Anaesthetic Department Handbook

A Guide to Anaesthesia, ITU and Labour ward at Lister Hospital

August 2021

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Welcome to Lister

Welcome to Lister Hospital! The department of anaesthesia is a very friendly department (of course we would say that). We hope that you have a thoroughly enjoyable time with us but, having said that, we expect you to work hard! This handbook aims to give you some of the essential information you need.

Who's who

There are a large number of consultants, staff grade doctors and clinical fellows within the department. A full list of these, along with photos can be found in the appendices (so that you know who you are looking for when you do a list with someone for the first time!). Some key departmental people are listed below:

Clinical Director *(The boss)*:	Dr Katie King
Deputy CD *(rota)*:	Dr Gary Yap
Deputy CD *(clinical governance)*:	Dr Pranav Kukreja
Critical Care CD:	Dr Anil Kambli
Lead Clinician (*Obstetrics)*:	Dr Melissa Kitching
Lead Clinician (*Paediatrics)*:	Dr Pranav Kukreja

Anaesthetic Coordinator: *(the REAL boss)*	Alison Waller
Assistant Service Coordinator: *(leave, sickness)*	Debbie Matthews
Secretary: *(HRAC)*	Lorraine Kramer
Secretary: *(Critical care & Anaesthetics)*	Debbie Matthews
College Tutor: *(Core Trainees)*	Dr Sunil Grover
College Tutor: *(Specialty Trainees)*	Dr Aki Pathmanathan

Essential telephone numbers and contacts

Phone numbers / extensions		**Bleeps**	
Anaesthetic office	01438 28 4086 *(x4086)*	Anaesthetic Senior Registrar	b 1102
Debbie	01438 28 8014 *(x8014)*	Anaesthetic SHO (CT 1st on-call)	b 1077
Lorraine	01438 28 8479 *(x8479)*	ITU-1 Trainee	b 1104
Theatre coordinator	07825 932664	ITU-2 Trainee	b 1213
		Obstetric Anaesthetic Registrar	b 1056
ITU-1: North / Central / South	x4325 / x4085 / x5650		
ITU-2: Reception	x4549 / x5051	ITU-1 NIC	b 5594
Coffee Room	x5449	ITU-2 NIC	b 5520
Consultant's office	x4538	Outreach Consultant (SpR out of hrs)	b 1394
Door Access codes		ODP: main theatres	b 1388
ITU-2 Doctors' office	****	ODP: maternity	b 1360
Seminar room	****		
Trainee room	****	Transfusion / Haematology	b 1005 (x5245)
Stairs to sluice	****	Biochemistry	b 4690 (x5461)
ITU Central / North	****	Porter	b 1100 (x5311)
ITU Central corridor	****	Radiographer	b 5411
ITU Central / Recovery	****	***(PCA / Epidural codes)***	****

A list of further phone numbers and bleeps can be found in the appendices or by using the '***Induction***' app, which can be downloaded from either the Apple or Android app stores.

Hospital orientation

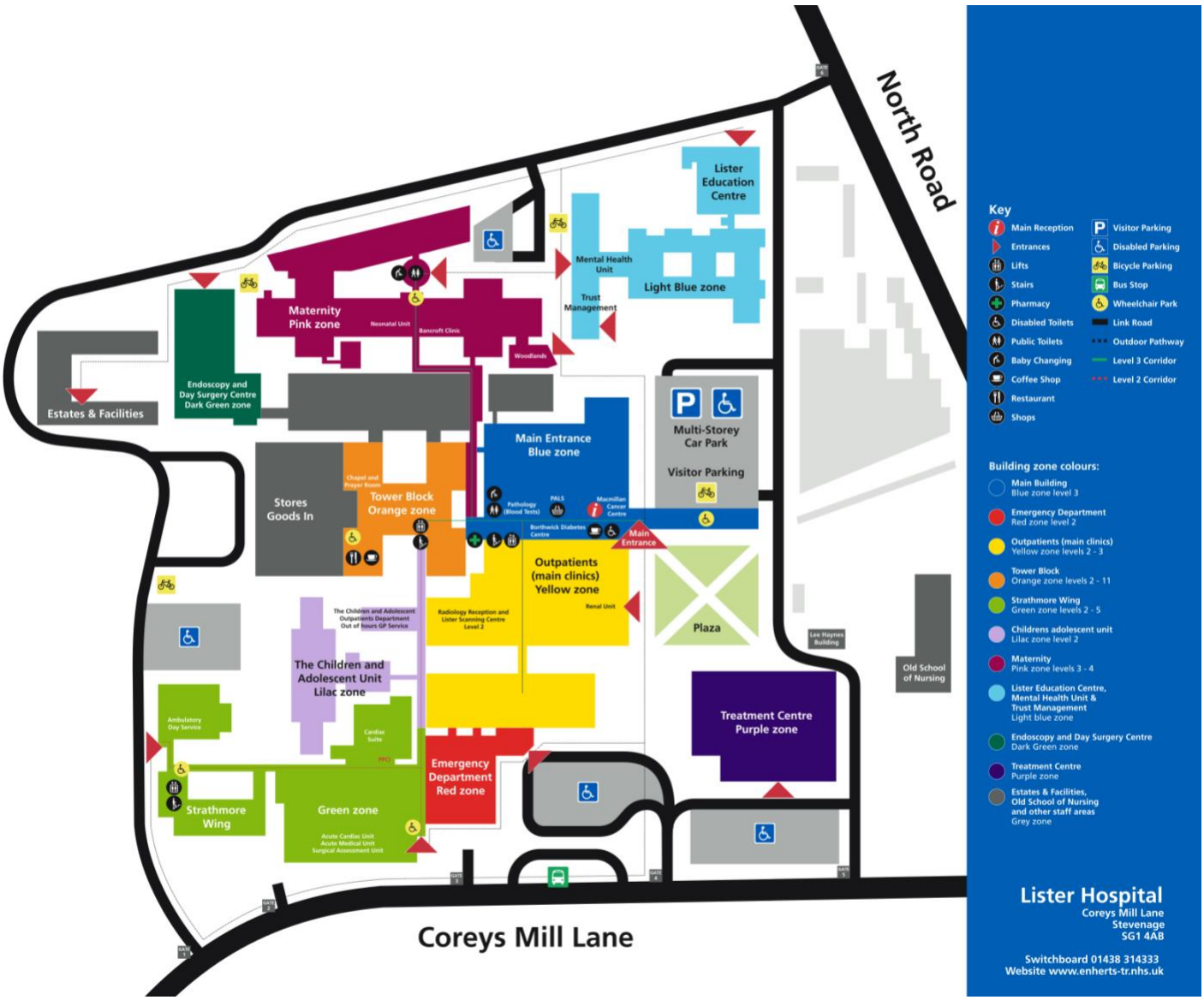
Lister Hospital

Lister hospital is divided in to a number of zones on various floors (or levels). The following places can be found on the following levels:

