

Department of Anaesthesia

The Norfolk and Norwich University Hospital NHS Foundation Trust (NNUH) is a 1300 bed tertiary teaching hospital providing surgical services for a population of approximately 1 million. It serves patients from the James Paget Hospital (Great Yarmouth), and Queen Elizabeth Hospital (King's Lynn) as well as those living in its own catchment area.

The anaesthetic department prides itself on providing a supportive environment for trainees. It is one of the busiest in the country providing support for approximately 30000 surgical procedures per annum. It has recently been ACSA accredited (Anaesthesia Clinical Services Accreditation) by the RCoA. The



department currently supports 26 theatres (17 inpatient, 6 day surgery, 3 regional anaesthesia only), 2 obstetric theatres, eye theatres as well as remote anaesthesia in other locations, including radiology, MRI, Cardiology, brachytherapy and ECT. A new dedicated paediatric 2-theatre complex and a new 2-theatre elective orthopaedic complex are due to open in 2023.

The Anaesthetic department comprises 70 consultants, 4 associate specialists and approximately 28 “trainees” (a mixture of HEE Trainees, overseas MTI fellows and Fellow posts), as well as 3 anaesthesia associates.

Anaesthetic Training

At the Norfolk and Norwich Hospital we have anaesthetic trainees ranging in experience from novices (including non-anaesthetist ACCS Trainees) to ST7 and post-CCT Fellows. It is a busy hospital with many tertiary services across a broad range of specialties, providing a multitude of training opportunities for anaesthetic trainees of all levels.

Grade-appropriate training is organised into modules aligned to the RCoA syllabus. At the start of their time in Norwich, trainees will meet with the College Tutor to agree their training needs, aspirations, and plan modules. We have an enthusiastic team of Educational Supervisors to help guide trainees and act as point of contact for any queries during their time in Norwich.

The majority of theatre lists are consultant-Lead meaning clinical training is closely supervised. There is the opportunity for trainees to do solo lists once they are appropriately experienced. We have a floating anaesthetic consultant (Black Spot) available at all times to provide advice and assistance to solo trainees if required.

Trainee Teaching

There are frequent teaching sessions in both anaesthesia and critical care which Trainees are encouraged to attend. Our teaching program is designed to compliment regional teaching days and college exams.



There are many opportunities for trainees to participate in non-clinical work to improve their portfolio. We are an active department with regards to audit and QI projects many of which are presented as posters or oral presentations at regional and national meetings. The anaesthetic department holds regular governance meetings, at which trainees can also present their projects.

We are regularly involved in recruiting/data collection for national research projects for which trainee participation is actively encouraged and supported.

There are also many opportunities for trainees to be involved in teaching and organisational/leadership roles.

Clinical Work

Services provided for include:

- Thoracic surgery (approximately 200 lung resections per annum), including robotic surgery
- Upper GI surgery including minimally invasive oesophagectomy
- Colorectal surgery including robotic surgery, exenterations and HIPEC
- Plastic and reconstructive surgery
- Complex head and neck cancer
- Paediatric (including neonatal surgery)
- ENT and maxillofacial surgery
- Vascular surgery including FEVAR/EVAR
- Orthopaedics, including pelvic surgery, complex joint revision surgery and adolescent scoliosis surgery
- Ambulatory Procedure Unit (APU) - upper limb procedures carried out solely under regional block
- Urology, including robotic renal, prostate and bladder surgery

- Gynae-oncology including exenterations and complex laparoscopic and robotic resections, as well as HIPEC surgery.
- Interventional radiology
- Brachytherapy
- Cardiological electrophysiology ablation procedures
- Interventional endoscopy
- Emergency Anaesthesia – emergency theatre and cardiology cath lab.
- Obstetrics, with daily elective caesarean lists, high-risk obstetrics, including abnormally invasive placenta cases

Emergency Theatre

The emergency theatres are amongst the busiest in the country. We performed 292 emergency laparotomies in a recent NELA report (the fifth highest nationally). There is a real mix of surgical specialties using the emergency theatre so trainees will be exposed to a wide variety of major emergency cases including laparotomies, aortic aneurysm (open and endovascular), paediatric (including neonates) and head and neck/airway emergencies.

