neuroradiology.**

All neuroradiology consultants contribute to the diagnostic workload that includes significant volumes of advanced tumour imaging, head & neck imaging and paediatric neuroradiology. The radiology department set across Hull Royal Infirmary and Castle Hill Hospital has 5 MR scanners including one 3T scanner and 4 CT scanners. Advanced tumour imaging is a particular strength, supported by our physicist Dr Lawrence Kenning. Installation of additional CT and MRI scanners are planned for the next financial year.

1. **Neuroradiology Clinical Activity**

Workload statistics 2018

Cerebral Angiography 139

Neurovascular Intervention 180 (including 75 WEB / stent / flow diverter cases)

Vertebroplasty 116

CT 16195

MRI 6785

1. **Consultant Neuroradiologists:**

Dr C Rowland Hill (paediatric neuroradiology and advanced tumour imaging)

Past President - British Society of Neuroradiologists

Dr D Salvage (ENT, head & neck imaging)

Chair of FRCR examination board, Past president – British Society of Head and Neck Imaging

Dr P Maliakal (Neurovascular & Spinal intervention)

Clinical lead for Neuroradiology, Specialist advisor to NICE interventional procedures programme

Dr R List – Diagnostic neuroradiology

Dr R Ramaswamy (Neurovascular & spinal intervention)

Dr A Tandan– Diagnostic neuroradiology

Dr I Al Assir – Diagnostic neuroradiology

### Royal Hallamshire Hospital, Sheffield

The departments of neurosurgery, neurology and neuroradiology are situated at the Royal Hallamshire Hospital and serve a population of approximately 2.2 million people including South Yorkshire, North Derbyshire, North Lincolnshire and Bassetlaw. The hospital adjoins the University of Sheffield Medical School. The main University campus is only a short walk away from the Hallamshire Hospital.

Currently there are 15 Consultant Neurosurgeons in Sheffield with special interests that include stereotactic radiosurgery, neurovascular, neuro-oncology, functional neurosurgery, pituitary surgery, epilepsy, spinal surgery, skull base surgery and paediatric surgery.

12 Consultant Neuroanaesthetists provide anaesthetic cover for interventional neuroradiology, neurosurgical theatre and the purpose built neurosurgery high dependency unit.

There are 9 Neuroradiologists with an internationally renowned Neuroradiology research department, which has recently won a national multi-million pound grant to house a new research facility. This is led by Professor Griffiths.

There are at present 29 NHS Consultant Neurologists with an Academic Unit headed by Professor Pam Shaw assisted by three senior lecturers.

1. **Neuroradiology**

Royal Hallamshire Neuroradiology department has a nationally renowned diagnostic neuroradiology training covering all aspects of adult and paediatric diagnostic neuroradiology. The interventional fellow will be incorporated into the training program and will receive training in both diagnostic and interventional neuroradiology. Approximately 140 Neurovascular procedures are performed annually, covering all aspects of intervention. A Biplane Philips Allura Clarity FD2010 system was installed in 2013, and is used exclusively for interventional neuroradiology. There are four fixed general anaesthetic sessions a week, due to excellent neuroanesthetic support emergency neurovascular procedures can organised without difficulty.

Sheffield has been the home of the National Centre for Stereotactic Radiosurgery since 1985 and treats approximately 900 patients per year, of which 300-350 are arterial venous malformations. Radiosurgical planning for AVM treatment requires a diagnostic cerebral angiogram and therefore the interventional trainee will gain excellent experience in performing and interpretation of cerebral angiography.

Acute stroke services are now entirely located at the Royal Hallamshire Hospital with an acute thrombolysis service and patients triaged directly to the Hallamshire by the paramedics. Mechanical thrombectomy for acute stroke is in development and currently provided during normal working hours.

There is close liaison with the Radiology Department in the Sheffield Children’s Hospital in order to ensure the availability of specialist expertise in the management of paediatric neurological patients.

**b) Neuroradiology Clinical Activity**

Work-load statistics 2018

Cerebral Angiography 424

Neurovascular Intervention 158

Nuclear Medicine 220

CT scans 9,357

MRI scans 25,306

Myelography/Vertebroplasty 82

**c) Neuroradiology staff**

Dr S C Coley (lead neuroradiologist) RCR FRCR examiner

Dr C A J Romanowski (special interest – functional MRI, neuro-oncology, head & neck)

Dr D J A Connolly (special interest – paediatric neuroradiology and spinal intervention)

Dr R Batty (special interest – paediatric neuroradiology and spinal intervention)

Dr R Dyde (special interest – interventional neuroradiology)

Dr S Nagaraja (special interest – interventional neuroradiology)

Professor P D Griffiths (special interest – foetal/paediatric neuroradiology)

Dr N Hoggard (special interest – head & neck imaging, neuro-oncology)

Dr T J Hodgson (Special interest – Adult Neuroradiology)

## Training and Education Facilities

Both radiology departments are equipped with excellent training and study facilities such as the Radiology Training & Education centre in Hull. There are facilities for simulation training and the development of clinical skills.