Level 4: Theatre complex: main theatres, recovery and day surgery unit (DSU)
The anaesthetic department (next to theatres)
Intensive Care 1 (ITU-1), divided in to North, Central and South (Orange zone)

Level 3: Main entrance, Shop, Costa Coffee, Other outdoor buildings (Education centre)
Maternity unit (Pink zone)
Outpatients, MRI scanner

Level 2: Children's and Adolescent Unit and Blue bell ward (Lilac zone)
A&E (Red zone), Radiology (Yellow zone), Cath labs (Green zone)
Intensive Care 2 (ITU-2), located on the first floor of the Green zone
The link corridor to the Treatment Centre



Finding your way around: Level 4

This is where we spend the majority of our time. It contains main theatres, Intensive care 1 (there are two!), the Day surgery Unit (DSU) and the anaesthetic departmental offices.

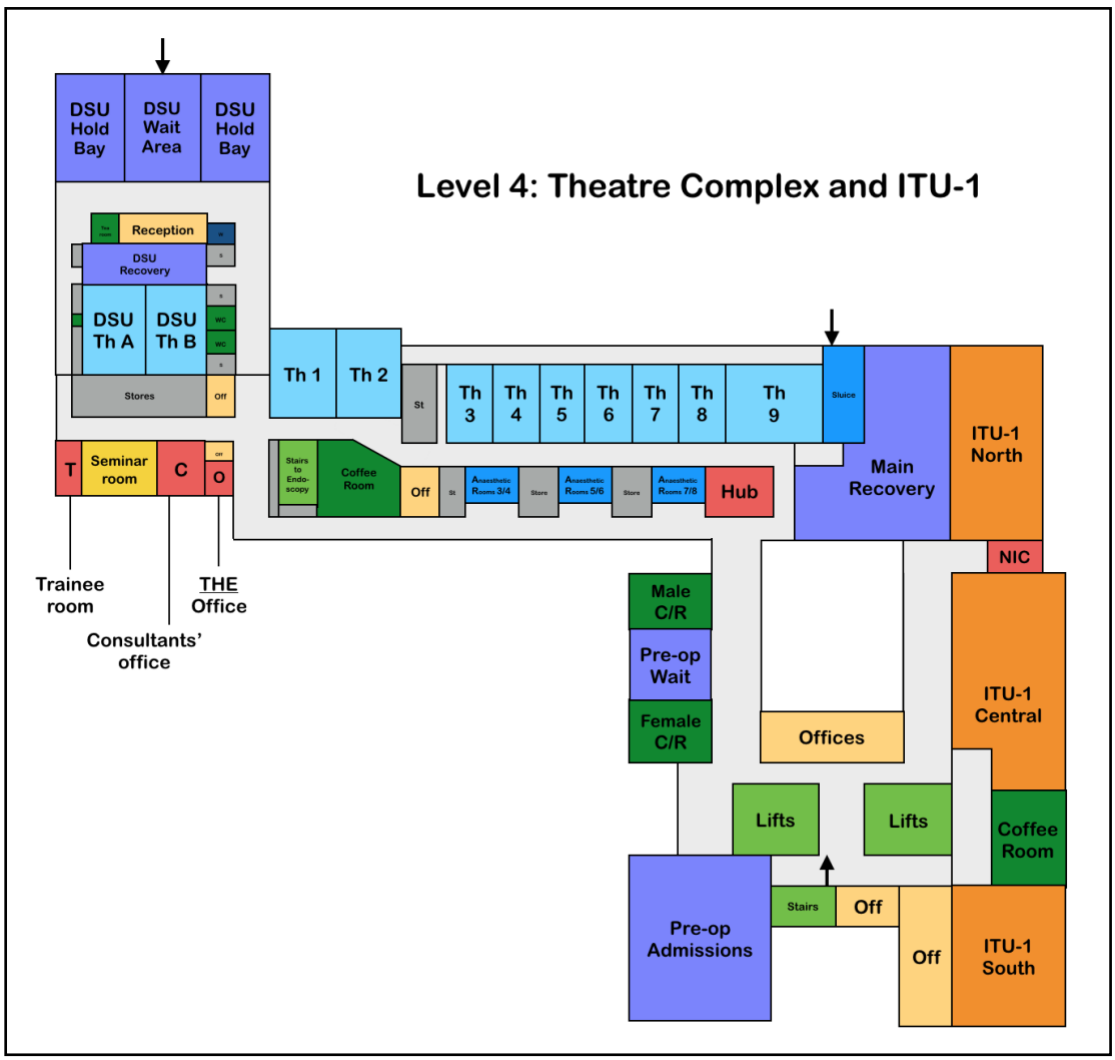
Main theatres are separated from the anaesthetic rooms by the main corridor, with the exception of Theatres 1 and 2 which are conjoined. There are 9 main theatres which largely host particular surgical specialities, as listed below. The theatres' coffee room (with a supply of tea, coffee and milk) is at the end of the corridor.

DSU has two theatres and has its own areas for admission and recovery of patients. The corridor from Main theatres in to DSU also has the most conveniently located toilets!

The main anaesthetic offices, including the admin office, consultants' office and trainee room are situated at the end of the main corridor near DSU.

