Training Programme Information for Posts in Cardiothoracic Surgery at ST3 Level

Recruitment 2014

This document has details of all of the training programmes in the UK/Eire/Scotland areas.

Entry requirements for all placements are in line with the Modernising Medical Careers Person specification which can be found on the Specialty Training: http://specialtytraining.hee.nhs.uk/ and the Applicant Guide.

Details of the full curriculum for Cardiothoracic Surgery ST3 can be found on the Intercollegiate Surgical Curriculum Programme (ISCP) website: https://www.iscp.ac.uk/Default.aspx

Further details will be available from your new employing organisation once you have accepted an offer of a post.

<table>
<thead>
<tr>
<th>East of England</th>
<th>East Midlands</th>
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</thead>
<tbody>
<tr>
<td>London (North Thames)</td>
<td>London (South Thames)</td>
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<tr>
<td>Northern</td>
<td>North West and Mersey</td>
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<tr>
<td>South East Scotland</td>
<td>South West</td>
</tr>
<tr>
<td>West Midlands</td>
<td>Yorkshire and Humber</td>
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</tbody>
</table>

Any information not included in this document should be available from specific LETB/deanery websites.
East of England

Rotation Base(s)

<table>
<thead>
<tr>
<th>HOSPITAL</th>
<th>LOCATION</th>
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</thead>
<tbody>
<tr>
<td>PAPWORTH HOSPITAL</td>
<td>PAPWORTH, CAMBRIDGE</td>
</tr>
<tr>
<td>NORFOLK &amp; NORWICH UNIVERSITY HOSPITAL</td>
<td>NORWICH, NORFOLK</td>
</tr>
</tbody>
</table>

Deanery information

Health Education East of England supports around 4,000 medical and dental serving a population of 5.6 million. We aim to inspire excellence in all our trainees to ensure our patients receive the highest standard of safe clinical care. The Deanery also maintains effective quality management of postgraduate medical and dental education and training, and promotes faculty development for our trainers.

Health Education East of England Map

Cardiothoracic Surgery in East of England

Rotation Information

The East of England Training Programme in Cardiothoracic Surgery rotates between:

- Papworth Hospital NHS Foundation Trust *(10 educationally-approved posts in Adult Cardiac Surgery, Thoracic Surgery & Cardiothoracic Transplantation)* and
- Norfolk & Norwich University Hospital *(2 educationally-approved posts in General Thoracic Surgery)*.

Trainees are rotated between posts every 6 month on 1\textsuperscript{st} February and 1\textsuperscript{st} August. During the first 3 years of specialty training, each trainee generally spends (not necessarily in the following order):

- 18 months in Adult Cardiac Surgery at Papworth
- 6 months in General Thoracic Surgery at Norwich
- 6 months in General Thoracic Surgery at Papworth
- 6 months in Transplantation at Papworth

Exposure to congenital cardiac surgery is optional and could be arranged as a period of Out of Program Training (OOPT).

Trust Generic/Specialty Information

Papworth Hospital is the largest Cardiothoracic Centre in the United Kingdom, performing more than 2000 cardiac operations and 450 thoracic surgical procedures annually. There are 5 operating rooms, 32 Critical Care beds and a further 85 ward beds for the exclusive use by cardiothoracic surgery.
Surgical staff include:
- 14 Consultant Surgeons
- 9 Surgical StRs
- 5 Transplant StRs
- 1 National Cardiothoracic Transplant Senior Fellow
- 11 Surgical Care Practitioners
- 8 SHOs (Foundation Trainees or Core Trainees)

Patient services include:
- Adult cardiac surgery, specialist services include:
  - Surgical Maze procedure and Radiofrequency Maze procedure
  - Off-pump coronary artery bypass grafting (OPCAB)
  - Minimally invasive coronary artery bypass (MIDCAB)
  - Mini-sternotomy aortic valve replacement
  - Minimally invasive mitral valve surgery
  - Trans-catheter aortic valve insertion (TAVI)
- Pulmonary thrombo-endarterectomy (PTE) for chronic thromboembolic pulmonary hypertension
- Cardiopulmonary transplantations including:
  - Ventricular Assist Devices as bridge-to-transplant
  - Cardiac and respiratory extra-corporeal membrane oxygenation (ECMO)
  - Ex-vivo lung perfusion (EVLP) for re-conditioning of donor lungs

Approximately 38% of the cardiac procedures and 15% of the thoracic surgical procedures are performed by the trainee or the middle grade doctor under direct supervision at Papworth Hospital. Apart from the surgical exposure and training, the trainees attend outpatient clinics for training, attend daily Consultant-led ward rounds on ITU when on call, and on most occasions present at the weekly cardiac case conference, attend the thoracic MDT and the daily In-House Urgent cardiac MDT.

There are 2 separate duty rotas - one for cardiothoracic surgery and the other for transplantation.

a) Cardiothoracic Surgery:
   1 in 8 or 9 rota that is EWTD compliant – full shift
b) Transplantation:
   1 in 5 on-call rota (non-resident): EWTD compliant.

Of the 14 posts, 9 are deanery funded and 11 are educationally-approved

Norfolk & Norwich University Hospital has the capacity to perform more than 1200 thoracic surgical and oesophageal procedures in a year. Depending on the experience of the trainee, up to 45% of thoracic surgical procedures are performed by the trainee under direct supervision. Apart from this, the STR gets the opportunity to attend clinics (2 per week per trainee), be exposed to patients on ITU and attend up to 5 MDTs a week, which include patients with lung cancer and GI pathologies.

Surgical staff include:
- 3 Consultant Thoracic Surgeons
- 3 Surgical StRs
- 2 SHOs (Foundation Trainees or Core Trainees)

One in three on call rota: EWTD compliant
Two StR posts are deanery funded and educationally approved

**Teaching**

All Consultant Surgeons are dedicated trainers, delivering curriculum-based training on a day-to-day basis.

- Steven Tsui is the Regional Training Program Director & Chairman of the Specialty Training Committee, an Examiner for the Inter-collegiate Board in Cardiothoracic Surgery exam and member of the FRCS (CTh) exam question writing group
- David Jenkins is the RCS (Eng) College Tutor for Core Surgical Trainees, as well as a member of the FRCS (CTh) exam question writing group
- Stephen Large is the Clinical sub-Dean in charge of the medical student program at Papworth Hospital as well as a member of the FRCS (CTh) exam question writing group

Assigned Educational Supervisors (AES) include:
- Max Codispoti
- Suku Nair
- Marco Scarci
- Catherine Sudarshan
- Filip van Tornout

**Hospital-based teaching programme**

- There is a weekly **Cardiac Case Conference** chaired in rotation by each Consultant Surgeon, where various topics are presented and discussed.
- There is a fortnightly **Journal Club**, where trainees select a paper for presentation and discussion, moderated by Consultant Surgeons in rotation
- There is a monthly **Regional Educational Program** based on the Intercollegiate Surgical Curriculum Project syllabus for Cardiothoracic Surgery to which all trainees in the rotation are required to attend. This is coupled with the monthly audit meeting, where cases are presented and discussed in a multi-disciplinary forum.
- There is a monthly **Transplant teaching meeting** and a separate monthly Transplant journal club.
- A **Formal Regional Wet-lab Training** is organised three times a year. This is held in one of the operating rooms in Papworth Hospital and attended by all trainees in the rotation (see inserted photographs)
• Additional **Anatomical Wet-labs** are organized in Papworth and in the Anatomy department of the University of Cambridge.

**Trainee Support & Assessment**

In the East of England Cardiothoracic Surgical training programme, assessment of training and trainee progression is considered of paramount importance. As the trainee joins the programme, an Assigned Educational Supervisor (AES) is appointed by the Regional Training Programme Director (TPD). The AES to trainee ratio is not more than 1:3 at any time. Apart from the AES, Clinical Supervisors (CSs) are also allocated to the trainee as he/she rotate through the programme. There is constant interaction between the AES and CSs discussing the trainee performance and implementing changes that would improve training. AESs conducts feedback both ways between the CSs and the trainee.

Assessment of training and progress is an on-going process in our training rotation. The initial meeting between the trainee and the AES takes place within the first two weeks of taking up a post. At this meeting the training goals are agreed and are clearly documented. A trainee induction pack is handed over to the trainee as well. The AES and TPD will facilitate the trainee achieve these goals. The experience of the trainee is assessed by the AES at the initial meeting and this is communicated to the CSs so that they can optimise the individuals training.

Further meetings between the AES and trainee take place every fortnight, the duration of which is about 1 hour. Assessment of training during these meetings is strictly by monitoring workplace-bases assessments that the trainee has completed.
PBAs, CBDs, SDOPS, mini-CEXs and mini-PAT are the assessment tools we use to assess training and progression. Logbooks are also reviewed at these meetings to assess out-patient clinic attendance and attendance of formal teaching sessions such as wet labs and presentations. A minimum of 20 WBAs (except mini-PAT) over each 6 months is considered the minimum required. Mini-PAT is conducted annually.

During the AES-trainee meetings, time spent in audit and research is also assessed. All trainees are expected to attend at least 1 Consultant-supervised clinic per week where they see both new and follow up patients. They are also encouraged to participate in departmental audit activities and research during their half a day per week protected time.

A formal interim meeting is conducted between the AES and the trainee to assess progression of training after 3 months in post. If performance of the trainee is not satisfactory, remedial steps are advised and enacted upon by the AES. A formal end-of-term final assessment is conducted towards the end of the 6 months’ training period. All trainees maintain a detailed portfolio (both electronic and paper-based) which is regularly reviewed by the AESs.

**GMC Annual Trainee Survey**

For 2010 and 2011, the Cardiothoracic Surgical Training programme in the East of England has obtained the highest score in the UK in “overall satisfaction”.

**Anonymous feedback from the East of England cardiothoracic surgical trainees:**

**ST3 trainee:** I find Papworth continues to offer exceptional cardiac surgical training. It provides vast numbers of cases, catering for all levels of trainee experience as well as exposure to multiple complex cases involving ECMO, aortic surgery and transplantation. Teaching has been strengthened by the addition of fortnightly journal club and the reinstatement of weekly combined morning sessions. The two recent visiting wet lab sessions on aortic root surgery and mitral valve surgery have been exceptional and I hope that not only will these sessions continue but we will also be able to introduce our own permanent wet lab to facilitate training.

**ST5 trainee:**

**Education:** Excellent monthly SpR teaching programme, weekly surgical conferences, fortnightly journal club presentations by SpRs and supervised by Consultants.
Operative experience: Excellent training experience in theatre for all levels of training resulting in exponential increase in surgical experience. Regular, fair allocation of lists, appropriate for stage of training.

ITU experience: Heavy ITU exposure, which I have personally found immensely useful.

Transplant surgery: A very organized team, excellent hands on teaching by the consultant physicians. More surgical (implanting) exposure would be beneficial especially for senior trainees.

Support: High level of support from consultant group who are approachable, helpful and encouraging. The AES system works well.

Research potential: We are encouraged to undertake an audit project every 6 months, and have the opportunity to get involved in projects with our consultants although a more formal in house research programme would be welcome.

Overall: One of the most organized training programmes that I know of, from the education side of things, to the support system with our AESs to the daily allocation of registrars to theatre etc. There is a notable constant push from the consultants to do better and perform better, which is very encouraging.

ST3 trainee Papworth:
Papworth provides a trainee with excellent learning opportunities in theatre, clinic and on the wards. Trainees are actively involved in ITU decision making. It has excellent learning opportunities with an active fortnightly journal club and a weekly local teaching program along with a monthly regional teaching program. The new EWTD compliant rota has decreased the amount of operating each trainee is exposed to.

Year 1 LAT trainee Papworth:
Papworth hospital is without doubt the best training unit in the country. Being a very busy unit the learning opportunities are vast but what is particularly unique is the emphasis on training. As a year 1 trainee I have been extremely fortunate to be posted here

ST3 trainee:
Opportunity to operate is fantastic, and the consultant trainers are very keen to give us opportunities to operate. The ITU training is integral to our progress, but it cuts down theatre time drastically. The 2 thoracic lists I have been involved in here have allowed plenty of opportunity to operate - I did a lot on both lists. I feel a massive loss of continuity coming to a unit where we cannot routinely attend the bosses’ clinics. Is it at all possible to have one SpR: two consultants?

Post-CCT trainee:
The training programme at Papworth is superb:
1. Wide range of clinical cases / experience
2. Excellent exposure to critical care management
3. Ample opportunity for operative training
4. Educational programme that encompasses: a didactic teaching programme, case presentations and a journal club.
East Midlands

<table>
<thead>
<tr>
<th>HOSPITAL</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glenfield Hospital</td>
<td>City Hospital</td>
</tr>
<tr>
<td>Leicester</td>
<td>Nottingham</td>
</tr>
</tbody>
</table>

This is a relatively newly restructured programme based around the Cardiothoracic centres in Nottingham and Leicester under the East Midlands Deanery. This programme is approved for those trainees who wish to become a Specialist Thoracic surgeon, reflected in the internationally recognised higher training in thoracic oncology (lung, pleura and oesophagus).

The programme commences with 2 years in Core Cardiothoracic Surgery including an ITU module; an attachment in Congenital surgery and exposure to adult and paediatric ECMO. In addition there is wide exposure to basic adult thoracic and cardiac surgery. Our aim is to give unrivalled comprehensive preparation for the FRCS(CTh) exam.

**Rotation Information**

**Training Program Director** – Attilio Lotto, Consultant in Congenital Cardiothoracic Surgery, Glenfield Hospital, Leicester [Attilio.Lotto@uhl-tr.nhs.uk]

**Thoracic Training Faculty** – John Duffy, Andrzel Majewski (Nottingham), Apo Nakas, Sri Rathinam (Leicester)

**Cardiac Training Faculty** – David Richens, Ian Mitchell (Nottingham), Prof Tom Spyt, Prof Gavin Murphy (Leicester)

**Congenital/ECMO Training Faculty** – Giles Peek, Attilio Lotto (Leicester)

Expected rotation arrangements for this programme are:

- ST3: 3 months ITU module (Intensive Care Society approved) in Leicester (supernumerary, supervised by Intensivist Dr Allsager, surgical on-call); 9 months basic cardiac surgery in Leicester (Prof Murphy)

- ST4: Basic pleuropulmonary surgery in Nottingham (Mr Majewski)

- ST5: 6 months intermediate adult cardiac surgery in Nottingham [Mr Richens, Mr Mitchell]; 6 months Congenital cardiothoracic surgery/ECMO in Leicester [Mr Peek].

- ST6: Intermediate pleuropulmonary surgery in Leicester [Mr Waller, Mr Nakas]
  These placements are discretionary based upon competency attainment and career progression

- ST7: Advanced oesophageal surgery in Nottingham [Mr Duffy]


**Trust Generic/Specialty Information**
Glenfield Hospital, University Hospitals of Leicester (UHL)

The Cardiothoracic Unit is sited at the Glenfield Hospital. UHL is a university teaching hospital affiliated with Leicester University Medical School. At present the Cardiac Surgical Unit has 49 surgical beds, 23 adult intensive care beds and 10 paediatric intensive care beds. There are five operating theatres. The Cardiothoracic Unit serves the southern half of the East Midlands SHA, which comprises a population of 2.8 million people. The Unit provides a comprehensive medical and surgical service for patients with cardiac and thoracic disease, including congenital heart disease, but excluding transplantation. The annual cardiac surgical workload comprises over 1000 operations for acquired heart disease, 300 operations for congenital heart disease. 80 patients were treated at the regional unit for extra corporeal membrane oxygenation based at this hospital.

The Thoracic Surgical Unit has 22 beds including 5 integrated HDU beds. The full range of pleuropulmonary surgery is performed for Leicestershire, Northamptonshire, South Staffordshire and South Derbyshire together with national referrals for mesothelioma surgery. Annual workload comprises: over 800 thoracic surgical procedures including 35 radical mesothelioma resections and 30 LVRS procedures. Over 15% of all major lung cancer resections are performed by VATS. Trainees carried out 60% of all lung cancer resections last year.

University Hospitals of Leicester NHS Trust -Glenfield Hospital:

Cardiac: 2 training posts, 1 in 5 non-resident rota (currently 1 LAT)
Congenital: 1 training post; supernumerary (currently 1 ST)
Thoracic: 2 training posts, 1 in 5 non-resident rota (currently 1 ST, 1 OOPT)

Nottingham University Hospitals, City Hospital Campus

Nottingham University Hospitals is a major provincial teaching hospital. There are 1207 beds on the City campus. The City Hospital provides a wide range of specialties but there is no Accident and Emergency Department on the campus. When current developments are completed, it will have over 1,400 beds, making it one of the largest hospitals in Europe. All these beds are located on one 85 acre campus, with outpatient facilities and all support services. The hospital employs 4,500 staff, deals with 55,000 inpatients per annum, including day patients, and over 180,000 outpatients per year.