### Neuroradiology Courses and meetings:

Sheffield neuroradiologists take an active role in the Sheffield FRCR part IIb course and run their own course – “the Fundamentals of Neuroradiology"- which is aimed at consultant and trainee radiologists from around the UK. Both courses are extremely successful and are heavily subscribed.

The Annual Hull Interventional Neuroradiology Course (2 day event held in March 2019) provides excellent grounding in the principles of interventional neuroradiology. There are regular regional M&M meetings held in Hull, which is attended by Interventionalists from Yorkshire and the North West. The fellow will be expected to attend and participate in the courses and meetings.

Yorkshire neuroradiologists play an active role within the British Society of Neuroradiology (BSNR) and the United Kingdom Neurointervention Group (UKNG). Dr C Rowland Hill (Hull) is the past President of the British Society of Neuroradiologists. Sheffield hosted the BSNR annual conference in 2015 and Leeds hosted the BSNR meeting in 2016. Hull hosted the BSNR in 2006 and the UKNG meeting in November 2016.

### Research

The Fellow will have the opportunity to participate in original research; The centres regularly publish work in peer reviewed journals. The Academic unit of Radiology in Sheffield University has an extremely active programme of neuroimaging research lead by Professor Griffiths.

### Study:

All weekly schedules set aside half a day towards private study. Participation in European Course in Neuroradiology and the PLANET course is encouraged.

### Audit

All trainees are expected to undertake audit as part of their clinical practice and provide evidence of this for appraisal and ultimately, revalidation. All three neuroradiology centres activity participate in audit, discrepancy, report review, research and interesting cases.

### Appraisal and assessment

The framework for Appraisal and assessment will be based on the 4 domains of Good Medical Practice; 1.Knowledge, skills, performance, 2.Safety and Quality, 3. Communication, partnership and teamwork & 4.Maintaining Trust.

For the duration of their post the trainee will be supervised by an overarching Educational Supervisor. During each placement there will be induction, midterm and end of posting assessments with a clinical supervisor. In training assessment based on regular Rad-DOPS (12 per year), mini- IPX, MSF and Teaching observation, audit assessment and MDT assessment tools are utilized to ensure that the trainee attains level 1 in diagnostic neuroradiology at the end of year 4 and level 2 at the end of year 5; level 1 competency in interventional neuroradiology at the end of year 5 and level 2 competency at the end of year 6.

At all times the interventional neuroradiology trainee will:

Practice within their competence level; Practice in accordance with the standards expected of them in the unit they are placed; Refer to more experienced INR colleagues/teachers/mentors when they are uncertain as to the best management of a particular patient; practice according to prevailing professional standards and requirements.

Formal assessment of progress at 12 monthly intervals will be through the ARCP process.

The scheme actively seeks feedback from trainees to monitor and improve the training provided.

## Proposed timetables

The Timetables are examples and are influenced by level of Neuroradiology training and rotation placement. Trainees will rota through each centre.

### a) Example Timetable ST4 (if attached to Sheffield)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Monday | Tuesday | Wednesday | Thursday | Friday |
| am\* | Diagnostics (CT/MRI) | Study | Neurointervention | Cerebral angiography | Neurovascular MDT  AVM/Radiosurgery MDT |
| pm | Neurointervention | Cerebral angiography | Spinal Intervention  Neurology MDT | General radiology diagnostic (CT/MRI) | Neurointervention/  Diagnostics |

\*The fellows are expected to lead the daily 0830 Neurosurgical MDT

### b) Example Timetable ST5 (if attached to Hull)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Monday | Tuesday | Wednesday | Thursday | Friday |
| am\* | Cerebral angiography | Neurointervention  Including spinal | Neurointervention  Including spinal | Diagnostic session (CT/MRI) | Neurointervention  Monthly NV & spine MDT.Weekly lunchtime Neurosciences & Neuro oncology MDT if interested |
| pm | Neurointervention including spinal | General radiology diagnostic (CT/MRI)/VP MDT- alternate Weeks | Neurointervention  Including spinal | Study | Neurointervention  /diagnostics |

\*daily ward rounds review neurovascular Inpatients

## POINTS OF CONTACT AND VISITING ARRANGEMENTS

Interested candidates are encouraged to make direct arrangements with:-

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