Changing rooms can be found on the corridor between the Tower block (which has access to the main stairs and lifts); scrubs are freely available here. ***ITU-1*** (divided into North, Central and South) can also be found in the Tower block. There are several doors with keycode entry in the Tower block, listed below

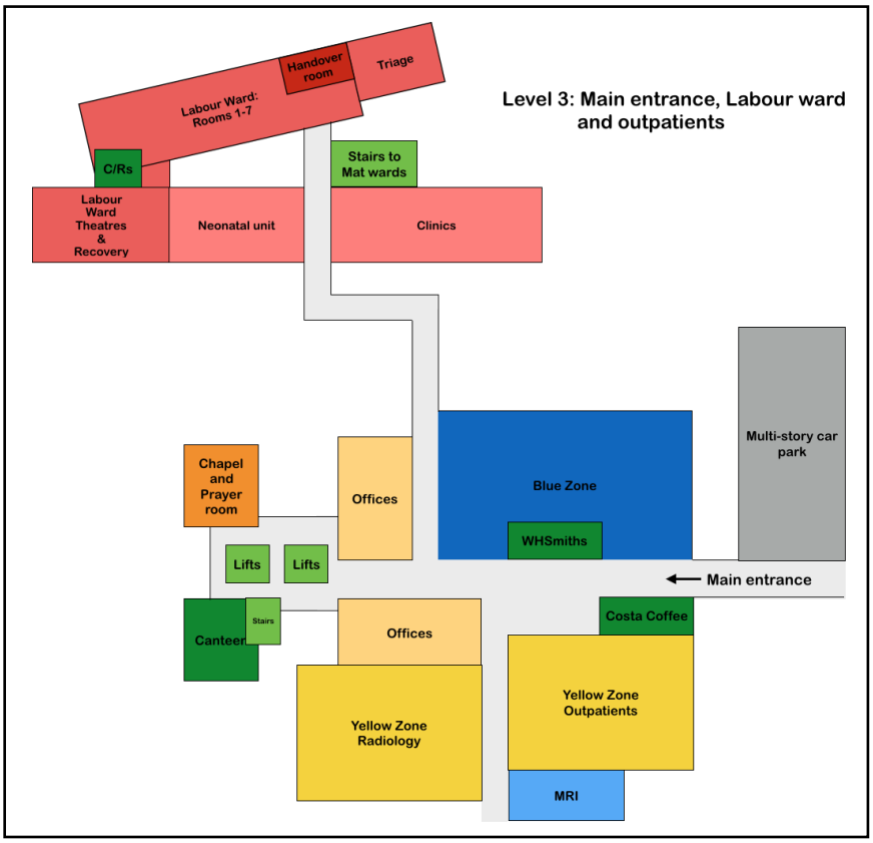
The main stairway and lifts located in the tower block provides the easiest access to Levels 2 and 3 and provide access to the Tower wards.



Theatre specialities

Th 1:	T&O
Th 2:	T&O
Th 3:	Gynae
Th 4:	Plastics
Th 5:	General
Th 6:	Urology
Th 7:	**Emergency**
Th 8:	ENT
Th 9:	Vascular

Finding your way around: Level 3



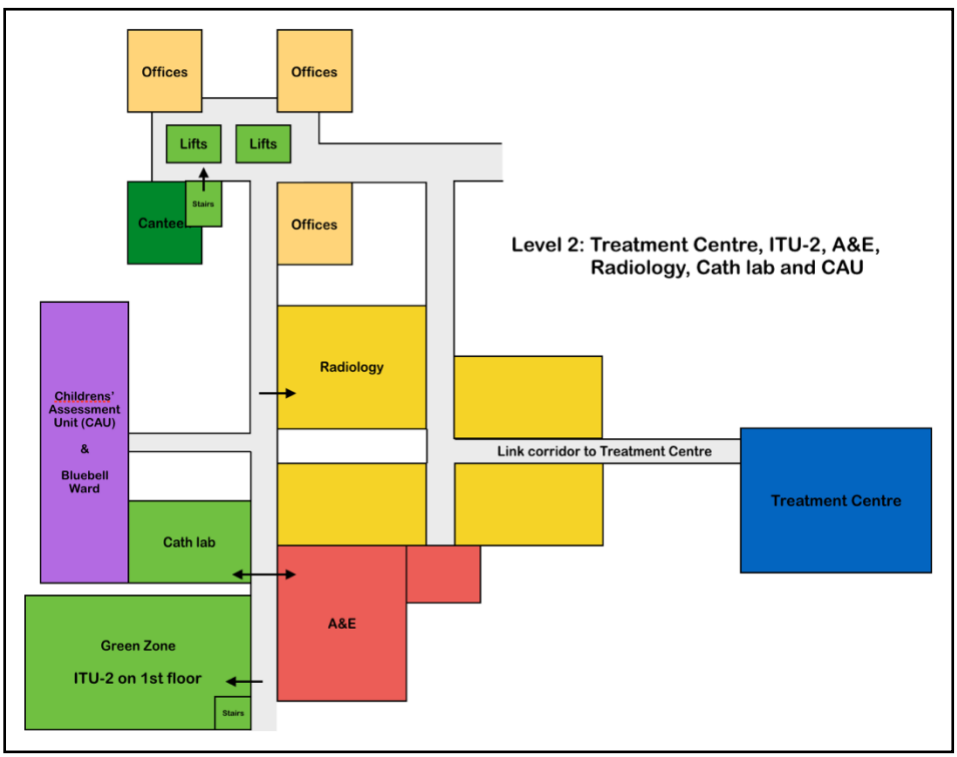
Level 3 is the ground floor of the main hospital. The main clinical areas which you will likely need to go are:

In the Pink zone:
- ***Labour ward*** and obstetric theatres (in the pink zone)
- The ante-natal ward (***Dacre***) and post-natal ward (***Gloucester***)
- The ***Bancroft clinic*** (obestetric pre-assessment clinic)

In the Yellow zone:
- ***MRI***

Level 3 also has:
- Costa Coffee
- WHSmith
- A cash machine (at WHSmith)
- Access to the canteen
- Prayer rooms

Finding your way around: Level 2



Level 2 has access to a number of clinical areas, including:
- The ***Treatment Centre***
- ***ITU-2***, in the Green zone
- ***Cath lab***, in the Green zone
- The Paediatric wards (***Bluebell*** and ***CAU***) in the Lilac zone
- ***A&E***, in the Red zone
- ***Radiology*** and CT in the Yellow zone

Level 2 also has:
- The canteen
- The resus team, who can be found in an office near the canteen

Departmental orientation

Where you might work

There are a number of different areas you may work during your time at Lister:

- **Main theatres**: Located on Level 4. The majority of theatre lists happen here.
- **Day Surgery Unit** (DSU): Located on Level 4. Is completely separate to main theatres.
- **Treatment Centre**: Found via the link corridor on Level 2. There are 6 theatres here.
- **Intensive Care**: There are two units: ITU-1, in the Tower block on level 4 and ITU-2, found on the first floor of Level 2 in the Green zone
- **Labour Ward**: The maternity unit has 10 delivery rooms and 2 obstetric theatres, which are found in the Pink zone of Level 3
- **MRI / Radiology**: These are located on Level 3 and 2 respectively.