There are several regional specialties: Cardiac Surgery, Thoracic Surgery, Renal Dialysis and Transplantation, Burns and Plastics, Cytogenetics and neonatal Medicine and Surgery.

Over 750 major thoracic operations are performed each year including 60 major oesophageal resections. Over 800 cardiac cases are performed each year through a 16 bedded critical care unit which is staffed by nurse practitioners allowing the trainee surgeons to run a non-resident on-call rota.
Nottingham University Hospitals NHS Trust – Nottingham City Hospital

**Cardiac**: 2 training posts, 1 in 5 rota. *(currently 2 LATs)*

**Thoracic**: 2 training posts, 1 in 5 non-resident rota *(currently 1 ST3, 1 LAT)*

### Teaching

In addition to the local MDTS and weekly departmental teaching sessions the rotation has an organized, comprehensive regional teaching program including a biannual Midlands Cardiothoracic Surgical Meeting which encompasses hands-on training and abstract competitions.

Below is an example of the programme:

**East Midlands Regional Teaching Programme 2012/13**

<table>
<thead>
<tr>
<th>Date</th>
<th>Organiser</th>
<th>Venue</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>September 2012</td>
<td>S Rathinam</td>
<td>Sept 3rd Glenfield Hospital CEC</td>
<td>Midlands Cardiothoracic Surgical Meeting</td>
</tr>
<tr>
<td>October 2012</td>
<td>A Nakas</td>
<td>Glenfield Hospital</td>
<td>Surgery for mesothelioma</td>
</tr>
<tr>
<td>November 2012</td>
<td>G Peek</td>
<td>Nov 5th Glenfield Hospital CEC</td>
<td>ECMO</td>
</tr>
<tr>
<td>December 2012</td>
<td>A Majewski</td>
<td>City Hospital, Nottingham</td>
<td>Thoracic Surgical wetlab</td>
</tr>
<tr>
<td>January 2013</td>
<td>D Waller</td>
<td>Jan City Hospital, Nottingham</td>
<td>VATS simulator training</td>
</tr>
<tr>
<td>February 2013</td>
<td>T Spyt</td>
<td>Glenfield</td>
<td>Coronary artery surgery wetlab</td>
</tr>
<tr>
<td>March 2013</td>
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<td>March 4th West Midlands</td>
<td>Midlands Cardiothoracic Surgical Meeting</td>
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<tr>
<td>April 2013</td>
<td>A Lotti</td>
<td>Glenfield</td>
<td>Congenital surgery</td>
</tr>
<tr>
<td>May 2013</td>
<td>J Duffy</td>
<td>City Hospital, Nottingham</td>
<td>Oesophageal surgery</td>
</tr>
<tr>
<td>June 2013</td>
<td>D Richens</td>
<td>City Hospital, Nottingham</td>
<td>Cardiothoracic trauma</td>
</tr>
</tbody>
</table>

### Summary

The East Midlands offers a compact, comprehensive training program by a closely co-ordinated committed faculty.

We have an almost perfect record in our trainees passing the FRCS(CTh) exam first time and have placed 9 of our last 10 CCT holders into Consultant posts.

We accept that training a general cardiothoracic surgeon is no longer feasible and will aim to train Consultants with highly developed specialist interests.

Further information available from:

Mr Attilio Lotto, TPD [Attilio.Lotto@uhl-tr.nhs.uk](mailto:Attilio.Lotto@uhl-tr.nhs.uk)

Mr Keng Ang, Trainee Rep on RTC [klmailbox@aol.com](mailto:klmailbox@aol.com)
London (North Thames)

Deanery Rotation Base(s)

<table>
<thead>
<tr>
<th>HOSPITAL</th>
<th>LOCATION</th>
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<tr>
<td>The Royal Brompton</td>
<td>Sydney Street, SW3 6NP</td>
</tr>
<tr>
<td>Imperial (Hammersmith)</td>
<td>Du Cane Road, W12 0HS</td>
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<tr>
<td>Imperial (St Mary’s)</td>
<td>Praed Street, W2 1NY</td>
</tr>
<tr>
<td>London Chest Hospital</td>
<td>Bonner Rd, E2 9JX</td>
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<tr>
<td>Great Ormond Street</td>
<td>Bloomsbury, WC1N 3JH</td>
</tr>
<tr>
<td>The Heart Hospital</td>
<td>Westmoreland Street, W1G 8PH</td>
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<tr>
<td>Harefield</td>
<td>Hill End Road, Harefield</td>
</tr>
<tr>
<td>St Bartholomew's</td>
<td>West Smithfield, EC1A 7BE</td>
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Cardiothoracic training in London has undergone significant changes over recent years brought about by enthusiastic and committed trainers and supported by the London Deanery and STC at all levels. The North and South Thames programmes facilitate access to all areas in the London region, allowing for a comprehensive training experience over a very wide range of surgical and academic options. London has an established excellence for training amongst junior doctors, as was shown by 6 out of the top 9 NTN appointments last year choosing this as their top preference.

Rotation Information

Training is delivered at local level by designated education supervisors and overseen and coordinated by an elected group of trainers consisting of the following:

Training Programme Director: Mr Prakash P Punjabi  
North Thames  Imperial College Healthcare NHS Trust – Hammersmith Hospital

Chair of Training Board:  Professor Marjan Jahangiri  
St.George’s Hospital

The North Thames Programme offers a complete range of cardiac and thoracic operations in all 6 adult care hospitals. Interests in aortic/arch work, mitral valve repairs, TAVI and EVAR, OPCAB and mini bypass allow for specialist training. Thoracic surgical experience ranges from major anatomical lung resections to VATs procedures, mesothelioma surgery to endobronchial stenting with laser and cryo cancer management. Paediatric cardiac surgery can be experienced at two sites and paediatric thoracic surgery including specialist tracheal resection and reconstruction work is performed at GOS. Cardiac and pulmonary transplantation is available at Harefield and together with the Brompton, both sites offer LVAD and ECMO mechanical support programmes. All institutions have established academic programmes with access to clinical and basic sciences facilities. Trainees can choose to undertake a period of formal research leading to a higher degree or they can engage with existing clinical, science or audit projects. Encouragement and assistance is given to the trainees to submit work for presentations and publications, forming part of their annual evaluation.
A curriculum based Pan Thames education programme is now established, where NTNs and other interested trainees receive dedicated consultant lead teaching using lectures, interactive sessions, wetlabs and simulators. The programme also incorporates two regular cardiothoracic RSM meetings per year, where invited international speakers discuss the latest topics. A senior thoracic programme is being set up for dedicated ST7/8 trainees who have passed the exit FRCS exam and are looking for specialist thoracic training prior to CCT. This will rotate through all the recognized thoracic centres in London and also invite the Basildon cardiothoracic centre which can provide high volume mesothelioma surgery. It is envisaged to have one trainee per annum appointed through a competitive interview process and open to all national trainees.

The NTNs are provided with education contracts at the start of their rotation and progress is monitored and logged using the ISCP web site. There are 3 annual London STC meetings including representatives from the SAC and trainees. Standards are maintained through regular ARCP/RITA interviews but trainees are also encouraged to have more informal discussions with their supervisors to ensure that personal training and development is discussed. This allows for appropriate matching of trainers with trainees to be made so that optimum training experience is attained. If focused training is required, a meeting is convened between the trainee, TPD and trainer and a suitable plan is formulated. A policy exists in North Thames to facilitate for ST7/8 trainees to be excluded from the routine on-call commitments so to maximise training prior to CCT. Specialist experience in EVAR and aortic hybrid surgery is available at the Heart and The Royal London, heart/lung transplantation at Harefield, Level 3 trauma experience at The London and St Mary’s, angio and echo simulators with regular TOE courses at the London Chest and the Heart.

The London School of Surgery regularly visits and assesses the hospitals with Core and Specialist Trainees. The trainees are interviewed and encouraged to comment anonymously on their training opportunities within the programme. The visit also looks at IT and library access and checks for EWDT compliance. A report is compiled and sent to the Chief Executive, detailing the findings and suggesting changes or giving commendations. Funding from the Deanery is discretionary and may be withdrawn if standards are not met.

North Thames currently has a total of 14 NTNs. It remains the firm conviction of all the trainers to continue improving and expanding the programme while maintaining the high standards required to train the next generation of cardiothoracic surgeons.
Training jobs in North Thames:

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Current No. of NTNs</th>
<th>Approved No. of NTNs</th>
<th>Current No. of CT1/2s</th>
<th>Approved No. of CT1/2s</th>
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<td>4</td>
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<tr>
<td>Barts</td>
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<td>2</td>
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<tr>
<td>Hammersmith</td>
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<td>1</td>
</tr>
<tr>
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Non NTN clinicians:

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<tr>
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<td>7</td>
<td>½</td>
<td>4*</td>
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</table>

* SCPs in training

Core trainee data:

North Thames has 3 separate core training programmes overseen by the Deanery. These are general surgical rotations which offer 4 month stints at CT1 or 6 month stints at CT2 in cardiothoracic surgery. There is no ST run through option. These placements are often over subscribed as the trainees recognise the good surgical experience on offer, a chance to get ITU management experience and the general enthusiasm for teaching by the trainers. The hospitals currently having core trainees include Barts, London Chest, Royal Brompton, Harefield and Hammersmith.
Trust Generic/Specialty Information

Learning opportunities in the region:

<table>
<thead>
<tr>
<th>Education opportunities for NTNs</th>
<th>North Thames</th>
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<td></td>
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<tr>
<td>EWDT rota</td>
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<td>Wet labs</td>
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<td>Simulator training</td>
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<tr>
<td>Clinic – new pts</td>
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</tr>
<tr>
<td>Library</td>
<td>yes</td>
</tr>
<tr>
<td>Internet access</td>
<td>yes</td>
</tr>
<tr>
<td>Research options</td>
<td>yes</td>
</tr>
<tr>
<td>ISCP assessments</td>
<td>yes</td>
</tr>
<tr>
<td>Study leave</td>
<td>yes</td>
</tr>
<tr>
<td>Flexible training</td>
<td>yes</td>
</tr>
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</table>
Cardiac Training:

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Total</th>
<th>Other</th>
<th>CABG All</th>
<th>CABG Trainee</th>
<th>AVR All</th>
<th>AVR Trainee</th>
<th>MVR All</th>
<th>MVR Trainee</th>
<th>CABG+Valve All</th>
<th>CABG+Valve Trainee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barts and London Chest</td>
<td>1163</td>
<td>93</td>
<td>718</td>
<td>287 (40%)</td>
<td>135</td>
<td>21 (16%)</td>
<td>8</td>
<td>10%</td>
<td>139</td>
<td>18 (13%)</td>
</tr>
<tr>
<td>Brompton</td>
<td>757</td>
<td>24</td>
<td>435</td>
<td>186 (43%)</td>
<td>155</td>
<td>40 (26%)</td>
<td>67</td>
<td>3%</td>
<td>76</td>
<td>13 (17%)</td>
</tr>
<tr>
<td>Hammersmith</td>
<td>900</td>
<td>77</td>
<td>552</td>
<td>50 (10%)</td>
<td>147</td>
<td>10 (7%)</td>
<td>66</td>
<td>25%</td>
<td>58</td>
<td>2 (4%)</td>
</tr>
<tr>
<td>Harefield</td>
<td>990</td>
<td>64</td>
<td>498</td>
<td>240 (48%)</td>
<td>165</td>
<td>34 (21%)</td>
<td>59</td>
<td>3 (5%)</td>
<td>254</td>
<td>23 (9%)</td>
</tr>
<tr>
<td>Heart</td>
<td>957</td>
<td>57</td>
<td>470</td>
<td>218 (46%)</td>
<td>216</td>
<td>76 (35%)</td>
<td>105</td>
<td>25 (24%)</td>
<td>109</td>
<td>27 (24%)</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>4767</strong></td>
<td><strong>315</strong></td>
<td><strong>2673</strong></td>
<td><strong>791 (30%)</strong></td>
<td><strong>879</strong></td>
<td><strong>181 (21%)</strong></td>
<td><strong>375</strong></td>
<td><strong>38 (17%)</strong></td>
<td><strong>636</strong></td>
<td><strong>83 (13%)</strong></td>
</tr>
</tbody>
</table>

These figures represent cases performed by trainee as first operator.

All trainees will operate or assist in 100% of allocated theatre time. They will perform a part of the operation in 91% of all cases e.g. open, close, IMA etc.

The numbers can vary significantly with the level of experience amongst the trainees. The Hammersmith figures are skewed by an NTN being present for only 6 months in the year and the rest of the trainees being junior.
Thoracic training:

Total number of thoracic cases for North Thames as detailed:

<table>
<thead>
<tr>
<th>Total Thoracic work</th>
<th>Hospital</th>
<th>Lung resections pneumonectomy - lobectomy - wedge - mets</th>
<th>VATs</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>All</td>
<td>Trainee</td>
<td>All</td>
</tr>
<tr>
<td>389</td>
<td>Barts and London Chest</td>
<td>86</td>
<td>52 (58%)</td>
<td>73</td>
</tr>
<tr>
<td>991</td>
<td>Brompton</td>
<td>274</td>
<td>92 (34%)</td>
<td>53</td>
</tr>
<tr>
<td>355</td>
<td>Hammersmith</td>
<td>39</td>
<td>12 (31%)</td>
<td>126</td>
</tr>
<tr>
<td>1220</td>
<td>Harefield</td>
<td>214</td>
<td>137 (71%)</td>
<td>286</td>
</tr>
<tr>
<td>681</td>
<td>Heart</td>
<td>220</td>
<td>82 (37%)</td>
<td>337</td>
</tr>
<tr>
<td>3636</td>
<td></td>
<td>833</td>
<td>375 (45%)</td>
<td>875</td>
</tr>
</tbody>
</table>

Other procedures include: endoscopy, thymectomy, decortication, lung transplant, endobronchial stents, pectus repairs, trauma, lung volume reduction and chest wall reconstruction.

Barts and The London NHS Trust (BLT)

General: BLT is composed of Barts and the London Chest hospitals. There are a total of 9 consultants working between the two sites. Being part of the same Trust allows for easy interchange of staff so training opportunities can be optimised. The work comprises of adult cardiac and thoracic surgery with interests in aortic/arch, TAVI, mitral valve repair, VATS, chest wall reconstruction and some mesothelioma surgery. The Royal London offers a Level 3 casualty department with a dedicated trauma team and cardiothoracic trainees are frequently involved with chest trauma.

Monthly audit and training days are held jointly where consultants and trainees interact over teaching and training issues. Weekly curriculum based teaching at the London Chest is commended by the trainees (ref Appendix 1 and 2). Regular cardiac and thoracic MDTs take place weekly and the trainees are encouraged to see new and follow up patients in clinics. TOE and angio simulators are available at the London Chest and wet labs are organised as part of pan Thames training or local education events on both sites. In 2014 both hospitals will merge into one new block at the Barts site. This will consolidate training experience for both NTN and non NTN doctors allowing for a more efficient on-call arrangements which will further improve surgical time for trainees.
| Cardiac Procedures | Number performed | Trainee as first operator (%)
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CABG only</td>
<td>718</td>
<td>237 (33%)</td>
</tr>
<tr>
<td>CABG + Valve</td>
<td>139</td>
<td>18 (13%)</td>
</tr>
<tr>
<td>CABG + Valve + Other</td>
<td>15</td>
<td>1 (7%)</td>
</tr>
<tr>
<td>CABG + Other</td>
<td>13</td>
<td>1 (8%)</td>
</tr>
<tr>
<td>AVR</td>
<td>135</td>
<td>18 (13%)</td>
</tr>
<tr>
<td>MVR</td>
<td>73</td>
<td>8 (11%)</td>
</tr>
<tr>
<td>TAVI</td>
<td>38</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Other</td>
<td>33</td>
<td>4 (10%)</td>
</tr>
<tr>
<td>Overall</td>
<td>1071</td>
<td>266 (25%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sub-procedures</th>
<th>% performed by trainees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sternotomy</td>
<td>86</td>
</tr>
<tr>
<td>LIMA harvest</td>
<td>85</td>
</tr>
<tr>
<td>Aortic cannulation</td>
<td>69</td>
</tr>
<tr>
<td>Top end</td>
<td>42</td>
</tr>
<tr>
<td>Bottom ends</td>
<td>35</td>
</tr>
<tr>
<td>Chest closure</td>
<td>91</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Thoracic Procedures</th>
<th>No.</th>
<th>Trainee</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumonectomy</td>
<td>10</td>
<td>52</td>
<td>58%</td>
</tr>
<tr>
<td>Lobectomy</td>
<td>67</td>
<td>45</td>
<td>61%</td>
</tr>
<tr>
<td>Wedge resection</td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VATs</td>
<td>73</td>
<td>45</td>
<td>61%</td>
</tr>
<tr>
<td>Total</td>
<td>162</td>
<td>97</td>
<td>60%</td>
</tr>
</tbody>
</table>

**Other higher surgical trainees:** There are currently 7 non NTN registrars on each site. A further research registrar is available to cover nights and weekends on both sites. The registrars have currently jointly opted out of the EWTD and all agreed to training run at 2A band rota. This has allowed for more theatre time and better continuity of care. However, there is current pressure from senior Trust management to be compliant with a 48 hrs week. If this is implemented it will require 10 registrars per site, the consultants involved with training and education have affirmed that at this stage the current NTNs will be taken out of the registrar rota and will have their training time protected.