Major General Surgery

NNUHT provides tertiary services for extensive upper and lower GI services, major urological & gynaecological surgeries both in elective and emergency. We are also one of only a small number of UK centres who do minimally invasive oesophagectomies.

We are a robotic centre and have two Da Vinci robots which are used for urological, general, gynaecological, head and neck, and thoracic surgery. We are the first centre nationally to start



work on HIPEC- hyperthermic intra-peritoneal chemotherapy treatment for gynaecological cancer and one of a few centres doing HIPEC for colorectal cancer. NNUH completes the highest number of NELA laparotomies in the East of England. There are opportunities to follow patient pathway from MDT, POA clinic, through surgery and post op HDU care. Enhanced recovery pathways are in use and in development. Opportunities to evaluate these pathways and develop improvements through QI projects.

Anaesthesia for Complex Airways

NNUH is one of the largest tertiary referral centres for head and neck cancer in England with 350-450 referrals per year. On average NNUH does

20-30 laryngectomies, 70-80 intra oral free tissue transfer reconstructions, 120-130 thyroidectomies and 100 other major head and neck surgeries per year.

There are 3-4 lists per week for major H&N surgery in addition to airway laser lists and more routine ENT and OMFS lists. Thoracic lists provide experience in tracheal surgery.



There are ample opportunities to learn advanced airway skills such as awake fiberoptic intubation, complex airway intubation and extubation planning. There are opportunities to use a range of advanced airway equipment including the Mcgrath and CMac videolaryngoscopes, AMBU scopes, Optiflow and the Cook staged extubation set.

There are opportunities to attend MDT meetings, H&N governance and dedicated H&N preoperative assessment clinics as well as ENT clinics to gain nasendoscopy experience.

Obstetrics

The NNUHT maternity department is a tertiary unit supporting approximately 5,500 deliveries p.a. and provides multi-disciplinary care for high-risk pregnancies. We have a caesarean section rate of around 30 - 40% and an epidural rate of around 25%. We are also one of only 5 units in the country to have introduced remifentanyl PCA as a routine option for labour analgesia.

We have easy access to ultrasound to assist spinal and epidural insertion.

NNUHT is a designated centre for management of abnormally invasive placenta centre (placenta accreta/percreta). Involvement of trainees is encouraged in managing these cases when they occur.

Having a level 3 NICU in the hospital means that we are involved in the care of many women having extremely premature deliveries and high-risk pregnancies.

We have daily elective caesarean section lists in a dedicated theatre with consultant cover. We also have a dedicated anaesthetic consultant on-call rota for obstetrics.

There is a wide range of maternal pathology including complex cardiac disease as part of the GUCH/ACHD (Grown-up/Adult Congenital Heart Disease) Service at NNUH. There is a fortnightly multi-disciplinary maternal medicine meeting which the anaesthetists attend and there are weekly high-risk obstetric anaesthesia clinics. In addition, there are fortnightly high BMI clinics at which patients are counselled and their backs scanned.

Critical Care

Trainees will gain a lot of experience on our busy critical care unit which has 10 level-3 and 18 level 2 beds, and approximately 2000 admissions per year. There are 14 critical care consultants providing all daytime, and out of hours cover for the critical care unit. Support is also available from critical care ODPs and the Trust Rapid Response Team. Critical care has trainees from multiple parent specialties.

NNUH is designated as a stage 3 ICM training unit, it would be possible to complete 6 months of additional ICM as a Special Interest Area. There are opportunities to learn bronchoscopy and percutaneous tracheostomy and take part in quality improvement projects and research.

Trauma

NNUH is currently the busiest trauma unit in the East of England Trauma Network and plans to develop as a second Major Trauma Centre have recently been agreed. All major trauma is currently managed within the trust with the exception of head-injuries requiring neurosurgical intervention or invasive monitoring, complex hepatobiliary injuries requiring surgical intervention and some cardiac/ cardiothoracic injuries and we currently receive secondary transfers for complex ortho-trauma and reconstructive plastic surgery. There is a dedicated trauma theatre which delivers a consultant-lead service 7 days a week.