Occasionally you may have the opportunity to travel for lists that are not on the main site:

- **Hatfield** hospital: A private hospital that does NHS lists: www.onehatfieldhospital.co.uk
- **Pinehill** hospital (Hitchin): A private hospital that also does NHS lists: www.pinehillhospital.co.uk
- **Hertford/QE2** hospitals: Some pain lists happen here: www.enherts-tr.nhs.uk/hospitals/

Details of working in ITU and Labour ward are covered in their own sections of this guide. The rest of this section will outline what is expected when working in main theatres, DSU or the Treatment Centre.

Schedule of a working day

The normal day runs 08:00 - 17:00, so in order to start lists on time it is important for you to be changed an ready to see patients at 08:00. Typically the team brief for a theatre list will be at 08:20, with an aim to have the first person arrive in theatre at 08:30. It is important that you leave work on time at 17:00; though of course you will not be prevented from staying if there is a particularly interesting case on the table!

Those trainees working the evening shift in ITU or Labour ward, should let their consultants' know in advance that they will be required to attend handover in those locations at 16:00 and 16:30 respectively.

Where to find things around theatre

The following things can be found in the following places:

- **Theatre lists**: ***Elective theatre lists*** for main theatres are found in the hub, which is located at the recovery end of the main theatre corridor. Details of ***patients on the emergency list*** can be found on the whiteboard in the hub. The theatre coordinator will hold a copy of the day's ***trauma patients***. ***The Day surgery lists*** are kept at DSU reception. The ***Treatment Centre lists*** are kept in a red folder in PACU-1, which is found in the Treatment Centre
- **Patients:** Patients for elective surgery in main theatres and day surgery will come in to DSU. Patients for Treatment Centre come in to PACU-1 of Treatment Centre. Trauma patients come in to Pre-op admissions (also called the Day Admissions Unit: DAU) on Level 4 of the Tower. The location of emergency list patients can be found on the whiteboard

- **Patient notes:** All elective patients should have a pre-operative patient pathway book, which will contain useful information. If the patient is high-risk, they will probably have been seen in the High-Risk Anaesthetic Clinic (HRAC); it is important to read the information in this clinic letter if available. Trauma patients will have a trauma booklet, which contains various information and a section for anaesthetic pre-assessment. Patients on the emergency list will have a set of hospital notes on the ward they are on (Red folder notes are current, Blue folder notes are old notes). *NerveCentre* can also contains useful clinical information and patient observations.

Emergency equipment / drugs

For the rare circumstances you may need them, the following items can be located in the following places:

- ***Difficult airway trolley:*** This is found outside the ***back of the Theatre 7 anaesthetic room*** and contains a variety of airway equipment, including an AmbuScope for fibre-optic intubation. Videolaryngoscopes (McGrath) are readily available for routine use and can be provided by the ODP
- ***Scalpel for FoN access:*** A size 10 blade can be found on ***the wall of every anaesthetic room***. For use in FONA. Instructions for this technique can be found in the Emergency Guidelines appendices of this handbook
- ***Dantrolene:*** Found in ***main recovery***
- ***IntraLipid:*** Found in ***main recovery***

A note on working with Coronavirus

The precautions that are taken when anaesthetising patients are dependent upon the level of risk. These guidelines are continually changing and you should ensure that you are up-to-date with current safe practice, however, the following is true as of 1st August 2020:

- ***Covid-19 swabs:*** All patients should have negative Covid-19 swabs before coming to theatre, unless the need to come to theatre is immediate
- ***Green areas:*** Both Treatment Centre and DSU are designated Green areas, meaning that patients in these areas have all provided ***negative Covid-19*** swabs ***and*** have been ***shielding*** appropriately. No extra precautions are necessary when anaesthetising these patients, although you should continue good infection control practices.
- ***Non-Green areas:*** These patients should be treated with PPE precautions as below
- ***PPE precautions:*** When dealing with patients in Non-Green areas, the level of PPE is dependent upon whether Aerosol Generating Procedures (AGPs) are going to take place. AGPs include (but are not limited to) airway instrumentation (intubation or supraglottic airway device placement), use of OptiFlow and NG tube insertion
    - **AGPs:** Full gown, FFP3 mask (hood if not fit-tested), gloves, visor
    - **Non-AGPs:** Surgical mask, plastic apron, gloves
- ***Theatre use:*** ***Theatres with laminar flow*** (Th1 and Th2) ***require 15 minutes*** after the last AGP before they can be re-used by another patient. Full PPE is required in theatre until this time has passed. ***All other theatres require 30 minutes*** before re-use.

Rota allocation

The college tutors will meet with you early to determine what training requirements you might have for your time at Lister hospital. Based on this, you will be assigned a number of 'modules' (such as obstetrics, Intensive care, ENT, etc.). The lists you are placed on will reflect these modules, though you may find that you work on a number of lists unrelated to your assigned modules.

Dr Gary Yap is the rota co-ordinator. He will allocate trainees to lists based upon their training requirements and the service needs of the department. On occasion, you may be required to work off-site at either Pinehill or Hatfield hospitals. Those doing pain clinics may find themselves at the QE2/Hertford.

Rota allocations can be checked using CLWRota, which is available either online or as an app (that can be downloaded from the Apple or Android app stores). CLWRota also allows you to check your allocation of leave, on-call sessions and also provides access to contact any member of the department (consultant or non-consultant anaesthetist). You will be provided with a username and password to this on induction. Access on-line can be found at: https://enherts.clwrota.com

If you have any concerns about the mix of lists you are being assigned, please speak to Gary Yap in the first instance (he is very helpful and accommodating), but please contact either your educational supervisor or college tutor if there are difficulties.

On-call / Service Provision

We currently have 5 (non-consultant) on call tiers. They follow a fixed rolling rota pattern (of 8 weeks). These are allocated by the college tutors (Drs Aki Pathmanathan and Sunil Grover) taking into accounts of skill mix, your training requirement, and the department's needs.