**Junior staff:** There are a total of up to 4 CT1/2 places between Barts and the London Chest. The allocation is decided internally with free choice given to the trainees. The London Chest rota is composed of 4 surgical CT/SHOs, 4 medical SHOs and 6 Surgical Care Practitioners (SCPs) shared between both sites. The SCPs are currently in training but are expected to be qualified within 2 years. Their role is to help with training of CT doctors in vein harvesting and other basic surgical procedures, provide ward and clinic cover and be part of the on-call at night. This has allowed for a much better theatre time allocation for the surgical trainees.

**Other information:** There are monthly joint training days and each institution has a weekly teaching sessions. Wet lab sessions occur at the London Chest with the presence of at least one consultant as a mentor. The junior trainees are encouraged
to complete at least one audit and submit a publication during their stay. Both sites have junior doctor offices with internet access and printers. Study leave is given for attendance of appropriate courses, meetings and examinations.

**Trauma** – The Royal London has a Level 3 Trauma centre allowing senior trainees to be involved. Completion of the DSTS course at the RCS forms part of the required training.

Research options exist at the Charterhouse site where a new Heart Research Centre has just been completed. A number of previous trainees have obtained higher degrees from this institute.

**The Heart Hospital**

**General:** The Heart has developed greatly over the past two years as confirmed by a recent Deanery visit. The consultant numbers have been increased with two new appointments and its reputation as a leading research institution firmly re-established by the addition of Professor Chris McGregor previously Chief at Mayo Clinic. The hospital provides adult cardiac and thoracic work. There is a developing endovascular work in collaboration with UCL, a large HOCM work load, a recently started TAVI programme and a regular GUCH list by a visiting congenital surgeon. There is a strong VATs thoracic interest and several regional thoracic MDTs available to trainees. Research and development is well supported and now driven by Professor McGregor, this is backed up with the close and long standing academic links with the world renowned Hatter Institute at UCL.

<table>
<thead>
<tr>
<th>Cardiac Procedures</th>
<th>Number performed</th>
<th>Trainee as first operator (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CABG only</td>
<td>470</td>
<td>218 (46%)</td>
</tr>
<tr>
<td>CABG + Valve</td>
<td>109</td>
<td>27 (25%)</td>
</tr>
<tr>
<td>GUCH</td>
<td>53</td>
<td>3 (6%)</td>
</tr>
<tr>
<td>Complex</td>
<td>57</td>
<td>6 (11%)</td>
</tr>
<tr>
<td>AVR</td>
<td>216</td>
<td>76 (35%)</td>
</tr>
<tr>
<td>MVR</td>
<td>105</td>
<td>25 (24%)</td>
</tr>
<tr>
<td>TAVI</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Total:</td>
<td>1083</td>
<td>355 (33%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Thoracic Procedures</th>
<th>No.</th>
<th>Trainee</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumonectomy</td>
<td>3</td>
<td>82</td>
<td>37%</td>
</tr>
<tr>
<td>Lobectomy</td>
<td>82</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wedge resection</td>
<td>135</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VATs</td>
<td>337</td>
<td>172</td>
<td>51%</td>
</tr>
<tr>
<td>Total</td>
<td>557</td>
<td>254</td>
<td>46%</td>
</tr>
</tbody>
</table>

**Educationally approved places:** There are a total of 3 Deanery educationally approved places. The Heart have 1 NTN, Kelvin Lim who has attained CCT and is getting further specialist experience in EVAR and aortic work *(Appendix 2).* The post CCT post is excluded from the normal on-call rota to maximize training time.
Other higher surgical trainees: There are further 8 registrars participating in the rota which makes it EWTD compliant.

Junior staff: Currently there are no Core trainees at the Heart but there is considerable interest from UCL.

Other information: IT support includes access to multiple computers, desk space in dedicated study room and access to electronic journals at the RSM. There are weekly teaching sessions covering curriculum based topics. A “Masterclass” bimonthly event is being set up where local trainees are invited to attend teaching on specified topics utilising the availability of wet lab and simulator facilities.

EVAR – The endovascular programme has flourished to a point where it is attracting national and international interest.

Imperial (comprising Hammersmith and St Mary’s)

General: Hammersmith hospital is now part of Imperial College and last year amalgamated with St Mary’s. With the addition of four extra consultants including Professor Angelini from Bristol, it has become one of the biggest units in London. The centre offers full range of adult and thoracic surgery with specialist interests in mini bypass, OPCAB, minimally invasive surgery including robotics and a TAVI programme.

<table>
<thead>
<tr>
<th>Cardiac Procedures</th>
<th>Number performed</th>
<th>Trainee as first operator (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CABG only</td>
<td>552</td>
<td>50 (9%)</td>
</tr>
<tr>
<td>CABG + Valve</td>
<td>58</td>
<td>2 (4%)</td>
</tr>
<tr>
<td>Complex</td>
<td>69</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>AVR</td>
<td>147</td>
<td>10 (7%)</td>
</tr>
<tr>
<td>MVR</td>
<td>66</td>
<td>15 (25%)</td>
</tr>
<tr>
<td>TAVI</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td>Total:</td>
<td>907</td>
<td>62 (7%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Thoracic Procedures</th>
<th>No.</th>
<th>Trainee</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumonectomy</td>
<td>1</td>
<td>12</td>
<td>31%</td>
</tr>
<tr>
<td>Lobectomy</td>
<td>23</td>
<td>70</td>
<td>55%</td>
</tr>
<tr>
<td>Wedge resection</td>
<td>15</td>
<td>82</td>
<td>50%</td>
</tr>
<tr>
<td>VATs</td>
<td>126</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total:</td>
<td>165</td>
<td>82</td>
<td>50%</td>
</tr>
</tbody>
</table>

Junior staff: There are 2 CT1/2 positions and 4 FY2 placements. Help and encouragement is given to all the trainees in a supportive and academically very active environment.

Other information: There are ample opportunities for trainees to see new patients in the weekly cardiothoracic surgery clinics. The clinics contain a variety of pathology and are an excellent environment for teaching and assessment in the form of case
based discussions. Trainees are expected to see new patients and discuss management with their consultant. There are two doctors offices – one on the CICU and one on ward. The trainees have access to IT facilities within the Imperial College Healthcare NHS Trust as well as Imperial College London facilities within the Imperial College Hammersmith campus library.

Weekly teaching programme on Friday mornings is designed to cover the entirety of the cardiothoracic surgery syllabus. Talks are given by visiting lecturers and also by junior staff. The Hammersmith Hospital has hosted several wet labs in the past and in fact was one of the earliest supporters of the Wet Lab project (please see website for letters of support). The trust has recently developed a surgical skills lab in the postgraduate department. This has laparoscopic simulators, mainly for general surgeon and gynaecologists but also has potential to be used for thoracoscopic training. We are hoping to use these facilities to setup wet lab skills stations for CT/ST trainees.

There is a weekly Joint Cardiology-Cardiac (JCC) conference at the Hammersmith Hospital. Trainees are given numerous opportunities to attend weekly thoracic MDTs at Hammersmith, St.Mary’s, West Middlesex and Ealing Hospitals.

**Intensive Care** - One of the great strengths of the Hammersmith Cardiothoracic surgery training is the exposure and experience of managing the surgeon led cardiothoracic intensive care unit. Hammersmith is in a unique position to offer excellent intensive care experience for junior (ST3-6) trainees.

**Minimally invasive surgery** - With the recent appointment of Mr Marco Solinas, for minimal access mitral surgery, there are excellent opportunities for all trainees to be exposed to this novel technique. In addition with the presence of leading mitral valve surgeon, Mr Punjabi and the volume of over 100 mitral valve procedure performed annually, the Hammersmith would be an excellent place for a senior pre or post CCT trainees to develop their interest in mitral valve surgery.

**Trauma** - The recent designation of St. Mary’s Hospital as a Major Trauma centre for London and South East will increase the exposure of trainees to the management of thoracic trauma. There is a newly developed trauma ward and cardiothoracic trainees will be part of the full trauma team, under the supervision of a Trauma Consultant at St. Mary’s.

**Academia** - The Hammersmith Hospital has a very strong track record and worldwide reputation for high quality cardiac surgery research. Imperial College Healthcare NHS Trust was the UK’s first Academic Health Sciences centre and represents one of the country’s leading cardiovascular research units. The academic profile of the unit has been strengthened by the recent appointment of Professor Giani Angelini from Bristol. There are close ties with Imperial College and the National Heart and Lung Institute, Cardiovascular Sciences Division headed by Professor Dorian Haskard. A new cardiovascular sciences block for the NHLI is being built on the Hammersmith site which will further enhance the excellent environment for translational research. A new large animal facility has also been constructed which will enable translational research using porcine models which will be an excellent opportunity for surgical trainees considering research projects for higher degrees. The academic cardiac surgery unit at the Hammersmith has a long
tradition of training many generations of cardiothoracic surgery trainees and we aspire to continue to attract the brightest and most talented surgeons.

**Harefield Hospital**

**General:** Harefield enjoys a worldwide reputation as a leader in transplantation and innovation in cardiothoracic surgery. It offers the full range of adult cardiac and thoracic procedures and is the only institution in London to have a heart and lung transplant programme. There is a separate thoracic department with a high throughput of activity with interest in endobronchial work. Other areas of interest include OPCAB and minimally invasive cardiac surgery. There is a well established research unit with a large basic sciences lab.

<table>
<thead>
<tr>
<th>Cardiac Procedures</th>
<th>Number performed</th>
<th>Trainee as first operator (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CABG only</td>
<td>498</td>
<td>240 (48%)</td>
</tr>
<tr>
<td>CABG + Valve</td>
<td>254</td>
<td>23 (21%)</td>
</tr>
<tr>
<td>Complex</td>
<td>66</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>AVR</td>
<td>165</td>
<td>34 (7%)</td>
</tr>
<tr>
<td>MVR</td>
<td>59</td>
<td>3 (5%)</td>
</tr>
<tr>
<td>Total:</td>
<td>928</td>
<td>60 (32%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Thoracic Procedures</th>
<th>No.</th>
<th>Trainee</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumonectomy</td>
<td>9</td>
<td>137</td>
<td>71%</td>
</tr>
<tr>
<td>Lobectomy</td>
<td>117</td>
<td>241</td>
<td>83%</td>
</tr>
<tr>
<td>Wedge resection</td>
<td>88</td>
<td>659</td>
<td>91%</td>
</tr>
<tr>
<td>VATs</td>
<td>286</td>
<td>241</td>
<td>83%</td>
</tr>
<tr>
<td>Other</td>
<td>720</td>
<td>1037</td>
<td>85%</td>
</tr>
<tr>
<td>Total</td>
<td>1220</td>
<td>1238</td>
<td>85%</td>
</tr>
</tbody>
</table>

Some of the other procedures:
- Thymectomy 6
- Lung transplant 43
- Decortications 35
- Pectus repair 5
- LVRS 5
- Endobronchial cryo 98
- Endobronchial stent 38

**Educationally approved places:** There are 2 Deanery approved thoracic posts but the evidence suggests that there is ample opportunity for cardiac training. The rota is non resident and EWTD compliant.

**Other higher surgical trainees:** There are 3 thoracic registrars who are non resident, the rest cover the cardiac and transplant side.

**Junior staff:** The SHO rota has 1 CT1 post as part of the general surgical rotation. The rest of the SHO rota is covered by trust grade doctors and two SCPs.

**Other information:** Regular teaching meeting include weekly journal club in cardiac and thoracic surgery, weekly X-ray teaching meeting, weekly teaching thoracic MDT and option for 2 further MDTs out of region. There are 6 teaching ward rounds.
weekly, 2 each for each thoracic trainee and 1 clinic weekly per thoracic trainee with on the spot training and assessments by the consultant.

There is an excellent library on site with access to Medline and OVID. Links with Mount Vernon and Imperial allow for both thoracic and cardiac based research to be carried out.

Funding has been obtained for a new training centre which will allow regular teaching/wet labs/simulators in both cardiac and thoracic surgery along with chest medicine.

**The Royal Brompton**

**General:** The Brompton has a long established reputation as a cardiothoracic institution of excellence. It offers all adult cardiac and thoracic procedures plus paediatric cardiac surgery and interests in aortic/arch procedures, MV repair, robotic and minimally invasive surgery. The research options have improved even more with the Brompton joining Imperial College.

<table>
<thead>
<tr>
<th>Cardiac Procedures</th>
<th>Number performed</th>
<th>Trainee as first operator (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CABG only</td>
<td>435</td>
<td>186 (43%)</td>
</tr>
<tr>
<td>CABG + Valve</td>
<td>76</td>
<td>13 (19%)</td>
</tr>
<tr>
<td>Complex</td>
<td>24</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>AVR</td>
<td>155</td>
<td>40 (26%)</td>
</tr>
<tr>
<td>MVR</td>
<td>67</td>
<td>2 (3%)</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>757</strong></td>
<td><strong>241 (32%)</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LIMA</th>
<th>450</th>
<th>355 (79%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radial Artery</td>
<td>38</td>
<td>32 (84%)</td>
</tr>
<tr>
<td>Sternotomy</td>
<td>546</td>
<td>425 (78%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Thoracic Procedures</th>
<th>No.</th>
<th>Trainee</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumonectomy</td>
<td>7</td>
<td>68</td>
<td>25%</td>
</tr>
<tr>
<td>Lobectomy</td>
<td>121</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wedge resection</td>
<td>29</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metastectectomy</td>
<td>117</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VATs</td>
<td>53</td>
<td>23</td>
<td>43%</td>
</tr>
<tr>
<td>Other</td>
<td>644</td>
<td>417</td>
<td>67%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>991</strong></td>
<td><strong>346</strong></td>
<td><strong>27%</strong></td>
</tr>
</tbody>
</table>

**Educationally approved places:** The Brompton has 5 Deanery approved posts with 3 NTNs presently in place. The system has a separate on-call thoracic rota who are
nonresident. The cardiac rota is 3 tiered with 3 “senior” registrars, 2 NTN and 1 FTTA who are nonresident, supported by 8 resident registrars. The rota is EWTD compliant.

**Junior staff:** The Brompton has 8 approved CT1/2 places as part of the general surgical rotation, currently 3 are vacant. Further support is provided by 3 SCPs.

**Other information:** The Brompton runs regular wet lab sessions under Mr Trimlett’s supervision and further theatre simulator experience is available at St George’s. Weekly teaching sessions and journal clubs are organised by the senior trainees. Thoracic and cardiac MDTs occur weekly in house and there are further options out of the region.

International meeting on Aortic Surgery and TAVI have been organized by Professor Pepper, Mario Petrou and Neil Moat.

4 trainees have completed higher degrees over the last 3 years and two more are currently engaged with PhDs.