Complex Orthopaedics

NNUH has a busy trauma unit with over 800 fracture hip admissions per year as well as periprosthetic fractures and pelvic fractures. The department delivers surgery for a wide variety of orthopaedic procedures including upper limb, lower limb, and complex adolescent scoliosis surgery requiring spinal cord monitoring and wake up tests. There is a strong team of regional anaesthetists providing regional anaesthesia in isolation or as an adjunct to general anaesthesia. There is an ambulatory procedure unit providing regional anaesthesia for awake hand surgery.

The new Norfolk and Norwich Orthopaedic Centre is due to open in 2023. It is a stand-alone orthopaedic unit which will expand the number of orthopaedic procedures performed.

Regional Anaesthesia

The department has a long history of a very active regional anaesthesia programme. The scope of surgery that Norwich offers such as orthopaedics, plastics, thoracic surgery, acute and chronic pain, and trauma lends itself to a wide variety of blocks and RA techniques. This includes daily ambulatory awake upper limb theatre list; a busy trauma and orthopaedic service with surgeons who support and understand the benefits of RA for their patients and a structured rib fracture pathway for which we provide the analgesic service. A trainee in regional anaesthesia would therefore have ample opportunity to learn and become proficient in all upper and lower limb blocks, trunk blocks and catheter techniques delivered in a one-to-one environment, with state-of-the-art ultrasound machines, by consultants with a special



interest in RA. The use of the Norwich Regional Anaesthesia Passport to record training, progress and feedback has been considered by trainees as very valuable. In addition, the faculty host a yearly hands-on cadaveric workshop at the UEA which has proven to be very popular and active involvement in delivering teaching for this is encouraged. There is the opportunity to participate in MSc in Regional Anaesthesia in association with the UEA which is nationally one of the first of its kind. Allocated time for research and development, support for the EDRA exam, and strong links with national and international regional anaesthesia associations in addition to the clinical experience means that this programme provides a well-rounded approach to RA training.

Paediatrics

Around 3000 paediatric surgical procedures are carried out at the NNUH annually. Approximately 850-900 of these are in children under one year of age.

The various subspecialties include paediatric general surgery and urology, trauma and orthopaedics, ENT, spines and scoliosis, plastic surgery, maxillofacial and dental surgery, ophthalmology and, outside of theatre, CT/MRI under GA.

A team of 10 consultant paediatric anaesthetists cover the paediatric elective work and provide on-call cover. There are 2 dedicated paediatric theatres under construction with plans to open in 2023.

In addition to paediatric surgical emergencies paediatric anaesthetists are regularly involved in the resuscitation and stabilisation of the 'critically ill' child.

There is a weekly consultant delivered pre-operative assessment clinic and monthly scoliosis MDT clinic.

We have links with nearby centres to allow advanced trainees access to PICU experience.

We anaesthetise medically complex children for elective and emergency surgeries. There will be opportunities for trainees to become competent in the peri-operative care of children with complex conditions.

Vascular Anaesthesia

NNUHFT is one of the busiest vascular centres within East of England & nationally. There is plenty of opportunity to work as part of the vascular MDT, engage in research/QI activities and train in managing variety of major vascular procedures including spinal drains. We provide emergency and elective surgical support. In 2018, we did 87 elective infrarenal AAA procedures of which only 31% were EVAR. We were also involved in 200+ Carotid endarterectomies in 2019 and another 400+ procedures which were not AAA/CEA. We encourage various regional anaesthetic procedures and support development of new approaches as appropriate. There is access to weekly MDT meetings, direct consultant (with special interest) supervision and opportunity to engage in consultant-run preoperative assessments and optimisation. There are daily elective lists and urgent carotid endarterectomy lists on a weekly basis providing valuable training opportunities.

Thoracic Anaesthesia

NNUH provides surgical services for malignant and non-malignant thoracic conditions including chest trauma. We perform around 500-600 thoracic surgical procedures in a calendar year. This includes nearly 250 lung resections for malignancy, mediastinal mass resections, tracheal resections, tracheal stenting, therapeutic rigid bronchoscopy, pleural diseases, correction of chest wall deformities, diaphragm plication, pericardial window and fixation of rib fractures.

Most surgeries are performed thoracoscopically (VATS) but NNUH has recently developed a Robot-assisted thoracic surgery (RATS) service which started in early 2021. The expectation is that at least 25% of lung cancer resections will be carried out using this technique.