Although we have 5 different responsibilities for the 5 tiers, these are often fluid and must be kept flexible to cope with the dynamic demands of the hospital. They are not set in stone. Please be prepared to be asked to cover other responsibilities if / when appropriate as decided by the consultants.

Work is currently underway to establish a sixth tier, which will act to help support critical care across the two Intensive Care Units under the direction of the ITU Registrar. This tier is likely to be staffed by junior clinical fellows. It is expected that this will be in operation sometime in August 2020.

There are two consultants on call: one for ITU (including for sick children) and one for general theatre emergencies (including cath lab, obstetrics and other 'out of theatre' cases).

CT 1st on call Bleep **1077**

Duty hours:

- Long Day (LD): 08:00 – 20:30
- Night (N): 20:00 – 08:30

Your primary responsibility is the running of the emergency list. You are the first on call for emergency theatre. It is expected that surgeons should bleep you to inform you of all emergency bookings. You cover 'cannulation' and pain calls. You also cover cardiac arrest (adult & paeds) and trauma calls.

You are supported by the Anaesthetic Senior Registrar on call (out of hours).

CT 2nd on call Bleep **1104** or Bleep **1213**, depending on allocation to ITU-1 or ITU-2

Duty hours:
- Long Day (LD): 08:00 – 21:00
- Night (N): 20:00 – 09:00

Your primary responsibility is critical care. You are the first port of call from the nurses (e.g. fluid prescription, review of simple issues in the unit). You also cover cardiac arrest (adult & paeds) and trauma calls.

You are supported by the ITU registrar on call.

Anaesthetic Senior Registrar Bleep **1102**

Duty hours:
- Long Day (LD): 08:00 – 20:30
- Night (N): 20:00 – 08:30

You are the 'senior resident' anaesthetist on site. Your primary responsibility is to liaise with and support your colleagues. You will spend most of your time supervising the SHO in theatre and helping to turn over the emergency list. You are the 'second on call' for maternity. You cover 'PPCI' calls in the cath lab too. You may also be required to do intra-hospital transfers. You also cover cardiac arrest calls (adult & paeds), trauma calls and MOH calls.

You report to the General consultant on-call.

Obstetric Anaesthetic Registrar Bleep **1056**

Duty hours:
- Long Day (LD): 08:00 – 20:30
- Night (N): 20:00 – 08:30

Your primary responsibility is the maternity unit. You may also be required to help other colleagues if required. Occasionally, you may be the most appropriate person to cover intra-hospital transfers.

You are supported by the Anaesthetic Senior Registrar on-call (out of hours).

ITU Registrar Bleep **1104** or Bleep **1213**, depending on allocation to ITU-1 or ITU-2

Duty hours:
- Long Day (LD): 08:00 – 21:00
- Night (N): 20:00 – 09:00

Also, Bleep **1394** (Out of hours – held by the ITU Outreach consultant during the day).

Your primary responsibility is the critical care units. You will supervise and support the SHO ITU. You are the first port of call for ward / resus referrals. You also cover cardiac arrest (adult & paeds) and trauma calls.

You are supported by the Anaesthetic Senior Registrar on-call (out of hours). You report to the ITU consultant on-call.

Swaps

If you need to swap your 'on calls', please be aware that it is your own responsibility to find cover. Please adhere to the general rules listed below. Please ask Ali Waller if you require any clarification.

- Please e-mail Ali on alison.waller@nhs.net about any swaps
- Please also copy the email to your fellow 'swappees' - this is to ensure both parties' agreement
- Please make sure that **YOU** make the changes on the 'paper' master rota in the office
- Please remember that a swap means that you inherit the working commitment of the person you have swapped with and not that you drop your commitment only.
- You will then receive a confirmation email within two weeks - if you don't receive this, please resend your original email
- When swapping night shifts, please let us know the arrangement of the off days associated with the night shifts
- When making swaps for nights, the off days must be considered as all shifts must be either worked or covered by an approved official leave e.g: if you swap a night with someone who is working a day shift the following day, you will either need to work their day shift for them or take leave
- Please also consider that if you pick up an extra night shift swap for someone else, the department does not give you an automatic 2 days off of post night recovery as the swap is your decision
- Please include the tiers of on-call that are involved in your swaps (e.g. ITU, Obs, etc.)
- The closing date for the swap is **generally** the Thursday 4 weeks in advance (e.g. for swap in the week commencing 4th September, the closing date is 10th August). However, we try to accommodate if possible
- For any last minute swaps, you will need to get permission directly from Dr Gary Yap: G.Yap@nhs.net
- While it is possible to swap on-call shifts with a colleague to facilitate leave, it is important to note that **novice anaesthetists can only swap shifts with other novices** (else the skill mix of on-call shifts becomes adversely affected)

Leave information

Annual Leave

Leave entitlement:
Entitlement for leave is dependent on grade:

- Up to ST3: 27 days per year (pro rata)
- ST4 and above: 32 days per year (pro rata)

If you have to complete your e-learning in your own time you will receive 0.5 Lieu for this. You will be given a blue form by the Education Team to confirm this. You will get your 0.5 lieu day only when you submit this form to the office.

Procedure:
All annual leave requests should be applied for via email to Debbie Matthews and will be processed in strict order of receipt. Leave must be booked with ***6 weeks' notice*** apart from exceptional circumstances and never once the rota has been produced and you are rostered into a list. Annual leave must be booked via Debbie Matthews and will be confirmed via a notification from the CLW rota. If there is no space available in the leave book Debbie will let you know as soon as possible. It may take up to a week to respond to your request but is usually sooner than that.

Please remember that your leave requests are only **requests** until you receive confirmed approval so please do not book any flights, holidays, weekends away etc. before you have received confirmation.

Critically Important information:
Please book your leave as early as possible. Historically it is common for everyone to leave booking their last weeks of leave to the end of the rotation. This results in their being no space left in the leave book. If this is the case I'm afraid you lose your leave. **Don't let this happen to you**. Book your leave **NOW.**

Study Leave

Leave entitlement:
You are entitled to 30 days per year (pro-rata including private study leave) including 5 days of private (exam) study leaves per 6 months to be taken directly prior to the exam.