**Teaching**

**Curriculum based Pan Thames Education Programme 2011-12**

- RSM Valve Symposium
  - 18-19 November 2010

- Mitral Valve Disease – London Chest Hospital
  - Monday 13 December 2010

- Ischaemic Heart Disease – King’s College London
  - Friday 28 January 2011

- STCS Meeting
  - London 20-22 March 2011

- Case based scenario day - London Chest Hospital
  - Tuesday 26 April 2011

- RSM Meeting Friday 24 June 2011

- Simulator clinical training – St George’s Hospital
  - Friday 29 July 2011

- Aortic Surgery (Thoraco abdominal) – St Thomas’ Hospital
  - Friday 16 September 2011

- Lung Cancer (Diagnosis and Management) – Brompton
  - Friday 28 October 2011

- RSM Meeting November 2011
Perfusion Workshop – Hammersmith
Friday 11 December 2011

Mesothelioma / Chest Wall Surgery / Tests – Guy’s
Friday 27 January 2012

Aortic Valve Disease and Aortic Dissection - London Chest Hospital
Monday 12 March 2012

STCS and ACTA joint meeting Manchester
April 2012

Benign Thoracic Disease – Harefield
Friday 1 June 2012

**Academic activity:**

<table>
<thead>
<tr>
<th>Hospitals</th>
<th>Academic leads</th>
<th>Associated Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barts and London Chest</td>
<td>Prof A Timmis – cardiology</td>
<td>Charterhouse</td>
</tr>
<tr>
<td></td>
<td>Prof R Schilling – electrophysiology</td>
<td>Cardiovascular Science</td>
</tr>
<tr>
<td></td>
<td>Prof A Mathur – stem cells</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prof T Warner – basic science</td>
<td>Queen Mary University</td>
</tr>
<tr>
<td>Heart</td>
<td>Prof C McGregor - clinical</td>
<td>UCL</td>
</tr>
<tr>
<td></td>
<td>Prof D Yellon – basic science</td>
<td></td>
</tr>
<tr>
<td>Bromton and Harefield</td>
<td>Prof J Pepper</td>
<td>Imperial College</td>
</tr>
<tr>
<td>Hammersmith</td>
<td>Prof G Angelini</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prof T Athanasiou</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prof N Peters – Electrophysiology</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prof D Haskard – Vascular Biology</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
London (South Thames)

Deanery Rotation Base(s)

<table>
<thead>
<tr>
<th>HOSPITAL</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guy's Hospital</td>
<td>Great Maze Pond, London SE1 9RT</td>
</tr>
<tr>
<td>King’s College Hospital</td>
<td>Denmark Hill, London SE5 9RS</td>
</tr>
<tr>
<td>Royal Sussex County Hospital</td>
<td>Eastern Rd, Brighton, East Sussex BN2 5BE</td>
</tr>
<tr>
<td>St George’s Hospital</td>
<td>Blackshaw Rd, London SW17 0QT</td>
</tr>
<tr>
<td>St. Thomas's Hospital</td>
<td>Lambeth Palace Rd, City of London SE1 7EH</td>
</tr>
</tbody>
</table>

Deanery information

The South Thames Programme provides a comprehensive range of operations in adult cardiac, paediatric cardiac and thoracic surgery. In addition to routine procedures, the programme provides specialist training in off-pump CABG, mitral valve repair, surgery for aortic root (including valve preserving procedure), arch surgery and de-branching techniques, trans-catheter valve implantation, mini-bypass, mini aortic valve replacement, VATS lung resection, surgery for mesothelioma and Norwood operation. Some of these specialist areas have been highlighted in the last addition of the Blue Book. In the South Thames programme, specialist training in imaging, including echocardiography, by spending time in the echo lab, also obtaining endovascular and cardiological techniques by spending time in the catheter lab, are also provided. These training opportunities have been discussed with the cardiologists, vascular interventionalists and radiologists and the placements are confirmed.

Programme Director

Mr Jatin Desai
King’s College Hospital

Teaching

i. Trainers

General

All the consultants of the rotation have completed TtT, TAIP and have registered with ISCP. All these courses were approved by the Deanery and were either completed at the Deanery or the relevant teaching hospitals. All the educational supervisors have also completed ‘Managing the trainees in difficulty’ course. All consultants involved in research have completed ‘Good Clinical Practice’ course.

The chairman of the Intercollegiate Speciality examining Board, Cardiothoracic Surgery, Mr. EEJ. Smith is Consultant Cardiothoracic Surgeon at St. George's Hospital.

The London School of Surgery is committed to this process and equivalent of 0.25 PA is planned for cardiothoracic surgeons who are educational supervisors. This has already been implemented in some of the job plans.
There is strong link between cardiothoracic surgery trainers and other trainers in anaesthesia, cardiology (particularly imaging), vascular surgery (particularly endovascular management) and catheter based techniques. The training of these associated specialties has been discussed with the respective trainers and there is already a well defined period in the curriculum for the trainees to attend these sub-specialties. Some of the specialist registrars in the rotation are already receiving training in, eg. trans-catheter aortic valve implantation and endovascular stenting. Furthermore, one of the existing NTNs, Mr. Neil Roberts (training number SHF/029/202/N) had taken 6 months out and is trained in endovascular therapy.

In addition, there is a well defined training programme both on intensive care units and post-graduate centres for insertion and management of Swan Ganz, haemofiltration and ventilation.

**Guy’s**

**Educational supervisor:** Mr. Tom Routledge FRCS – Consultant Thoracic Surgeon

<table>
<thead>
<tr>
<th>Name</th>
<th>TTT</th>
<th>TAIP</th>
<th>ISCP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Miss. Karen Harrison-Phipps FRCS Consultant Thoracic Surgeon</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Mr. Tom Routledge FRCS Consultant Thoracic Surgeon</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Miss. Juliet King FRCS Consultant Thoracic Surgeon</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mr. Loic Lang-Lazdunski FRCS Consultant Thoracic Surgeon</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Evidence for Curriculum based training (cont.)**

**King’s**

**Educational supervisor:** Mr. Jatin Desai, FRCS – Consultant Cardiac Surgeon

<table>
<thead>
<tr>
<th>Name</th>
<th>TTT</th>
<th>TAIP</th>
<th>ISCP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. Jatin Desai FRCS Consultant Cardiac Surgeon</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Mr. Olaf Wendler FRCS Consultant Cardiac Surgeon</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Mr. Lindsay John FRCS Consultant Cardiac Surgeon</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Mr. Mike Marrinam FRCS Consultant Cardiothoracic Surgeon</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Mr. Ranjit Deshpande FRCS Consultant Cardiac Surgeon</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>
## RSCH

**Educational supervisor:** Mr. Uday Trivedi, FRCS – Consultant Cardiac Surgeon

<table>
<thead>
<tr>
<th>TtT</th>
<th>TAIP</th>
<th>ISCP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. Jonathan Hyde FRCS Consultant Cardiac Surgeon</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Mr. Uday Trivedi FRCS Consultant Cardiac Surgeon</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Mr. Andrew Cohen FRCS Consultant Cardiac Surgeon</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Mr. Michael Lewis FRCS Consultant Cardiac Surgeon</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

## St. George’s

**Educational supervisor:** Mr. Ian Hunt, FRCS – Consultant Thoracic Surgeon

<table>
<thead>
<tr>
<th>TtT</th>
<th>TAIP</th>
<th>ISCP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor Marjan Jahangiri FRCS Consultant Cardiac Surgeon</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Mr. V Chandrasekaran FRCS Consultant Cardiac Surgeon</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Mr. Mazin Sarsam FRCS Consultant Cardiac Surgeon</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Mr. Robin Kanagasabay FRCS Consultant Cardiothoracic Surgeon</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Mr. E E J Smith FRCS Consultant Cardiothoracic Surgeon</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Mr. Ian Hunt FRCS Consultant Thoracic Surgeon</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Miss. Carol Tan FRCS Consultant Thoracic Surgeon</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

## St. Thomas’

**Educational supervisor:** Mr. Vinnie Bapat, FRCS – Consultant Cardiac Surgeon

<table>
<thead>
<tr>
<th>TtT</th>
<th>TAIP</th>
<th>ISCP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. Fik Shabbo FRCS Consultant Cardiac Surgeon</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Mr. Graham Venn FRCS Consultant Cardiac Surgeon</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Mr. Chris Young FRCS Consultant Cardiac Surgeon</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Mr. James Roxburgh FRCS Consultant Cardiac Surgeon</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Mr. Vinnie Bapat FRCS</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>
Consultant Cardiac Surgeon

<table>
<thead>
<tr>
<th>Consultant Cardiac Surgeon</th>
<th>+</th>
<th>+</th>
<th>+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. Chris Blauth FRCS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consultant Cardiac Surgeon</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Mr. David Anderson FRCS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consultant Cardiac Surgeon</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Mr. Conal Austin FRCS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consultant Cardiac Surgeon</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

ii. Training programme and trainee activity profile

Cardiac training

The trainees contribute to all the cases and all the centres involved in South Thames Deanery. This figure varies from a minimum of 50% for non-NTN to a maximum of 96% for NTN. Please note that some of the units on the rotation have not had an NTN for the past two years. The following table shows the number of cases performed by both NTN and non-NTN trainees for complete cases and when part of the cases was performed, eg. open and closed chest, harvesting of conduits.

**Cardiac cases performed by trainees**

<table>
<thead>
<tr>
<th>King’s</th>
<th>RSCH</th>
<th>St. George’s</th>
<th>St. Thomas’</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Complete cases</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NTN</td>
<td>7%</td>
<td>20%</td>
<td>39%</td>
</tr>
<tr>
<td>non NTN</td>
<td></td>
<td></td>
<td>11%</td>
</tr>
<tr>
<td><strong>Open chest</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NTN</td>
<td></td>
<td>75%</td>
<td>86%</td>
</tr>
<tr>
<td>non NTN</td>
<td>50%</td>
<td>75%</td>
<td>72%</td>
</tr>
<tr>
<td><strong>Close chest</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NTN</td>
<td></td>
<td>75%</td>
<td>85%</td>
</tr>
<tr>
<td>non NTN</td>
<td>50%</td>
<td>75%</td>
<td>69%</td>
</tr>
<tr>
<td><strong>LIMA harvest</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NTN</td>
<td></td>
<td>90%</td>
<td>94%</td>
</tr>
<tr>
<td>non NTN</td>
<td>50%</td>
<td>40%</td>
<td>86%</td>
</tr>
<tr>
<td><strong>Cannulation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NTN</td>
<td></td>
<td>90%</td>
<td>85%</td>
</tr>
<tr>
<td>non NTN</td>
<td>50%</td>
<td>40%</td>
<td>54%</td>
</tr>
</tbody>
</table>

Obviously, the performance of complete cases depends on the grade of trainee. Their training progression is assessed by detailed study of their educational contract. Their progression is also assessed bi-annually through the RITA/ARCP process at the London Deanery.

The teaching of new procedures, eg. harvesting of LIMA and cannulation is invariably performed by the consultants. The performance of complete cases is fully supervised by the consultants.

There are bi-annual courses on circulatory support including management if IABP and ventricular assist device at St. George’s, Royal Brompton and Hammersmith.
hospital. Although the latter two hospitals are part of the North Thames Deanery, all trainees are encouraged to attend the courses.

**Congenital training** - Trainees in the South rotation have ample opportunities for training in congenital heart disease at St. Thomas’ Hospital. The current NTN is performing up to 30% of cases.

**Endovascular therapy** – There is well established endovascular training at both St. George’s and St. Thomas’ hospitals. These include training in trans-femoral and trans-apical aortic valve implantation, basic catheter techniques and training with vascular surgery for endovascular techniques. These training opportunities are already in place and the NTN are actively taking part.

**Cardiac advanced life support (CALS)** – Two of the hospitals (St. George's & St. Thomas’) have established these courses and have been running them since March 2010.

ii. **Training programme and trainee activity profile**

**Thoracic training**

Guy’s and St. George’s hospitals provide dedicated training in thoracic surgery. There is also training for thoracic surgery available at King’s College. The majority of the endoscopic procedures, minor and medium range thoracic cases, opening and closing thoracotomy for major operations are performed by the registrar in training. All the procedures are fully supervised by the consultants.

In addition, the programme trains the more senior of the registrars in resection of lungs, VATS lobectomy and extended resections. Evidence of progression of training from these two units is that 3 of the NTNs in the last 2 years on the programme have obtained consultant posts in major teaching hospitals.

**Thoracic cases performed by trainees**

<table>
<thead>
<tr>
<th></th>
<th>Guy’s</th>
<th>St. George’s</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total no. of cases</strong></td>
<td>54%</td>
<td>41%</td>
</tr>
<tr>
<td><strong>Endoscopic procedures</strong></td>
<td>30%</td>
<td>85%</td>
</tr>
<tr>
<td>(mainly stenting, this is done by consultants)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>VATS procedures</strong></td>
<td>65%</td>
<td>48%</td>
</tr>
<tr>
<td><strong>Thoracotomy(open &amp; close)</strong></td>
<td>75%</td>
<td>80%</td>
</tr>
<tr>
<td><strong>Lobectomy</strong></td>
<td>85%</td>
<td>75%</td>
</tr>
</tbody>
</table>
iii. Evidence for quality of training programme

All the units have received regular visits from the Deanery in the past 3 years. The visits are part of routine inspection by the Deanery:

**Guy’s Hospital** – The quality of training for both registrars in thoracic surgery and core surgical trainees was thought to be very high.

**St. George’s Hospital** – The unit was visited in 2009. It was thought that the quality of training for both registrars in cardiothoracic surgery and core surgical trainees was very high. The visit involved interviews with trainees. The trainees who were interviewed by the Deanery were chosen randomly ensuring unbiased reporting. Following the visit an extra core trainee level 3 was awarded for cardiothoracic surgery.

**King’s** – The quality of training was thought to be good. Some recommendations were made, which are already met by trainers.

**NTNs appointed to Consultant jobs**

Mr. Ian Hunt, NTN South Thames Deanery – appointed as Consultant Thoracic Surgeon at St. George’s Hospital, May 2009

Miss. Carol Tan, NTN South Thames Deanery – appointed as Consultant Thoracic Surgeon at St. George’s Hospital, November 2009

Mr. Neil Roberts, NTN South Thames Denaery – appointed at Consultant Cardiac Surgeon, The Heart Hospital University College of London, September 2010

**Number of first time passes in the intercollegiate specialty examination**

2009/2010 - 8 out of 9 first time passes. The one candidate who failed at first attempt passed at 2nd attempt.

One of the non NTNs (Mr. Kaushik Mandal) has successfully entered a senior residency programme in Cardiothoracic Surgery at Johns Hopkins Hospital in Baltimore, USA and will be completing his Chief Residency in 2011.

**Number exceeding period of grace:** 0

**MD (Res) and PhD qualification, 2009/2010**

King’s College, MD (Res), 3 awarded

St. George’s, 3 MD (Res) and 3 PhD awarded

**Appointments at national selection**

2009 - 2 of the core surgical trainees in South Thames Deanery were successful in obtaining cardiothoracic NTN. They both came in the top 5.
2010 - 3 of the core surgical trainees in South Thames were successful in obtaining NTN. This included the highest ranking candidate and the second ranked who was awarded ACL/CAL position.

**Evidence for curriculum based teaching**

i. **Learning opportunities within the programme**

The following table shows attendance of trainees in new outpatient, follow-up and multidisciplinary meetings. On average the attendance of trainees in new patient clinic to follow-up clinic is a 3.7.

**Other training activities (for more specific details please see under each unit)**

<table>
<thead>
<tr>
<th>New patient clinic</th>
<th>Guy's</th>
<th>King's</th>
<th>RSCH</th>
<th>St. George's</th>
<th>St. Thomas'</th>
</tr>
</thead>
<tbody>
<tr>
<td>Follow-up clinic</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>MDM</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

Guy’s, St. George’s and St. Thomas’ Hospital have one dedicated teaching day per week. More specifically:

**Guy's Hospital** - Guy's hospital has a large onsite medical school library with extension journal collection. Access to internet in the registrar room with four computers and printers are available. There is a weekly post-graduate teaching programme.

**St. George’s Hospital** - The unit has a strong research section with seven to eight full time research fellows at any one time, funded by various grant bodies aiming for higher research degrees. The unit has established research collaboration with Imperial College, James Black Centre at King's College and University College London. Every week the registrars and SHO equivalents are given a copy of the most relevant and important paper published in cardiothoracic literature to study. There are wet lab facilities available at all times in the post graduate centre. There is a weekly MDM with cardiologist, anaesthetists and intensivists, there is a weekly imagining meeting for heart failure and another weekly meeting on echocardiography and review of complex cases. These are in addition to weekly MDM of thoracic surgery where attendance by thoracic teams is mandatory. There is also a didactic lecture once a week on various aspects of cardiovascular medicine and surgery.

There is a detailed weekly TAVI meeting which is sometimes incorporated into the general MDM for cardiothoracic surgery. Registrars present regularly at all these meetings.
Simulation laboratory – There is a simulation laboratory based at St. George’s providing training for all core and specialist trainees across London. This is an advanced lab with particular attention and interest given to cardiothoracic surgery.

**St. Thomas’ Hospital** – There is a formal teaching session with cardiologists one evening per week. Because of the volume of TAVI cases performed and involvement in teaching and training new centres across Europe and US the trainees have the opportunities to get involved as first assistants in these procedures. There are 4 MDM sessions per week including joint meetings with cardiology echocardiography meeting, TAVI meeting (fortnightly) and aortic meeting with vascular and interventional radiologists.