Perioperative Medicine

As a very busy surgical unit with broad range of specialties and a large number of complex patients, NNUH is well-placed to deliver training in perioperative medicine in accordance with the RCoA syllabus.

Whilst working at NNUH trainees will be involved in care of medically complex patients undergoing major elective, and emergency surgery.

We have a well-established, anaesthetic preassessment service with several clinics per day, which trainees will attend. There are also specialised paediatric and high-risk obstetric preassessment clinics.

We have well established pathways for the management of common preoperative problems such as anaemia and suspected sleep apnoea, and there are opportunities to attend sleep study clinics and cardiopulmonary exercise testing. There will also be

the opportunity to attend surgical MDTs which have regular anaesthetic attendance (particularly thoracics, head and neck and obstetrics).

For experience in post-operative patient care, trainees will be able to spend time on critical care, with the rapid response outreach team, and on acute pain rounds. There are many opportunities at NNUH for trainees to do QI and/or audit projects, and also to be involved in national perioperative care related research projects such as PQIP and NELA.

Pain Medicine

Acute Pain

The department supports a busy chronic pain service, with 6 consultants delivering specialist sessions alongside specialist nurses and psychologists. The chronic pain service provides a spinal cord stimulator service and is active in research in this area. These lists also provide separate anaesthetic experience in procedural sedation.

The acute pain team based at the Norfolk and Norwich University Hospital is integrated with the Pain Management Centre and consists of a team of 8 specialist nurses who work alongside the pain consultants. There are daily consultant led pain rounds and the team review all advanced pain management procedures on the wards. There are opportunities to join the consultants in the chronic pain clinics and also learn regional pain blocks with the regional anaesthetist specialists. There are opportunities to look after patients having had complex surgery and complex pain needs.

Chronic Pain Medicine

NNUHT is a multi-disciplinary specialist pain centre offering a comprehensive range of management options.

The Pain Management Centre at the Norfolk and Norwich University hospital is the largest outside London, providing a wide range of services in treatment, research and education.

In 2019, there were approximately 3300 new patient referrals with close to 11000 patient experiences. This includes 2100 procedures undertaken with 48 Spinal Cord Stimulation insertions. The wide range of pain interventions includes: cervical and lumbar procedures (including radiofrequency ablation, pulsed radiofrequency procedures), and ultrasound-guided procedures. Neuromodulation is an important part of the treatment option for selected patients. We currently have 2 consultants who implant spinal cord stimulators, doing 50-60 procedures a year.

We offer comprehensive multi-disciplinary pain management with the longest running Pain Management program in the East of England. We provide patients with access to short term seminars based on cognitive behavioral and acceptance – commitment therapy models

Stage 3 SIA Modules

We offer the following areas for SIA training in stage 3:

- Complex airway
- Complex orthopaedics
- Intensive care medicine
- Major general surgery
- Obstetrics
- Paediatrics (6-months)
- Pain medicine
- Perioperative medicine
- Plastics and Burns
- Regional anaesthesia
- Thoracics
- Transfer medicine
- Trauma and Stabilisation
- Vascular

Anaesthetic On-Calls

There are four tiers of anaesthetic trainee on-call out-of-hours working as a team:

The 1st-on-call is usually the most junior trainee and is based in theatres, between trauma and emergency theatres depending on case load.

The 4th-on-call is the most senior trainee (usually ST7) and is based in emergency theatres but is expected to give assistance to other sectors (obstetrics, critical care and trauma theatre) as appropriate.

There is one trainee on-call for obstetrics and one for critical care. (NB in addition there are also non-anaesthetist trainees on duty for critical care).

The on-calls are currently on a rolling 1 in 8 rota.

Out-of-hours consultant cover is provided by four consultants at all times. Consultant cover is divided into general theatres, critical care, paediatrics and obstetrics. In addition, during the daytime at weekends, trauma theatres is covered by a consultant.

Contact Details

For enquires about anaesthetic training at the Norfolk and Norwich University Hospital please email one of our College Tutors:

- Stage 2 and 3 Training – Dr. Jasmine Kaur, jasmine.kaur@nnuh.nhs.uk
- Stage 1 Training – Dr. Jonathon Francis, jonathon.francis@nnuh.nhs.uk