All study leave must be booked via Debbie Matthews ***AND*** backed up with a complete SL form and supporting evidence of the training you are attending. You should be able to locate these forms on intranet or education centre. We keep some copies in the cabinet in the trainees' office and in the main office. NB: The Education Team are in the process of revising this system and shortly we expect that they will require you to send your application forms directly to them via an electronic method.

These ***must*** be approved by the college tutors (via signature on the form)

Procedure:
Please submit a study leave form with details of the course/exam/study leave you wish to apply for. Please also submit a SL request to Debbie. All study leave ***must*** be submitted on the correct form or it will be returned to you. All study leave must be accompanied by some form of evidence of the exam/course. If no accompanying evidence is submitted the application will be returned to you. A complete application will then be approved in the leave book via Debbie Matthews, then signed off by your college tutor before the leave can be submitted to the Education Centre. In precis, submit your SL application on paper ***AND*** on

to Debbie. Any SL applications with either of these processes missing will simply not be booked and you will not be able to attend.

Most importantly we want to support your learning and progression and in no way wish to impede the booking of your SL. We are bound by certain Trust procedures and as long as everyone follows these we have no problem.

Sick Leave

If you are unable to come to work due to sickness, please contact the department as soon as possible by calling **01438 284086** and speak to someone in the office or leave a message on voicemail, whatever time of day or night. For out of hours please also call the Senior Registrar on their mobile (which can be found on CLWRota). It is your responsibility to inform the department of your absence by 08:00 hrs on the morning of your first day of sickness. ***DO NOT SEND AN EMAIL.***

Please note that if you do not inform us in a timely manner, we are obliged to call you to check if you are ok. If we cannot get through to you, we will then call your next of kin. If we still are unable to get in touch, we will have to inform the police. Clearly, we never wish to do this as the only circumstances in which we would expect to do so is if you are incapacitated.

If your sickness continues past Day 1 you will need to inform us on a daily basis of your sickness status. It is imperative that you inform us when you are fit to return to work even if this is an off day as this is the point at which your sickness period ends. If you are off sick and then go on 3 weeks annual leave and don't report that you are fit and well before your AL, you will be recorded as sick for the whole 3 weeks! On your return to work you will need to complete a Return to Work form and have this signed off by a Clinical Manager.

For all other leave (Bereavement, Carers, Maternity/Paternity, Unpaid Leave, etc.) please refer to the Trust Intranet on the HR pages for complete policies.

Pastoral support and wellbeing

It is very important to us that all trainees feel well supported and safe during their time at Lister hospital. The health, wellbeing and psychological welfare of all staff who work in our department is a top priority.

Anaesthesia and intensive care medicine can be challenging and stressful specialities to work in. Additionally, there are times in our lives when, for whatever reason, things are difficult. It is important to remember that seeking support is a sign of strength and maturity and we would encourage anyone who feels they are struggling to turn to one of the many sources of support to help them. ***Remember: it is okay not to be okay!***

Local support options

- Talk to ***anyone you feel comfortable talking to***. That could be another trainee (your mentor is a good first option!), a consultant that you trust or another member of staff
- Your ***Educational Supervisor*** or ***College Tutor*** are always available to discuss difficulties. The college tutors are happy to be contacted directly, either in person, by message or e-mail:
  - Aki Pathmanathan (STs): 07949 128470 ahilan.pathmanathan@nhs.net
  - Sunil Grover (CTs): 07737 264260 sunilgrover1@nhs.net
- Outside of the department, the ***Director of Medical Education*** is also available for support:
  - Kavitha Chawla: 01438 284010 kavitachawla@nhs.net

- Occupational Health

Training school support

- The ***college tutors*** are the schools local representative but there are a number of people above them in the school hierarchy should you are not getting the help you need from them
- The school ***Training Programme Directors*** (TPDs) are a valuable source of support, particularly with issues that impact on training and career development. Matt Simpson has previously held a TPD role and is based here at Lister and is incredibly approachable. He is very receptive to hearing from trainees that require support or feel they need to talk
- Above the TPDs sit ***the Regional Advisors*** (RAs) and ***Head of School***