**Training facilities (wet lab, simulation lab, library)**

There are wet lab facilities at St. George’s and St. Thomas’ Hospitals. All units have access to IT, journals on-site and excellent library facilities affiliated with their universities. Specific wet labs and teaching sessions have been organised every four months at St. George’s Hospital representing South Thames Deanery and Royal Brompton Hospital / London Chest and The Heart Hospital representing North Thames Deanery. This involves teaching on various aspects of surgery for coronary artery disease, valvular heart surgery. Furthermore there have been teaching sessions using simulators on these programmes. The programme has also included using video assisted equipment.

There is a detailed weekly TAVI meeting which is sometimes incorporated into the general MDM for cardiothoracic surgery. Registrars present regularly at all these meetings.

**Regional Academic Teaching Programme, national and international meetings**

St. George’s Hospital organises the Valve Technology Symposium which attracts national and international delegates and it is offered to all trainees in the London Deanery at significantly reduced registration fees. St. Thomas’ and King’s College Hospital organised a London Valve symposium with St. George’s Hospital contributing to it, discussing all aspects of transcutaneous valve therapy. This attracts up to 800 national and international delegates.

There are also two symposia per annum of the cardiothoracic section of the Royal Society of Medicine available to all trainees.

All trainees from both North and South Thames Deanery are encouraged to attend the symposia at significantly reduced rate. The teaching sessions, organised every two months, for all trainees of London Deanery require compulsory attendance. The attendance is encouraged and facilitated by all consultants.

All NTNs and some non NTNs are strongly encouraged to attend the annual meeting of Society of Cardiothoracic Surgery of Great Britain and Ireland. This may have meant reducing the staffing at each unit to a skeleton level, but we have obtained 100% attendance of NTNs in 2009 and 2010 meetings.
In addition, all NTNs are encouraged to submit abstracts to all relevant international meetings and attend at least one meeting. All NTNs attended at least one international meeting of high quality in 2009 and 2010. 75% had at least one abstract for presentation at these meetings. Evidence of the abstracts is provided in the following sections.

ii. Academic activity

Research and Academic Activity

There are opportunities for all cardiothoracic registrars and also doctors in their core surgical training to take part in clinical, basic science and clinical trials research. The Deanery provides excellent facilities for these individuals to either enter research before their specialist training or take a period out of their formal programme.

In addition the basic research provided by St. Thomas’s, King’s College and St. George’s Hospital; St. George’s Hospital provides a comprehensive range of research for trainees in cardiology and cardiothoracic surgery. In the last 8 years 15 candidates have registered for MD (Res) and PhDs and 12 have completed and have been awarded their degrees.

There is strong collaboration between all the hospitals and respective universities. Some of these collaborations include Department of Cardiac and Vascular sciences, St. George’s University of London, James Black Cardiovascular Centre at King’s, Cardiovascular Research Institute at St. Thomas’ Hospital and the Rayne’s Institute at University College of London.

More specifically, the following individuals have entered research programme aiming for a higher research degree. They have been registered at St. George’s University of London and their primary supervisor has been Professor Marjan Jahangiri.

These projects have been funded from various research grant bodies included The British Heart Foundation, Heart Research UK, The Royal College of Surgeons of England and Marfan Association.

Trainee assessment and progression

• At the start of their placement, the trainee is given an educational contract. The contents of which are discussed in detail with the trainee and specific targets are set for 3 monthly periods. The trainees meet with their educational supervisors at these regular intervals and the goals achieved and not achieved are reviewed with necessary action points. If there are specific problems the trainee would meet with their educational supervisor +/- their respective consultant at shorter intervals.

• There are also regular meetings at the Deanery and London School of Surgery where the progression of individual trainees are discussed. All trainees attend 6 monthly RITA/ARCP assessment at the Deanery. Their progression is assessed by a panel at each RITA meeting. All trainees are given targeted assessment at each RITA assessment. These are examined in detail. For the past 3 years none of the trainees have had a set back of have failed their assessment or found to have not made satisfactory progress.
All trainees who took the intercollegiate examination have passed their exams, 8 out of 9 at their first attempt.

3 have been appointment to consultant positions. None have exceeded their period of grace. 1 trainee was awarded and endovascular fellowship by The British Society of Cardiology and Vascular surgery. 6 have completed their MD (Res) degree and PhD within 2 -3 years of start date, submitted and passed their respective examinations.

**Further information**

In summary, The South Thames Programme, London Deanery provides an extremely comprehensive and world class programme in clinical and academic cardiothoracic surgery. This is evidenced by providing training in all aspects of adult cardiac and thoracic surgery and paediatric cardiothoracic surgery. These areas encompass several sub-specialities, cutting edge techniques, well integrated with cardiothoracic anaesthesia, intensive care, cardiology and vascular surgery. In addition, the programme provides excellent training in academic cardiac surgery with a very high output as outlined in this application. These are combined with high volume of surgery and an ethos and dedication to training which is encouraged and assessed by the School of Surgery in London. Furthermore, the trainee is exposed to planned didactic teaching, wet lab and simulation facilities designed for all trainees in London and tailored to improve specific areas of the curriculum. To support this application the following documents are attached:

- Statements by trainees
- Contracts for training
- Copies of trainees log books.
- Reports and minutes of STC meetings
- Reports and minutes of RITA/ARCP assessment

Teaching program and conferences ([www.valvetechnology-sgh.co.uk](http://www.valvetechnology-sgh.co.uk))
Northern – Health Education North East

Rotation Base(s)

<table>
<thead>
<tr>
<th>HOSPITAL</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>James Cook Hospital</td>
<td>Middlesbrough</td>
</tr>
<tr>
<td>Freeman Hospital</td>
<td>Newcastle</td>
</tr>
</tbody>
</table>

Health Education North East (HENE)

Health Education North East

Health Education North East operates across a wide and geographically varied area covering Northumberland, Tyne and Wear, North Cumbria, County Durham and Tees Valley. We work with 11 acute trusts (which includes two specialist trusts providing mental health and learning disabilities services), 13 primary care trusts, 196 general practice training practices and 60 general dental training practices.

In the recent GMC 2014 National Trainee Survey, Health Education North East have been ranked number one for a fourth year running in the following:

- Overall trainee satisfaction
- Clinical supervision
- Educational supervision
- Supportive feedback

For other areas where Health Education North East have been ranked highest in the country, please visit our website [http://ne.hee.nhs.uk/2014/06/26/gmc-survey-results-2014](http://ne.hee.nhs.uk/2014/06/26/gmc-survey-results-2014)

Because we know that the quality of education and training is of paramount importance to you, our investment in our trainers and their training is essential to our success. It is also important to have wide and varied experiences in different fields and environments. You will gain a breadth of experience in selected and supervised hospital posts throughout the area in large university acute hospitals, community hospitals and district general hospitals to ensure you get the training you need to give you a rewarding future career. Within these areas you will have the opportunity to work with nationally and internationally recognised clinicians and leaders.

To find out more information about what it is like to ‘Live and Train’ within Health Education North East you can visit our website [www.ne.hee.nhs.uk/recruitment](http://www.ne.hee.nhs.uk/recruitment)

The School was launched in 2006 and is part of Health Education North East, which manages postgraduate medical and dental education across the North East and Cumbria. Overall, the School is responsible for 314 core and specialty surgical trainees across the region, which extends from the Scottish borders in the north, across to Cumbria in the west and as far south as north Yorkshire.

The School oversees all aspects of training in the ten recognised surgical specialties and its core function is to manage the quality of training, ensuring that trainees have
access to the highest standards of teaching at all stages of their training programme. The School also has a lead role in trainee recruitment, assessments and appraisals, preparation for examinations, practical skills training and the development of non-technical skills. The School has close links to the Newcastle University Medical School and other Universities in the region which provide health related education and research. The North East has an excellent reputation in surgical research and trainees are encouraged to become involved in the academic aspects of surgery. In addition, there are opportunities to gain specific training in Medical Education and Medical Leadership. Training has to comply with the requirements of the surgical curriculum so the School works with the Royal Colleges and Specialty Advisory Committees at all levels.

The aims of the School are:

- To prepare and equip surgeons to meet the challenges of surgical practice and deliver the highest standard of care for patients
- To deliver surgical education programmes within Health Education North East that meet GMC quality standards and embrace College guidelines and ethos
- To recognise and respond to the needs of our trainees, trainers and their employers

For further information, please visit;

Health Education North East
http://ne.hee.nhs.uk/

Rotation Information

This application for a NTN is for a training rotation in Health Education North East which will offer the training in the full range of cardiothoracic surgery.

HENE provides comprehensive training in Cardiothoracic Surgery delivered to trainees across two sites, in Middlesbrough (James Cook Hospital) and Newcastle (Freeman Hospital - Thoracic, Congenital, Adult Cardiac, and Cardiothoracic Transplantation and Device training).

HENE has embraced the practicalities of the Intercollegiate Surgical Curriculum Project, the European Working Time Directive, and can offer committed training to match the training opportunities of each trainee.

The training programme will be 6 years. Training will include Adult Cardiac and Thoracic. Training in congenital surgery and transplantation will be available depending on the chosen career intentions of the trainee.

Teaching

In the Northern Deanery, formal teaching comprises weekly departmental and monthly regional training. There is the availability of simulation laboratories and cadaver rooms as well as established wetlabs. There are business cases to
establish High-definition VATS equipment to allow trainees to review their operating in a critical way under supervision. A recent well-attended successful faculty meeting ensured that all trainers are working as one, in relation to current educational standards, and this will be repeated each year. The deanery has accepted cardiothoracic trainees from other deaneries for independent validation, and for left-handed training. In addition, Newcastle University offers a Post-graduate Certificate in Clinical Medical Research that can be taken part-time over the course of 12 months, and the Faculty will offer the opportunity to take this course to any new Cardiothoracic trainee.

**Trust Generic/Specialty Information**

The Freeman Hospital opened in 1977 and is the only centre in the UK to offer all forms of adult and paediatric cardiothoracic surgery as well as heart and lung transplantation. The Freeman is also a centre for artificial heart technology Regional Cardiothoracic Centre.

The cardiothoracic unit at the James Cook University Hospital, part of the South Tees NHS Trust, is a specialised regional service, established in 1993, serving a population of 1.5 million stretching from Whitehaven in Cumbria to North Yorkshire, Teesside and Durham.

**Teaching**

In Health Education North East, formal teaching comprises weekly departmental and monthly regional training. There is the availability of simulation laboratories and cadaver rooms as well as established wetlabs. There are business cases to establish High-definition VATS equipment to allow trainees to review their operating in a critical way under supervision. A recent well-attended successful faculty meeting ensured that all trainers are working as one, in relation to current educational standards, and this will be repeated each year. The deanery has accepted cardiothoracic trainees from other deaneries for independent validation, and for left-handed training. In addition, Newcastle University offers a Post-graduate Certificate in Clinical Medical Research that can be taken part-time over the course of 12 months, and the Faculty will offer the opportunity to take this course to any new Cardiothoracic trainee.
North West and Mersey

The North West Consortium will provide one of the most comprehensive training programmes for Cardiothoracic Surgery in the UK, with opportunities to develop subspecialty interest in all areas of cardiac and thoracic surgery including transplantation surgery, oesophageal surgery, congenital surgery, specialised aortic surgery, and mitral valve repair. Close links with Liverpool and Manchester Universities and the Paterson’s Institute of research (Christie Hospital) along with the excellent transplant research lab offer excellent opportunities to pursue academic aspirations. The program will offer opportunities to actively participate in the Northwest Cardiac / Thoracic surgery audit, North West Quality improvement program, North West Thoracic Society meetings and North West regional teaching sessions. The Northwest consortium will also offer excellent high quality educational resource which is highlighted below.

The North West and Mersey LETBs are geographically adjacent to each other and have formally collaborated for Cardiothoracic Surgical training since August 2009 to form the North West Cardiothoracic Consortium. Applications are directed to the Consortium rather than to the individual LETBs. After appointment trainees are allocated to either the Mersey or the North West LETB for overall supervision of their training.

The specific program for any individual trainee will be developed to reflect his/her specific training aspirations, commensurate with the overall requirements of the curriculum and the availability of specific training opportunities. Trainees can expect to spend the majority of their training time within the LETB to which they are appointed.

Given the size of the consortium and the sub specialty strengths of the consortium, it is possible for trainees to specify from the outset their preferred training program to include either general cardiac surgery, mixed practice cardiothoracic surgery or general thoracic surgery.
The program involves the following centres:

<table>
<thead>
<tr>
<th>HOSPITAL</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liverpool Heart And Chest Hospital (LHCH)</td>
<td>Liverpool</td>
</tr>
<tr>
<td>Alder Hey Children’s Hospital</td>
<td>Liverpool</td>
</tr>
<tr>
<td>University Hospital South Manchester (UHSM)</td>
<td>Manchester</td>
</tr>
<tr>
<td>Manchester Royal Infirmary (MRI)</td>
<td>Manchester</td>
</tr>
<tr>
<td>Lancashire Heart Centre, Victoria Hospital</td>
<td>Blackpool</td>
</tr>
</tbody>
</table>

**Rotation Templates**

1. Cardiothoracic Surgery Training Rotation for trainee with Mersey Number:
   - Four years in Liverpool (LHCH / Alder Hey)
   - One year in Manchester (UHSM /MRI/ Blackpool)
   - One year in OOPE depending on area of subspecialty training.
   - 6 -12 months at Alder Hey for Congenital Cardiac Surgery

2. Cardiothoracic Surgery Training Rotation for trainee with North West Number:
   - Two years at UHSM
   - One year in Liverpool
   - One year in Blackpool
   - One year in MRI
   - 6 -12 months at Alder Hey for Congenital Cardiac Surgery
   - One year OOPE /OOPT depending on area of subspecialty interest

3. Six Year Thoracic Surgery Themed Training Programme, for trainees with both Mersey and North West Numbers
   - Two years in thoracic surgery Liverpool (LHCH)
   - Two in thoracic surgery in UHSM
   - One year cardiac surgery (UHSM/ Blackpool / MRI/ LHCH)
   - One year OOPE (minimally invasive / oesophageal / lung transplant / tracheal) depending on subspecialty interest

The above programmes are templates and do not indicate the exact order of placements within a training programme. They are subject to change to suit individual trainee requirements.
Liverpool Heart and Chest Hospital NHS Foundation Trust

The Liverpool Heart and Chest Hospital (LHCH) is one of the largest single centre cardiothoracic units in the United Kingdom and is an autonomous single specialty Foundation Trust on the site of Broadgreen Hospital. It provides tertiary services in Cardiothoracic Surgery, Cardiology and Chest Medicine to a population of 2.8 million in Merseyside, North Wales and the Isle of Man as well as parts of Lancashire and Cheshire. All types of cardiothoracic surgery are carried out with the exception of transplantation. The hospital carries out over 3000 cardiothoracic operations every year. Consultant staffing comprises 10 cardiac surgeons, 4 thoracic surgeons and 2 cardiothoracic surgeons.

The service has a number of particular strengths:

- The largest aortic surgical service in the UK including complex thoracoabdominal procedures and a significant amount of endovascular procedures. There is a separate consultant on-call rota for emergency aortic surgery
- Off-pump coronary artery bypass surgery – one of the largest experiences in the UK and Europe
- A comprehensive mitral repair program including radiofrequency ablation
- Minimal access aortic valve and coronary artery surgery
- A transcatheter aortic valve implantation (TAVI) program with both transfemoral and transapical approaches.
- Epicardial pacing
- All aspects of minimally invasive thoracic surgery including a mature VATS lobectomy service
- Complex oesophagogastric surgery especially for OG cancers. Close cooperation with upper GI surgery. OG cancer MDT based at LHCH
- Lung volume reduction surgery, endobronchial valve implantation
- Chest wall and mesothelioma surgery
- Comprehensive cover of lung cancer MDT’s with outreach clinics in all regional hospitals
- Advanced colorectal cancer MDT for management of pulmonary metastases
- Links with regional sarcoma MDT

Alder Hey Childrens NHS Foundation Trust, Liverpool

This hospital, which is one of the largest children’s hospitals in Europe, serves a population of 6 million, covering the North West of England, North Wales and the Isle of Man. All aspects of paediatric heart disease are managed with the exception of paediatric transplantation. Over 450 paediatric cardiac operations are carried out every year. There are well-established transitional arrangements in place for adult patients with congenital heart disease, with seamless transfer of care to Manchester Royal Infirmary.

Trainees in Alder Hey are exposed to all aspects of congenital heart disease. They are actively involved in pre-operative evaluation, intra operative surgical strategies, and immediate post-operative critical care management of the children.
Opportunities are provided to perform paediatric cases as first operators and to be involved in more complex neonatal procedures as first assistant. There is an active interdepartmental teaching and research program with paediatric cardiology and intensive care.