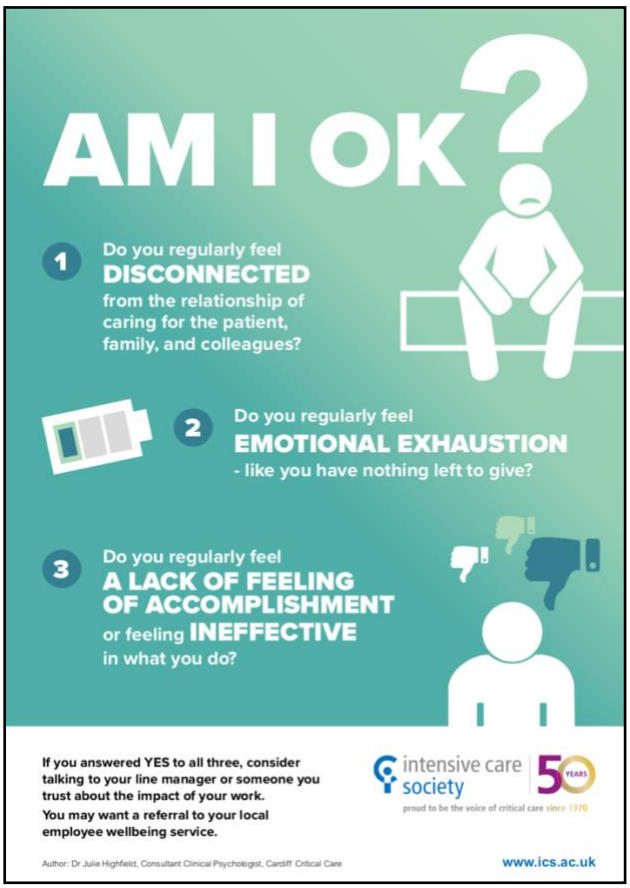
Professional support organisations

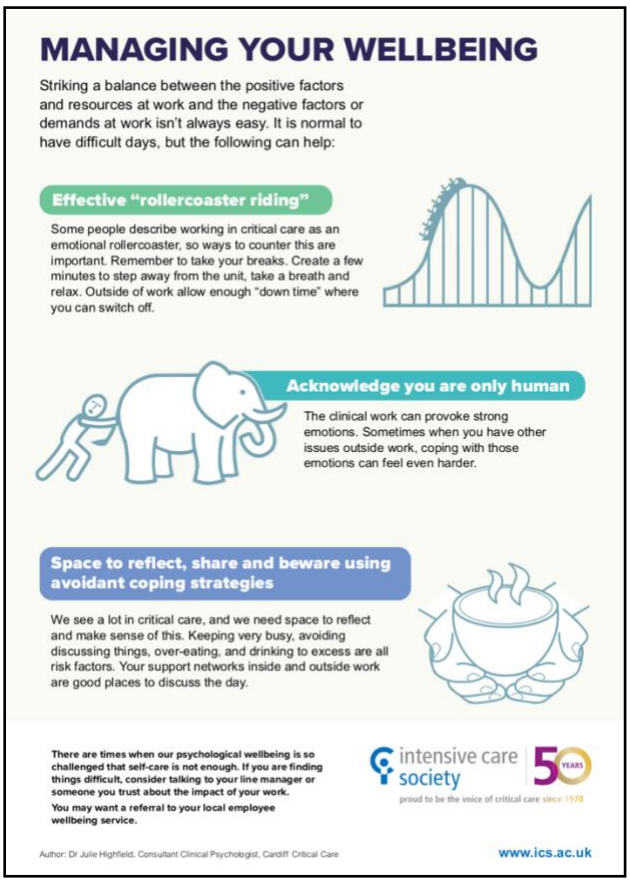
There are a number of support organisations available to support trainees through a multitude of issues. These organisations are increasingly accessible, offer confidentiality and can normally be accessed through self-referral. A list of organisations can be found at: https://www.rcoa.ac.uk/training-careers/training-anaesthesia/support-wellness. Two excellent sources of support are:

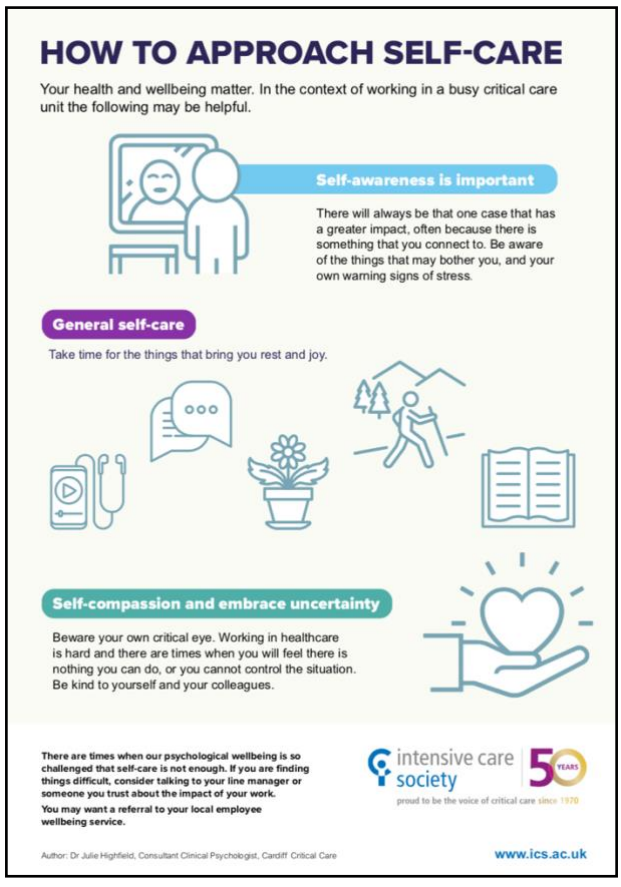
NHS Practitioner Health: The Practitioner Health Programme (PHP) is a free, confidential NHS service for doctors and dentists across England with mental illness and addiction problems. The service can help with issues relating to a mental health concern, including stress or depression or an addiction problem, in particular where these might affect work. The service is provided by health professionals specialising in mental health support to doctors and is available in various locations across England. PHP is now available to doctors throughout England (not just London) and is accessible via self-referral. https://www.practitionerhealth.nhs.uk

EoE Professional Support and Wellbeing Service: This service has access to a number of support measures provided by external providers and includes support for a number of potential areas of difficulty, from psychological support to exam support. Referral can be made through an ES/CT/TPD or by self-referral. https://heeoe.hee.nhs.uk/psw/east-england-professional-support-and-well-being-service

The Intensive Care Society (ICS) have produced a number of posters highlighting issues relating to mental health and wellbeing, which highlight important messages:







Training / Education

Core Trainee Teaching

Core trainees (and ACCS) are required to attend a weekly in-house teaching, usually held on Wednesday mornings (time and day may vary, you will be notified by email). They are organised by Dr Alex Czech (alex.czech@nhs.net). There will be a senior doctor overseeing each session. The topics are set in advance. Usually, trainees are required to do a short presentation to contribute to the teaching. You are not required to book study leave for this, you will be automatically allocated.

Regional teaching is held once a month, the details will be given to you in a separate induction (dates are normally available from the EoE Anaesthesia website). **You will need to book study leave for these dates.**

Specialty Trainee Teaching

Speciality trainee teaching is held on site on Thursdays and is organised by Dr Pranav Kukreja (pranav.kukreja@nhs.net).

There are also regional teaching days organised by the individual school. Please note that you must apply study leave to attend. We try to accommodate as many requests as possible.

Unit of Training Sign-offs / HALO

As part of your training at Lister hospital you will be allocated a number of modules which you will work towards completing. These modules should allow you to get various 'Units of training' signed off. Sign-off for each particular unit of training is dependent upon meeting the requirements for that module. The list of consultants that can sign-off particular modules is as follows:

All units MUST be discussed with unit lead IN ADVANCE (as well as rota writer and ES)

Clinical Governance Rolling Half Days (CG RHD)

There are 10 sessions per year, once a month except for January and August. These meetings are usually themed (e.g. paediatrics, trauma, etc.). Please speak to Dr Katie King if you have something interesting to present. Lorraine Kramer will send out the agenda one week in advance. Please note that they are usually (but not always) held in the anaesthetic seminar room as well as remotely via Microsoft Teams.