**North West**

**University Hospital South Manchester NHS Foundation Trust (UHSM)**

The hospital is a tertiary referral center and provides a comprehensive service in cardiac and thoracic surgery, cardiopulmonary transplantation, ECMO and ventricular assist therapy. The hospital has a catchment population of 3.2 million for specialist services. Consultant staffing includes 7 cardiac surgeons, 1 cardiothoracic surgeon and 4 thoracic surgeons including one locum thoracic surgeon. The majority of the cardiac and thoracic surgeons are involved in the transplant program. The service performs 900 cardiac, 1500 thoracic and about 45 heart / lung transplants per year.

Strengths of the service include the following:

- Heart and Lung Transplantation
- Mitral valve repair
- Aortic surgery including TAVI
- Heart assist device
- ECMO
- The entire spectrum of general thoracic surgery including VATS lobectomy, 24/7 airway intervention service, joint operating with spinal surgeons, LVRS, enobronchial valve implantation and pulmonary metastatectomy.

**Central Manchester University Hospitals NHS Foundation Trust**

Located on the site of Manchester Royal Infirmary (MRI) the Manchester Heart Centre offers tertiary cardiac and adult congenital cardiac service to a wide population. Consultant staffing include 6 cardiac surgeons including one locum. Two of the adult cardiac surgeon offer adult congenital cardiac surgery. The service performs 800-900 cardiac surgical operations. Strengths of the service include:

- Off Pump surgery
- Mitral valve repair service
- Redo cardiac surgery
- Adult congenital cardiac surgery program

**Victoria Hospital NHS Trust, Blackpool**

The Lancashire Cardiac Centre provides adult cardiac and thoracic surgery for the people of Lancashire, Cumbria and beyond. The unit is planning to do 1200 adult cardiac, 200 major lung resections and around 400 other thoracic procedures this year.

The trainee will be exposed to a full spectrum of adult cardiac and thoracic surgery.

- Port access cardiac surgery program. This is the 2nd largest in the country with 1 to 2 cases a week, mainly for mitral valve repair.
- Off pump CABG
- Endoscopic Saphenous Vein Harvesting
- TAVI program
- Sutureless Aortic Valve program
- VATS Lobectomy
- Atrial Fibrillation Surgery and Epicardial pacing
- Weekly Thursday Cardiology/Cardiac Surgery MDT meeting for difficult cases
- Weekly Lung cancer MDTs at Blackpool, Preston, Blackburn and Lancaster
- Weekly educational meeting

North West Consortium Educational Resources

- Weekly teaching meetings at all hospitals
- Monthly North West Regional Teaching Program
- Wet lab sessions covering CABG, MVR, AVR, Mitral valve repair, Aortic root replacement and VATS surgery
- Mitral Valve Symposium
- National TOE Course
- Terms and techniques for aortic surgery for trainees
- Imaging in cardiothoracic / oesophageal surgery
- Perfusion in cardiac surgery
- Difficult Scenarios in cardiac, thoracic and oesophageal surgery
- North West FRCS(CTh) preparation course
- Viva practice for FRCS(CTh)
- FRCS(CTh) Examiners

Strengths of North West Consortium include the following

- Ability to provide comprehensive training in all aspects of cardiac, thoracic, congenital and transplantation surgery
- Ability to fully train a cardiac or thoracic surgeon with subspecialty interests
- Close relative geographic location of hospitals in the program
- Ability to provide training to suit the needs of all trainees
- Excellent educational resources
- High pass rate at FRCS(CTh) and excellent history of appointment to UK consultant positions for trainees
- Opportunities for academic development
- Trainee representation on regional training committee
- Deanery / School of Surgery support
- Previously hosted Intercollegiate FRCS(CTh) examinations
- Excellent trainee feedback

Operative Experience

The following information relates to the percentage of cases carried out by trainees as lead surgeon between 2007 and 2012, operating either alone or with consultant assistance.
Cardiac Surgery

**LHCH**
- All middle grades = 11%
- Senior (ST5-ST6) numbered trainees = 24%

**UHSM**
- All middle grades = 27%
- Senior (ST5-ST6) numbered trainees = 63%
- Heart retrievals = 100%
- Heart Implants = 3.6%

**MRI**
- All middle grades = 21%

**Lancashire Cardiac Centre**
- All middle grades = 10.3%
- ST4 trainees
  - CABG = 56%
  - AVR = 62%
- ST3 trainees - Sternotomy / IMA harvest /Cannulation /Decannulation
  - > 90% of cases

Thoracic surgery

**LHCH**
- All middle grades = 41%
- Senior (ST5-ST6) numbered trainees = 69%

**UHSM**
- All middle grades = 40%
- Senior (ST5-ST6) numbered trainees = 76%
- VATS lobectomy - Aug 2009 to Sep 2010 = 20 cases
- Lung retrieval = 100 %
- Lung implants = 39 %

**Lancashire Cardiac Centre**
- All middle grades = 20%
Junior Medical staffing

LHCH
- NTN specialty registrars: 7
- Clinical fellows (including overseas thoracic fellow): 7
- Specialty doctors: 3
- Rota = two tiers of full shift middle grade cover, EWTD compliant (junior = 1 in 9, senior = 1 in 8)
- SHO grade - CT1/CT2 = 2, FY2 = 3, Trust SHO = 5. Rota = 1 in 10

Alder Hey
- Specialist registrar/Clinical Fellows: 5
- ROTA: 1:5, EWTD compliant

UHSM
- NTN specialty registrars: 3
- Clinical fellow: 5
- Specialty Doctor/Associate specialist: 3
- Transplant fellows: 5
- CT1/CT2: 3
- Rota = 1:9 partial shift, EWTD compliant
- Trust fellow (SHO grade): 3

MRI
- NTN specialty registrars: 1
- Clinical fellow: 7
- Rota = 1:8 partial shift, EWTD compliant
- CT1/CT2/F1: 3

Lancashire Cardiac Centre
- NTN specialty registrars: 1
- Clinical fellow: 7
- Rota = 1:9, resident on call, EWTD compliant
- CT1/CT2: 2
- Trust grade (SHO): 3
South East Scotland

Deanery Rotation Base(s)

<table>
<thead>
<tr>
<th>HOSPITAL</th>
<th>LOCATION</th>
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<tbody>
<tr>
<td>Royal Infirmary of Edinburgh</td>
<td>Edinburgh</td>
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<tr>
<td>Aberdeen Royal Infirmary</td>
<td>Aberdeen</td>
</tr>
<tr>
<td>Golden Jubilee National Hospital</td>
<td>Clydebank, Glasgow</td>
</tr>
<tr>
<td>Royal Sick Childrens Hospital</td>
<td>York hill, Glasgow</td>
</tr>
</tbody>
</table>

Deanery information: South-East Scotland
NHS Education for Scotland
South East Deanery
102 Westport
Edinburgh
EH3 9DN
0131 656 3497.

Website: [www.stracts.co.uk](http://www.stracts.co.uk)

South East of Scotland Deanery

Welcome to the South East Region of NHS Education for Scotland, based at the Lister in Edinburgh. The Lister first opened its doors in the 1960s as the Edinburgh medical community's memorial to Lord Lister, the founder of antiseptic surgery and previous Professor of Surgery at the University of Edinburgh. Originally pivotal to the delivery of postgraduate medical education of doctors from Edinburgh, Scotland and beyond, the Lister is now the home of the SE Region of NES. Conveniently situated in the centre of Edinburgh, the Lister is also a popular venue, offering training and meeting facilities for use by professionals from South East Scotland and further afield. Maintaining close contact with GP and Dental colleagues, the University of Edinburgh and the medical Royal colleges, to-day the Lister represents the spirit of co-operation so necessary for the effective management and provision of training to healthcare professionals. NES South East Region looks forward to hosting an increasing number of multi-disciplinary events.

Postgraduate Dean

Biography

Base: West Port
PA: June Lawson
Rotation Information

Expected rotation arrangements for this programme are:

- ST3 - Year: Either at Royal Infirmary of Edinburgh or Aberdeen Royal Infirmary
- ST4 – Paediatric Surgery: 6 months post - Royal Sick Children’s Hospital, Glasgow
- ST4 – Thoracic Surgery: 6 months post – Golden Jubilee National Hospital, Glasgow
- ST5 – Adult Cardiac Surgery – 12 months post - Golden Jubilee National Hospital, Glasgow
- ST6 – Adult Cardiac Surgery – 12 months post - Golden Jubilee National Hospital, Glasgow
- ST7 & ST8 – Adult Cardiac / Thoracic surgery – Royal Infirmary of Edinburgh
- Exceptions to rotation arrangements: Paediatric Surgery can be optional and Thoracic surgery block could be offered for 12 months.

Trust Generic/Specialty Information

Royal Infirmary of Edinburgh:

About the unit

The cardiothoracic unit at the Royal Infirmary of Edinburgh is a specialised supra-regional service, which moved to its current, state of the art facility in 2003. It is a tertiary referral centre, dealing with patients from all over Scotland. The Royal Infirmary of Edinburgh is nationally and internationally well renowned for offering excellent training in cardio-thoracic surgery.

The Edinburgh Cardio-Thoracic Unit provides a regional service for approximately 1.5 million populations in Lothian, Fife and Border Areas. The work of the unit is carried out at the Royal Infirmary Cardiothoracic Unit, which deals with all open-heart surgery, surgery of the great vessels, trauma and thoracic surgery including pulmonary and some oesophageal surgery.

The Royal Infirmary (RIE) is a major teaching hospital on a green field site in the South East of the city of Edinburgh built in 2003. It comprises 25 wards, 869 beds, and 24 operating theatres, and is equipped with modern theatre and critical care equipment and monitoring. Within the main building is a dedicated, multidisciplinary, 5 theatre day surgery complex. The hospital provides for most specialities and is the centre for:

- General surgery with a focus on the upper GI tract
- Vascular surgery
- Hepato-biliary and Transplant medicine and surgery
- Cardiac and Thoracic surgery
- Elective and trauma Orthopaedics surgery
- Neonatology
- Obstetrics & Gynaecology
- Cardiology
- Renal Medicine
- Sleep Medicine
- Regional major Accident and Emergency centre.

There is a Combined Assessment Unit which takes unselected GP or direct emergency referrals, and from A&E. CAU includes the Dept of Liaison Psychiatry and the Scottish Poisons Bureau and Treatment Centre. There are full supporting Laboratory and Diagnostic Radiology Services (including CT, MR, Ultrasound and NM and PET scanning will be available in 2008). There is a full range of lecture theatres, a library and AV facilities.

University of Edinburgh:

The University of Edinburgh was established in 1582 and is one of the largest in the United Kingdom located on a number of prominent sites in Scotland’s capital city. It is Scotland’s premier research university, graded within the top six multi-faculty British Universities in the last national research assessment exercise (90 percent of its academic staff were in units rated 4, 5 or 5*). It has 3,000 academic staff, over 16,000 undergraduate and over 4,000 postgraduate students and an annual expenditure of over £261M for teaching and research. The University is organised into 3 Colleges: Humanities and Social Science, Medicine and Veterinary Medicine, Science and Engineering. Edinburgh University School of Medicine is located within the premises of Royal Infirmary.

**Services provided**

Adult Cardiac Surgery
Thoracic Surgery

No. Surgeons who undertake adult heart surgery: 6

**Departmental Staff: Current**

Training Grade surgeons (middle grade): 2
Career Grade surgeons (middle grade): 10
Advanced training VATS Fellow: 1
Foundation Year 1 – Thoracic surgery: 3
Foundation Year 2 – Cardiac surgery: 6
Clinical nurse practitioners – 4
Surgical Care practitioners – 4
Bed capacity:
ITU/ HDU beds: 22, Wards: 24
Consultant Anaesthetists: 11
Service Provision: Outcomes: 2009 – 2010

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Number</th>
<th>Mortality</th>
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</thead>
<tbody>
<tr>
<td>CABG</td>
<td>507</td>
<td>1.7%</td>
</tr>
<tr>
<td>CABG &amp; VALVE</td>
<td>113</td>
<td>3.01%</td>
</tr>
<tr>
<td>Valve replacement</td>
<td>258</td>
<td>2.3%</td>
</tr>
<tr>
<td>*Others</td>
<td>62</td>
<td>10.1%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>940</td>
<td>2.67%</td>
</tr>
</tbody>
</table>

*Complex, high risk and emergency procedures

**Rates of survival after all cardiac surgery**: Extracted from: Heart surgery in the United Kingdom, Care Quality commission: http://heartsurgery.cqc.org.uk/

Operations for 3 years ending March 2009: 2794 operations performed: Actual survival rate 96.7%

2008/09 alone: Actual survival rate 97.3% as expected (1050 operations, with expected survival rate range 94.7 - 98.1%)

Rates of survival after aortic valve replacement operations

Operations for 3 years ending March 2009: 438 operations performed: Actual survival rate 98.2%

2008/09 alone: Actual survival rate 98.9% as expected (184 operations, with expected survival rate range 92.7 - 100.0%)

Rates of survival after heart bypass (CABG) operations

Operations for 3 years ending March 2009: 1598 operations performed: Actual survival rate 98.0%

2008/09 alone: Actual survival rate 98.1% as expected (588 operations, with expected survival rate range 96.0 - 99.5%)

Out of 1598 coronary bypass surgery cases carried out at Royal Infirmary of Edinburgh, 94.12% used the left internal mammary.

Post-operative length of stay

Out of 1598 patients admitted to Royal Infirmary of Edinburgh, 9.39% stayed longer than 14 days.

Thoracic surgery: 2011-2012

<table>
<thead>
<tr>
<th>Lung Resections</th>
<th>230</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video Assisted Major lung resections</td>
<td>84</td>
</tr>
<tr>
<td>Other procedures</td>
<td>850</td>
</tr>
</tbody>
</table>
A total number of 1144 thoracic surgical procedures were performed. Of these 200 were Lung resections. During this period, 70 video assisted major lung resections were performed. Since the commencement of programme, 600 major lung resections were performed using video as an assist.

Cardiac Surgery: Procedures performed by Trainees: 2011-2012

Thoracic surgery: Trainee Procedures: 2011-12
2. West of Scotland Regional Heart and Lung Centre, Golden Jubilee National Hospital:

Location:
Department of Cardiothoracic Surgery,
Beardmore Street,
Clydebank,
West Dunbartonshire,
G81 4HX

No. Surgeons who undertake adult heart surgery: 11

Departmental Staff:

Training Grade surgeons (middle grade): 3(ST6 & SpR’s – Yrs 7&8), 4 – LAT ST1, LAT ST2 posts
Career Grade surgeons (middle grade): 12
Foundation Year 2: 2
Clinical nurse practitioners: 6
Surgical Care practitioners: 3
ITU’s x 2: 2 Short stay – 11 beds, long stay-11 beds
HDU beds: 22
Consultant Anaesthetists: 11

About the unit

The West of Scotland Regional Heart and Lung Centre, based in Clydebank, is a dedicated unit for planned and urgent operations and procedures. One of the largest heart and lung centres in the UK, it combines existing heart services at the Golden Jubilee with cardiothoracic (heart and lung) services previously provided by Glasgow’s Western and Royal Infirmaries and thoracic (lung) services from Hairmyres Hospital in Lanarkshire. Spread over three floors of the Golden Jubilee National Hospital, facilities at the centre all include seven theatres and four cardiac catheterisation (cath) labs - special x-ray rooms for the diagnosis and treatment of blood vessel blockages around the heart. The new centre is also home to three of our national services - the Scottish Advanced Heart Failure Service (including the heart transplant unit), the Scottish Pulmonary Vascular Unit and the Scottish Adult Congenital Cardiac Service.

Services provided

Adult Cardiac Surgery
Thoracic Surgery
Adult Congenital Cardiac Surgery
<table>
<thead>
<tr>
<th>Adult Cardiac Surgery</th>
<th>CABG: 702</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CABG + Valve: 192</td>
</tr>
<tr>
<td></td>
<td>CABG + Valve + Other: 72</td>
</tr>
<tr>
<td></td>
<td>Valve: 340</td>
</tr>
<tr>
<td></td>
<td>Valve + Others: 40</td>
</tr>
<tr>
<td></td>
<td><strong>Total: 1349</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Thoracic Surgery</th>
<th>Major Procedures including Lung Resections: 479 cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>VAD programme</td>
<td>6 VADS in last calendar year</td>
</tr>
<tr>
<td>Transplant Programme</td>
<td>5 Transplants in last calendar year</td>
</tr>
</tbody>
</table>

**Operations for 3 years ending March 2009:** Extracted from: Heart surgery in the United Kingdom, Care Quality commission: [http://heartsurgery.cqc.org.uk/](http://heartsurgery.cqc.org.uk/)

Out of 2978 coronary bypass surgery cases carried out at Golden Jubilee, 72.2% used the left internal mammary.

Post-operative length of stay: Out of 2978 patients admitted to Golden Jubilee, 8.53% stayed longer than 14 days.

**Procedures performed by trainees: 2011-12**

<table>
<thead>
<tr>
<th>Procedure</th>
<th>total</th>
<th>trainee 1st operator</th>
<th>% (trainee performed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sternotomy</td>
<td>504</td>
<td>448</td>
<td>88.8</td>
</tr>
<tr>
<td>IMA harvest</td>
<td>358</td>
<td>278</td>
<td>77.6</td>
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<tr>
<td>Cannulation</td>
<td>476</td>
<td>318</td>
<td>66.8</td>
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<tr>
<td>CABG (on-pump)</td>
<td>279</td>
<td>170</td>
<td>60.9</td>
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<tr>
<td>CABG (off-pump)</td>
<td>28</td>
<td>12</td>
<td>42.9</td>
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<tr>
<td>AVR</td>
<td>101</td>
<td>58</td>
<td>57.4</td>
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<tr>
<td>AVR + CABG</td>
<td>55</td>
<td>29</td>
<td>52.7</td>
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<tr>
<td>Mitral valve surgery</td>
<td>41</td>
<td>10</td>
<td>24.3</td>
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</table>

<table>
<thead>
<tr>
<th>Procedure</th>
<th>total</th>
<th>trainee 1st operator</th>
<th>% (trainee performed)</th>
</tr>
</thead>
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<tr>
<td>Thoracotomy</td>
<td>107</td>
<td>94</td>
<td>87.9</td>
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<tr>
<td>Lung resection (Non-anatomical)</td>
<td>23</td>
<td>18</td>
<td>78.3</td>
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<tr>
<td>VATS (Minor)</td>
<td>75</td>
<td>56</td>
<td>74.7</td>
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<tr>
<td>Lung resection (Anatomical)</td>
<td>82</td>
<td>51</td>
<td>62.2</td>
</tr>
</tbody>
</table>

**3. Royal Hospital for Sick Children:**

Dalnair Street  
Yorkhill  
Glasgow  
G3 8SJ

The Royal Hospital for Sick Children has 266 inpatient beds, 12 daycase beds, and handles approximately 90,000 out-patients, 15,000 in-patients, 7,300 daycases and 35,000 A&E attendances every year. The hospital provides care for newborn babies right up to children around 13 years of age.
Within the community Yorkhill Division provides a wide range of services from four Child Development Centres at - Bridgeton Health Centre, Possilpark Health Centre, Drumchapel Health Centre and the new Southbank Centre in the Gorbals. These centres run various clinics dealing with speech, hearing, emotional or behavioural problems, as well as organising immunisation programmes in local schools. A wide range of staff provide these services, including consultant community Paediatricians, psychologists, occupational therapists, speech & language therapists and school nurses amongst others.

In its role as a major academic institution, the Division is home to a number of University departments as well as internationally acclaimed research groups. The Division’s significant commitment to the teaching and training of new doctors, nurses, midwives and other health professionals, ensures that highly trained NHS staff are ready to care for the mothers and children of tomorrow.

Consultant Surgeons: 4

Service Provision:

<table>
<thead>
<tr>
<th>Service Provision</th>
<th>Description</th>
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<tbody>
<tr>
<td>Congenital Cardiac Surgery</td>
<td>320 Cardiac Cases including closed and Open heart procedures</td>
</tr>
<tr>
<td>ECMO Service</td>
<td>15-20 cases per year with 2 LVADs done during last year</td>
</tr>
</tbody>
</table>

3. North of Scotland Cardiothoracic Surgery Unit, Aberdeen Royal Infirmary

Provides adult cardiac and thoracic surgical services in the north of Scotland including Orkney and Shetland. Located at the Aberdeen Royal Infirmary Foresterhill site, the unit also has satellite outpatient facilities at Ninewells Hospital, Dundee and Raigmore Hospital, Inverness.

Services provided

Adult Cardiac Surgery
Thoracic Surgery

Location:
North of Scotland Cardiothoracic Surgery Unit (NOS-CTS),
Aberdeen Royal Infirmary,
Foresterhill,
Aberdeen,
AB25 2ZN

No. Surgeons who undertake adult heart surgery: 4

Departmental Staff:

Training Grade surgeons (middle grade): 1(ST3), 3 – LAT ST2, LAT ST1 posts
Career Grade surgeons (middle grade): 3
Foundation Year-2: 2
Clinical nurse practitioners: 3
Surgical Care practitioners: 3
Rates of survival after all cardiac surgery: Extracted from: Heart surgery in the United Kingdom, Care Quality commission: http://heartsurgery.cqc.org.uk/

Operations for 3 years ending March 2009: 1766 operations performed

2008/09 alone: Actual survival rate 97.9% as expected (613 operations, with expected survival rate range 94.6 - 98.8%)

Rates of survival after heart bypass (CABG) operations:

Operations for 3 years ending March 2009: 1118 operations performed: Actual survival rate 98.3%

2008/09 alone: Actual survival rate 98.6% as expected (366 operations, with expected survival rate range 95.2 - 99.8%)

Out of 1118 coronary bypass surgery cases carried out at Aberdeen Royal Infirmary, 93.11% used the left internal mammary.

Out of 1118 patients admitted to Aberdeen Royal Infirmary, 9.57% stayed longer than 14 days.

Rates of survival after aortic valve replacement operations:

Operations for 3 years ending March 2009: 228 operations performed

2008/09 alone: Actual survival rate 96.4% as expected (84 operations, with expected survival rate range 89.6 - 100.0%)

Teaching

Royal Infirmary of Edinburgh: Co-ordinator: Mr S Prasad

1. MDT meetings – Cardiac & Thoracic surgery – Every Friday
2. Educational Meetings: Friday 2pm
3. Mortality & Morbidity meetings: 2nd Friday
4. Grand Rounds – Wednesday
5. Honeyman- Gillespie lectures – Once a month

West of Scotland Regional Heart and Lung Centre, Golden Jubilee National Hospital: Co-ordinator: Mr Alan Kirk

1. Educational Meetings: Friday: 1:30pm
2. Mortality & Morbidity meetings:
3. MDT meetings: Adult Cardiac – Valvular Heart Disease, Coronary Heart Disease & Thoracic surgery. Heart Failure and Transplantation meetings
4. WET LAB: Facilities exists at Golden Jubilee National hospital for a one to one and independent sessions

Royal Sick Children’s Hospital, York Hill, Glasgow: Co-ordinator: Mr K MacArthur
MDT meetings

**Regional Teaching: Faculty for cardio-thoracic Education & Training**

**WET Lab:** 1) Hands on sessions with a dedicated faculty of Consultant surgeons – 4 monthly intervals  
2) Facilities exists at Golden Jubilee National hospital for a one to one and independent sessions  
**Future Goals:** Establishment of all day reaching programme once every 3 months, Mock VIVA’s for Exams  
**Supra regional:** Additional Training opportunities: Surgical simulation, Paris and Hamburg Thoracic surgical courses  

Success denominators:  

**Strengths:**  
1. Achievements:  
   - 5 trainees have been appointed as consultants within the last 3 years  
   - 1 trainee has successfully completed training – RITA-G and awaiting award of CCT and entry in to specialist register.  
   - 1 trainee received CESR- Article 14- entry in to Specialist register  
2. Success of these trainees is primarily due to consultant educational supervisors who are known to be excellent trainers.  
3. Regular teaching and academic sessions are available at all centres inclusive of wet labs for hands on experience and video conferencing between all centres.  

Rotation of trainees between centres and placements to achieve training in specific competencies set out in curriculum  

Support to courses and funding by the Deanery and programme:  

**Cardiac Surgery:**  
1. Birmingham Review course  
2. Coronary artery anastomosis workshop - Liverpool  
3. Covedien course – Off Pump/ Mitral valve  
4. CALS  
5. Sorin- Wet Lab – AVR/MVR & CABG  
6. Learning through Experience – STR/ SPR training days- Scottish Training programme – Wet Labs & Presentations- 3 monthly  
5. Royal College courses – Basic, intermediate & Advanced  
6. Care of Critically Ill  
7. South East Deanery Lead Generic skills courses  

**Thoracic surgery:**  

**VATS ENDO SURGERY-** Ethicon – Hamburg  

Advanced VATS course – Paris
Health Education South West

Deanery Rotation Base(s)

<table>
<thead>
<tr>
<th>HOSPITAL</th>
<th>LOCATION</th>
</tr>
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<tbody>
<tr>
<td>Derriford Hospital</td>
<td>Plymouth</td>
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<tr>
<td>Bristol Royal Infirmary</td>
<td>Bristol</td>
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<tr>
<td>Bristol Royal Hospital for Children</td>
<td>Bristol</td>
</tr>
<tr>
<td>Bristol Heart Institute</td>
<td>Bristol</td>
</tr>
</tbody>
</table>

The South West regional training scheme in cardiothoracic surgery is shared between University Hospitals Bristol (Severn Deanery) and Derriford Hospital in Plymouth (Peninsula Deanery). Supervision of the programme is led through the Severn Deanery, however the TPD rotates between the two centres. Trainees rotate between the two centers with approximately half their training at either centre. Appointment to the rotation at ST1/ST3 level is through national recruitment.

There are 4 deanery approved training posts in Bristol with one Academic Clinical Fellow (ACF) post. Plymouth has 5 deanery approved training posts.

ST1 Rotation
The ST1 post is based in Plymouth and comprises 2 years at Core Trainee level with 6 months General Surgery, 6 months Vascular Surgery and 12 months Cardiothoracic Surgery before progressing through to the SouthWest ST3 rotation. Trainees will attend the Cardiothoracic ARCP during their ST1-2 training.

ST3 Rotation
Expected rotation arrangements for this programme are:

- Nationally selected trainees will rotate between Bristol and Plymouth spending 2-4 years in either post
- In both centres trainees will spend 6 months in a firm based (consultant clinical supervisor) arrangement under a single educational supervisor
- ACFs will be based in Bristol for the first 3 years of their training
- Paediatric cardiac surgery is based in Bristol. Trainees will spend at least 6 months in the unit

Registrar rotas at both units are compliant with the EWTD. Features include:

- Non-resident on call registrar
- Day off post on-call (Bristol cardiothoracic trainee workload ranks in the best 5% of UK programs in the GMC survey)
- Firm based training at core training level and beyond
- Structured training for core trainees by SCPs in theatre
- Nurse Practitioner support in ward areas
Trust Generic/Specialty Information:

Training in Bristol takes place on three sites within the University Hospitals Bristol campus. The purpose-built Bristol Heart Institute opened in 2009 and houses adult heart surgery (1700 cases annually). Thoracic surgery undertakes 900 cases annually and is based in the new surgical block at Bristol Royal Infirmary, opened in 2014. The Bristol Royal Hospital for Children houses congenital cardiac surgery (400 cases annually). There are 15 Consultant Surgeons including 2 Professors.

Particular strengths include a strong tradition of training in cardiac surgery (more than 50% of cardiac cases performed by trainees), including excellent experience in OPCAB. There are research opportunities with the renowned Academic Surgical Unit.

Courses in aortic surgery and minimal access surgery, weekly postgraduate seminars and regional study days are available. There is an active TAVI programme and a dedicated hybrid theatre.

scan here to visit the Bristol cardiac surgery clinical site

The thoracic unit has a particular interest in minimal access surgery. It one of only two European centers to host Clinical Immersion Courses in VATS lobectomy with Covidien, and is hosting an ESTS Itinerant Expert Course in 2015. In 2013, 60% of all lobecotmies were performed thoracoscopically. There is also an active endobronchial and surgical lung volume reduction programme, suported by a severe COPD MDT.

scan here to visit the Bristol thoracic surgery clinical site
Training in Bristol will comprise time spent in adult & paediatric cardiac and general thoracic surgery, depending upon the trainee’s career intentions. There will be excellent training in all aspects including OPCAB/minimal-access surgery & VATS resections.

**Academic**

The academic component is based at the Bristol Heart Institute, linked with the University of Bristol. Bristol is a Russell Group University, ranked within the top 30 Universities in the world (QS world rankings 2014). The medical academic staff includes:

- X1 British Heart Foundation Professor of Cardiac Surgery
- X1 Bristol University Professor of Cardiac Surgery
- X2 Bristol University Readers of Cardiac Surgery
- X2 ACFs
- X1 Research Fellow

There are a large number of high impact papers published by our trainees each year.

**The Plymouth component** of the training programme is based at Derriford Hospital, Plymouth which has, in the last two years relocated to the £40 million Sir Terence Lewis Building - The South West Cardiothoracic Centre, performing 1300 adult cardiac and 600 general thoracic procedures annually.

There are 6 full time cardiac consultants and 2 full time thoracic consultants. Minimally invasive oesophageal surgery (MIO) has now relocated from Exeter to Derriford. The South West is one of very few UK cardiothoracic programmes able to offer training in oesophageal surgery.

Particular areas of specialisation include minimal access mitral and aortic valve surgery, TAVI, AF surgery, minimally invasive valve surgery and aortic surgery

Training has been particularly strong in this region, with skilled trainees performing up to 50% of the cases. There has been excellent progression of trainees from ST3 level to completion with 100% of recent graduates taking up consultant posts.

Both Bristol and Plymouth are designated Adult Major Truma Centers (MTC). BRCH is a designated paediatric MTC.

scan here to visit the Plymouth cardiothoracic site

**Teaching**

There are a number of regular teaching sessions and formal study days arranged throughout the year:

1. Weekly departmental teaching for trainees in Plymouth and Bristol
2. Monthly regional Core Trainee Meetings (Peninsula)
3. Regional study days held 3-4 times per year between Severn and Peninsula Deaneries
4. Aortic Valve Study Day – March 2011 (Peninsula)
5. Aortic Surgical Study Day (Bristol) – Nov 2011 (Severn, Peninsula, Cardiff and Wessex Deaneries)
7. Mitral Study Day and Wetlab teaching – March 2012 – (Peninsula)
8. Cardiopulmonary Bypass Study Day – March 2013
10. Modern Management of Lung Cancer Symposium Bristol 2014

Our faculty are actively involved with national educational events including:

1. Specialty Skills Course in Cardiothoracic Surgery
2. Intermediate Skills Course
3. Professional Development Course
4. Birmingham Review Course
5. RCSEng Training the Trainer Course
6. SCTS University
7. Cardiothoracic Trainees National “Boot Camp”

Trainees and faculty at our lung resection wetlab, School of Anatomy, Bristol.
**West Midlands**

Rotation Base(s)

<table>
<thead>
<tr>
<th>HOSPITAL</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart of England NHS Foundation Trust (Heartlands Hospital)</td>
<td>Birmingham</td>
</tr>
<tr>
<td>University Hospital Birmingham NHS Foundation Trust (QE Hospital)</td>
<td>Birmingham</td>
</tr>
</tbody>
</table>

**Deanery information**

The West Midlands has a population of 5.3 million, with a rich mix of cultures and an ethnically diverse population. The population spans the high number of young people in the city of Birmingham to the older population in the more rural parts of the region such as Herefordshire.

Birmingham is a progressive, multi cultural modern city benefiting from an ambitious city centre redevelopment plan. There are excellent transport links, being 1½ hours by train to London, 1 hour to Manchester and 1½ hours to Bristol. Birmingham International Airport flies to over 100 destinations and is 15 min drive from the city centre. The city offers a wide range of social, cultural and entertainment facilities including a vibrant city centre, the Symphony Hall, home of the Birmingham Symphony Orchestra, the Birmingham Royal Ballet and the International Convention Centre. It boasts the largest cinema complex in the UK and the Bullring shopping centre has recently been redeveloped into the largest shopping complex in Europe. Birmingham is also home to the National Exhibition Centre, three premiership football clubs and the Edgbaston Test Cricket Ground. There are three universities, excellent schools and a number of other institutions offering further education and vocational training.

The West Midlands Workforce Deanery is the second largest deanery in the country with a wide range of specialty and training posts offered. The foundation programme in the West Midlands was one of the first to be established in the UK and has maintained its strong drive of innovation and excellence.

**Rotation Information**

ST3 – ST 8

The West Midlands Cardiothoracic Training Programme offers comprehensive training thro 18 Deanery funded and educationally approved cardiothoracic training posts across 6 hospitals:

- **University Hospital Birmingham**: academic adult cardiac surgery programme including intrathoracic transplantation, complex aortic surgery and ventricular assist devices as well as a very active civilian and military trauma practice.
• **Heart of England Hospital**: dedicated adult thoracic unit practicing all aspects of thoracic surgery including complex thoracoscopic, tracheal and chest wall surgery.

• **Birmingham Children’s Hospital**: largest neonatal and infant paediatric cardiac surgical programme in UK. Tertiary referral centre for all aspects of paediatric cardiac surgery including ECMO. The unit also undertakes regular adult congenital heart surgery at UHB.

• **University Hospital of Coventry and Warwick**: combined adult cardiac and thoracic programme undertaking all aspects of cardiothoracic surgery including complex mitral and aortic surgery as well as all aspects of thoracic surgery.

• **New Cross Hospital, Wolverhampton**: combined adult cardiac and thoracic programme including aortic, mitral and minimally invasive and robotic surgery.

• **University Hospital of North Staffordshire**: combined adult cardiac and thoracic programme.

The programme is administered by a regional Training Committee that has been established for over a decade and has a reputation for robust training assessments and commitment to the quality of training. Training within departments is also supported by the monthly teaching programme overseen by the Training Director. The commitment to training goes beyond the region. A number of national teaching courses were established by and are run by faculties that include a strong West Midlands presence (The Birmingham Review Course, The DSTS, The RCS Cardiac Skills Courses, The Birmingham Professional Development Course).

The training programme is individualised for each trainee and does not follow a fixed pattern. During the first 4 years of the programme generic training is offered, this includes at least 1 year of thoracic surgery and 6 months of paediatric surgery. In the final 2 years trainees are helped to pursue training in areas of specialisation or specific interest either within the region or as OOPE (this has included Hong Kong, USA, Edinburgh, Newcastle, Papworth, and Middlesborough).

The strength of clinical training is mirrored by that of academic training. In 2007 2 Walport Lecturers were appointed following a successful application by the cardiac surgical departments at the Queen Elizabeth and Birmingham Children’s Hospitals in conjunction with The University of Birmingham to the Department of Health. In addition there are 2 trainees who are clinical lecturers at the University of Birmingham. There are 4 further research fellows at QEH, BCH and Heartlands Hospitals.

Over the past 15 years 28 national trainees have completed the training programme, 27 have achieved consultant posts in the United Kingdom (incl. adult cardiac, cardiopulmonary transplantation, thoracic, cardiothoracic and paediatric cardiac surgery) and 1 in Canada. In the last 3 years the McCormack medal for the best performance at the FRCS Part 3 examination has been awarded twice to West Midland trainees.

The West Midlands has also contributed significantly to collaborative training. The Birmingham Children’s Hospital shares the National Paediatric Training post for senior trainees with Great Ormond Street Hospital. In addition the Children’s Hospital has helped to train surgeons from Australia, New Zealand, South Africa, Germany, Canada and the United States and continues to do this. More recently the Surgical
Department at QEH and the Heartlands Hospitals have established an international link with Prince of Wales Hospital, Hong Kong involving the rotation of trainees.

For further information please contact Tim Jones, Regional Training Programme Director  
[tim.jones@bch.nhs.uk](mailto:tim.jones@bch.nhs.uk)
Health Education Yorkshire and the Humber

Rotation Base(s)

<table>
<thead>
<tr>
<th>HOSPITAL</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leeds General Infirmary</td>
<td>Leeds</td>
</tr>
<tr>
<td>St James’ University Hospital</td>
<td>Leeds</td>
</tr>
<tr>
<td>Northern General Hospital</td>
<td>Sheffield</td>
</tr>
<tr>
<td>Castle Hill Hospital</td>
<td>Hull</td>
</tr>
</tbody>
</table>

Deanery information

Health Education Yorkshire and the Humber offers high quality training across a wide geographical area, which means that training experiences are tailored to meet the needs of our trainees.

We offer a comprehensive training program. In addition to the broad specialty there are training opportunities to gain experience in aortic surgery, mitral valve repair, AF ablation surgery, oesophageal resections, mesothelioma surgery and major chest wall resections.

Following significant investment, HEYH is at the forefront of clinical skills and simulation. Trainees have access to extensive clinical skills facilities including state of the art high fidelity simulators, manikins and simulated patient environments.

HEYH has an extensive quality management process which ensures the training delivered to trainees is of consistent, high quality.

Rotation Information

The training program rotates between the four training centres. Trainees spend one year at each of the training centres during the first four years, rotating between posts every 6 months. Each of the training centres can offer significant training opportunities to at least two trainees and for the final two years trainees elect where they wish to continue their training in the program. The aim is that senior trainees be supernumerary. Any trainee wishing to specialise in thoracic surgery should be able to gain as wide an exposure as possible in all three thoracic surgical centres.

Transplant surgery is optional and can be arranged as a period of Out of Program Training (OOPT)
**Trust Generic/Specialty Information**

**Leeds General Infirmary**

The cardiac unit was created in 1997 following the centralisation of all cardiac surgery in Leeds to the Leeds General Infirmary. The Cardiac Surgery service operates from ward and theatre facilities in the Jubilee Wing of the LGI with theatres and all critical care facilities co-located and the ward beds on the cardiovascular floor of the facility.

Therein an outpatient department, 16 inpatient beds, 2 theatres and 14 critical care beds that are co-located level 2 & level 3 to enable flexible use of this capacity to meet service needs.

The unit performs over 1100 cardiac cases per year, with up to 200 operations for congenital heart disease. Middle grade surgeons contribute to over 90% of PBA cases and perform over 30% of cases.

**Surgical staff include:**
- 10 Consultant Surgeons
- 2 NTNs
- 7 Clinical Fellows at Registrar level
- 4 Surgical Care Practitioners

**Services to patients include:**
- Mitral valve Surgery
- Off-pump coronary artery bypass grafting
- Aortic surgery with access to TAVI

**St James University Hospital**

The largest teaching hospital in Europe with an extensive MRC cancer centre, the thoracic surgical centre at St James is now one of the largest thoracic centres in the country with outpatient facilities, a 25 bedded ward, hob facilities, two theatres plus extra theatre sessions and access to the large ITU.

The unit performs over 300 major cases a year with a large number of endoscopic and minor procedures. Trainees, depending on experience, are involved in all PBA cases performing all or part of the case.

**Surgical staff include:**
- 5 Consultant Surgeons
- 1 NTN
- 1 LAT
- 6 Clinical Fellows at Registrar level

**Services to patients include:**
- Endobronchial laser and photodynamic therapy (PDT)
- VATS lung resections
- Major chest wall resections
Northern General Hospital

Cardiothoracic surgery services for the North Trent population of 1.8 million are located within the South Yorkshire Cardiothoracic Centre, Chesterman Wing, Northern General Hospital. With 5 dedicated cardiothoracic theatres, 28 cardiac surgery beds and 20 thoracic beds, 24 theatre recovery beds, progressive care beds and cardiac Intensive Care unit beds.

The unit performs over 1000 cardiac cases per year with middle grade surgeons contributing to over 90% of PBA cases and performing 23% of cases.

Surgical staff includes:
- 9 Consultant Surgeons
- 2 NTNs
- 1 LAT
- 7 Clinical Fellows at Registrar level
- 3 Surgical Care Practitioners

Services to patients include:
- Mitral Valve Surgery (minimally invasive)
- AF Ablation surgery
- Aortic surgery
- VATS lung resections and lobectomy
- Mesothelioma surgery

Castle Hill Hospital

Newly built, opening in 2010, the cardiothoracic centre at Castle Hill Hospital has excellent facilities with two 25 bedded dedicated cardiothoracic wards with 12 Hob beds, ITU beds, 3 theatres, endoscopy suite and outpatient facilities. The unit performs over 800 cardiac procedures, middle grade surgeons contributing to over 90% of PBA cases and performing 27% of cases. Over 250 major and advanced thoracic cases are performed each year and over 1000 endoscopic and minor cases. Middle grade surgeons contribute to over 80% of all PBA cases and over 60% of minor and major procedures are performed under supervision by trainee surgeons.

Surgical staff include:
- 6 Consultant Surgeons
- 2 NTNs
- 7 Clinical Fellows at Registrar level
- 4 Surgical Care Practitioners

Services to patients include:
- Mitral valve Surgery
- AF ablation surgery
- Aortic surgery
- Minimal access aortic valve surgery
- VATS lung resections and lobectomy
- Mesothelioma surgery
- Endoscopic laser
- Oesophageal surgery
Teaching

Hospital based teaching programs

Each unit provides adult cardiothoracic training with paediatric surgery at the LGI. There are weekly teaching sessions at each hospital covering the syllabus and including journal clubs. Wet lab facilities are available at Leeds, Sheffield and Hull. Health Education Yorkshire and the Humber has funded and established simulation facilities in each teaching centre.

Mr M Loubani has been appointed as the Educational Training Program Director. The Regional Teaching Programme has been designed to cover all the topics in the Intercollegiate Surgical Curriculum Programme for Cardiothoracic Surgery and to incorporate simulation, Wet Labs and problem based learning. It is planned over two years and intended to be delivered by trainers at all the participating hospitals in the programme over a half a day normally on a monthly basis. The trainees will be released to attend the teaching and will be expected to attend at least 70% of the sessions over the two years. The programme incorporates the Yorkshire Cardiothoracic Meeting which is held as an all day event every six months.

The Programme

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Venue</th>
<th>Time</th>
<th>Format</th>
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<tbody>
<tr>
<td>Sept 2013</td>
<td>Cardiopulmonary Bypass</td>
<td>CHH</td>
<td>2 hrs</td>
<td>Interactive Multi-professional Lectures</td>
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<td>CPB Simulation Scenarios</td>
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<td>Oct 2013</td>
<td>Investigation and surgical management of oesophageal cancer: Staging;</td>
<td>CHH</td>
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<td>Interactive Multi-professional Lectures</td>
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<td>Surgical considerations; Evidence base for adjuvant treatment</td>
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<td>2 hrs</td>
<td>Simulation Oesophageal MDT and Postoperative Care Scenarios</td>
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<td>Nov 2013</td>
<td>The evidence for CABG, Conduit choice, Interpretation of angiograms</td>
<td>CHH</td>
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<td>Interactive Multi-professional Lectures</td>
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<td></td>
<td></td>
<td></td>
<td>2 hrs</td>
<td>Wet Lab Coronary anastomosis Techniques</td>
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<td>Dec 2013</td>
<td><strong>Yorkshire Cardiothoracic Meeting</strong></td>
<td>St James’s</td>
<td>All day</td>
<td>Teaching and presentations</td>
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<td>Jan 2014</td>
<td>Lung Cancer: Staging and operability, Evidence base for adjuvant treatment</td>
<td>NGH</td>
<td>2 hrs</td>
<td>Interactive Multi-professional Lectures</td>
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<tr>
<td></td>
<td></td>
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<td>2 hrs</td>
<td>Lung MDT simulation scenarios</td>
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<tr>
<td>Feb 2014</td>
<td><strong>Aortic valve disease: Indications for surgery; Choice of prosthesis</strong></td>
<td>CHH</td>
<td>2 hrs</td>
<td>Interactive Multi-professional Lectures</td>
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<td></td>
<td>2 hrs</td>
<td>Wet Lab AVR Techniques</td>
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<tr>
<td>March 2014</td>
<td><strong>Aortic Surgery and</strong></td>
<td>CHH</td>
<td>2 hrs</td>
<td>Interactive Multi-professional Lectures</td>
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<td></td>
<td>2 hrs</td>
<td>Wet Lab Aortic Root Enlargement</td>
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<tr>
<td>Month</td>
<td>Event</td>
<td>Location</td>
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<tr>
<td>April</td>
<td>Surgery for pneumothorax, pleural sepsis, pleural effusion, empyema, emphysema/COPD</td>
<td>St James’s</td>
<td>2 hrs</td>
<td>Interactive Multi-professional Lectures</td>
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<td></td>
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<td></td>
<td>2 hrs</td>
<td>Case Discussions</td>
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<tr>
<td>May</td>
<td>Lung Transplantation/ Heart Transplantation</td>
<td>CHH</td>
<td>4 hrs</td>
<td>Interactive Multi-professional Lectures</td>
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<tr>
<td>June</td>
<td>Yorkshire Cardiothoracic Meeting</td>
<td>Sheffield</td>
<td>All day</td>
<td>Teaching and presentations</td>
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<tr>
<td>July</td>
<td>TTE, TOE, Stress Echo, Cardiac MRI exercise tests, radionuclide and PET scans.</td>
<td>CHH</td>
<td>2 hrs</td>
<td>Interactive Multi-professional Lectures</td>
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<td></td>
<td>2 hrs</td>
<td>Echocardiography simulation</td>
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<tr>
<td>Aug</td>
<td>ASD, VSD, PDA, Aortic Coarctation and Interruption</td>
<td>LGI</td>
<td>2 hrs</td>
<td>Interactive Multi-professional Lectures</td>
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<td>2 hrs</td>
<td>Interactive Multi-professional Lectures</td>
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<tr>
<td>Sept</td>
<td>Surgery for Heart Failure; Post Infarct VSD / Mitral Regurgitation</td>
<td>LGI</td>
<td>2 hrs</td>
<td>Interactive Multi-professional Lectures</td>
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<td></td>
<td>2 hrs</td>
<td>Mitral Valve Surgery Wetlab</td>
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<tr>
<td>Oct</td>
<td>Action potential; Adrenergic receptors; Mechanisms of action of inotropes, receptor blockers and vasodilators; Anti-arrhythmics; Pharmacology of anti- and pro-coagulants</td>
<td>NGH</td>
<td>2 hrs</td>
<td>Interactive Multi-professional Lectures</td>
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<td>2 hrs</td>
<td>ITU management Scenarios</td>
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<tr>
<td>Nov</td>
<td>Non Surgical Management of Oesophageal and Lung Cancer</td>
<td>CHH</td>
<td>2 hrs</td>
<td>Interactive Multi-professional Lectures</td>
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<td></td>
<td>2 hrs</td>
<td>Interactive Multi-professional Lectures</td>
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<tr>
<td>Dec</td>
<td>Yorkshire Cardiothoracic Meeting</td>
<td>Hull</td>
<td>All day</td>
<td>Teaching and presentations</td>
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<tr>
<td>Jan</td>
<td>Pulmonary and pleural physiology. Interpretation of respiratory function tests, Flow-volume loops</td>
<td>St James’s</td>
<td>2 hrs</td>
<td>Interactive Multi-professional Lectures</td>
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<td></td>
<td>2 hrs</td>
<td>PFTs Lab</td>
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<td>Month</td>
<td>Event</td>
<td>Location</td>
<td>Duration</td>
<td>Type of Event</td>
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<td>Feb 2015</td>
<td>Management of the Brain During Cardiac Surgery; Autoregulation; CO2 Management; Carotid Artery Disease</td>
<td>NGH</td>
<td>2 hrs</td>
<td>Interactive Multi-professional Lectures</td>
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<tr>
<td>March 2015</td>
<td>Mitral valve disease: Indications for surgery; Valve repair. Tricuspid valve Surgery</td>
<td>CHH</td>
<td>2 hrs</td>
<td>Interactive Multi-professional Lectures</td>
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<tr>
<td>April 2015</td>
<td>Statistics. Risk stratification. CUSUM, VLAD plots, Evidence Based Medicine, How to do research and publish</td>
<td>CHH</td>
<td>2 hrs</td>
<td>Interactive Multi-professional Lectures</td>
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<tr>
<td>May 2015</td>
<td>Angiography, <em>Cardiac catheter data, exercise tests, Measurement of cardiac output. Measurement of shunts</em></td>
<td>NGH</td>
<td>2 hrs</td>
<td>Interactive Multi-professional Lectures</td>
</tr>
<tr>
<td></td>
<td>Yorkshire Cardiothoracic Meeting</td>
<td>LGI</td>
<td>All day</td>
<td>Teaching and presentations</td>
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<tr>
<td>July 2015</td>
<td>Mediastinal masses; Benign lung and oesophageal tumours and diseases</td>
<td>NGH</td>
<td>2 hrs</td>
<td>Interactive Multi-professional Lectures</td>
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<tr>
<td>Aug 2015</td>
<td>Tetralogy of Fallot; Transposition of the Great Arteries, Single Ventricle; Hypoplastic Left Heart Syndrome</td>
<td>LGI</td>
<td>2 hrs</td>
<td>Interactive Multi-professional Lectures</td>
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<tr>
<td>Sept 2015</td>
<td>Myocardial preservation Medical and Surgical Treatment of Atrial and Ventricular Dysrhythmias</td>
<td>CHH</td>
<td>2 hrs</td>
<td>Interactive Multi-professional Lectures</td>
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