Weekly Departmental Meeting

There is a lunch time meeting held on most Fridays. These are organised by one of the trainees. Sometimes, there is free lunch sponsored by various pharmaceutical reps. You will be approached to book a slot to present a topic of your choice (interesting paper, recent audit, conference experience, interesting case). Please do volunteer yourselves. They are usually held in the anaesthetic seminar room at 12.30.

Intensive Care Educational Opportunities

All Intensive Care meetings are held in the MDT room on ITU-2. All trainees are welcome to attend these. There is a complete timetable to these sessions in the handbook section on 'Intensive Care', but below are a few worth highlighting:

> ***Intensive Care Teaching:*** This is on ***Tuesdays*** from ***12:30 – 13:30. Everyone is welcome to attend***. As there is no separate Intensive Care teaching within the core trainee or primary teaching sessions, it is well worth core trainees doing their best to attend these teaching sessions

Unit of Training	1st choice sign-off person	Back-up (only if 1st away)	Notes
Airway	Alex Czech	Aki Pathmanathan	ST3s need to do FOI (discuss wtih Alex Czech)
Critical Incidents	Educational Supervisor		Course for CTs
Day Surgery	Minet Carrington	Pranav Kukreja	
General/uro/gynae	Anil Kambli	Sunil Grover	
ENT/MaxFax/Dental	Katie King	Sunil Grover	
Intensive care medicine	Kate Flavin	Anil Kambli	
Non-theatre	Martyn Wildman	Jon Bramall	During ITU block
Transfer	Martyn Wildman	Jon Bramall	Course / during ITU
Obstetrics	Melissa Kitching	Matt Simpson	STs should attend clinics
Ortho	Steph Susay	Gary Yap	Need log book showing names of cases to check case mix
Paeds	Pranav Kukreja	Ruth van Hoogstraten	
Acute Pain	Johann Emmanuel	Martyn Fox	Need to do ward rounds (discuss with Aditya Singh and Johann)
Regional	Gary Yap	Aditya Singh	
Sedation	ES		
Trauma and stabilisation	Martyn Wildman	Henry Reynolds	
Vascular	Kate Flavin	Sunil Grover	
Ophthalmology	Matt Simpson	Steph Susay	Need to arrange with rota writer
Plastics	Henry Reynolds	Aditya Singh	
Chronic pain	Johann Emmanuel		Need 6 weeks dedicated block and a minimum of 20 sessions
Perioperative Medicine	Ash Suxena	Debbie Herriman	

ICU M&M Meeting: This takes place on ***Mondays*** at ***14:00***. This is organised by the consultant of the week (or Kate Flavin), who chairs the meeting and will allocate cases to trainees to present

ICU MDT Meeting: This takes place on ***Thursdays*** at ***13:30*** and is organised by Phil Tolson (the lead physiotherapist)

ICU Radiology Meeting: This is chaired by Dr Jain (consultant radiologist) and is held on ***Tuesdays*** at ***12:00***

ICU Journal Club: This takes place on ***Fridays*** at ***13:30*** and is organised by a senior trainee (currently, Eleanor Zinkin)

Simulation Training

Various simulation trainings are organised throughout the year by the simulation faculty. They are generally themed (e.g. Obstetrics, airways, etc). You will be given opportunity to attend as candidates appropriate to your level of training. If you are interested to join the faculty, please contact Dr Henry Reynolds (Simulation Tutor) or Dr Ewe Teh (Deputy Tutor).

Lister Education Centre (LEC) ***Manager: Michaela Turner-Douglas***

This is located at the back of the hospital. You will find the library in here as well. There is also a skills room with a Laerdel SIMMAN.

Miscellaneous information

Accommodation

If you require somewhere to rest before or after your night shift, you could book a day room in the accommodation block just next to the hospital. This facility is out-sourced and run by Origin Housing.

They can be contacted on 0203 5030540 or email : lister.lettings@originhousing.org.uk The Origin Housing office is monitored 24/7. The latest prices are £30 per night for a single room and £40 for a double but are subject to change. Further information is available in the main office.

Christmas Dinner

This is subsidised (not fully funded) by the consultants. It is usually held in a venue in Hertfordshire (local pub or restaurant). There will be various prizes awarded for 'achievements' too. It is a fun night and usually well attended.

Guide for Novice Anaesthetists

Drs Derek Brunnen, Arabella Chapman,
Jessica Sullivan and Ravi Jobanputra, August 2020

Guide for Novice Anaesthetists

Welcome!

Introduction

First of all welcome to anaesthetics and to the Lister, you have chosen a truly great specialty and a great department to work in! We are sure you will thoroughly enjoy your time here, learning new skills and knowledge, whilst having lots of fun along the way.

The first year in anaesthesia is an extremely steep learning curve; so please do not be disheartened at the beginning if it is taking a while to get to grips with things! For many this is a completely new speciality and is completely different from foundation year training so it is only natural for it to take some time to adjust. We are an extremely friendly department so please just ask for help or approach any of us for a chat if you need anything at all.

The next few pages of this handbook are a guide of what you should be aiming to achieve during your first year. It may seem a lot, but with careful planning it is definitely achievable!

In this guide, we will take you through:

- An Introduction to the Mentor scheme
- A typical day in anaesthetics
- How the on-call system works and things you might be asked to do
- How training progresses and what assessments are needed to be done
- A quick guide to the drugs we use in anaesthesia

The appendices to this guide includes a brief overview of how to assess a patient for anaesthesia, an example anaesthetic checklist (a cognitive aid), how general anaesthesia is typically induced, how to check an anaesthetic machine and other useful information.

The Mentor Scheme

We have introduced a Mentor Scheme to help new trainees settle into the department and as a contact of someone who has recently gone through the same process as you. Settling into a new department can sometimes be a bit daunting so we want you to have someone to talk to and to act as a friendly face! Your mentor is also there to offer some help and support for completing the IAC, the portfolio, give exam tips and is someone you can speak in confidence to.

We will contact you in the days leading up to starting with details of your Mentor (usually an Anaesthetic CT1/2 on a similar rota line) and we encourage you to get into contact with them as soon as you can.

During the first few weeks we will try and have a Coffee session with all current trainees so you can meet everyone and it is a great opportunity to introduce yourself to your Mentor.

Throughout the first few months we will be running some friendly 'Peer to Peer' teaching sessions during the weekly CT1/2 teaching which will help to provide some background knowledge for IAC. Please come along; it is a great opportunity to catch up with all the other trainees too!

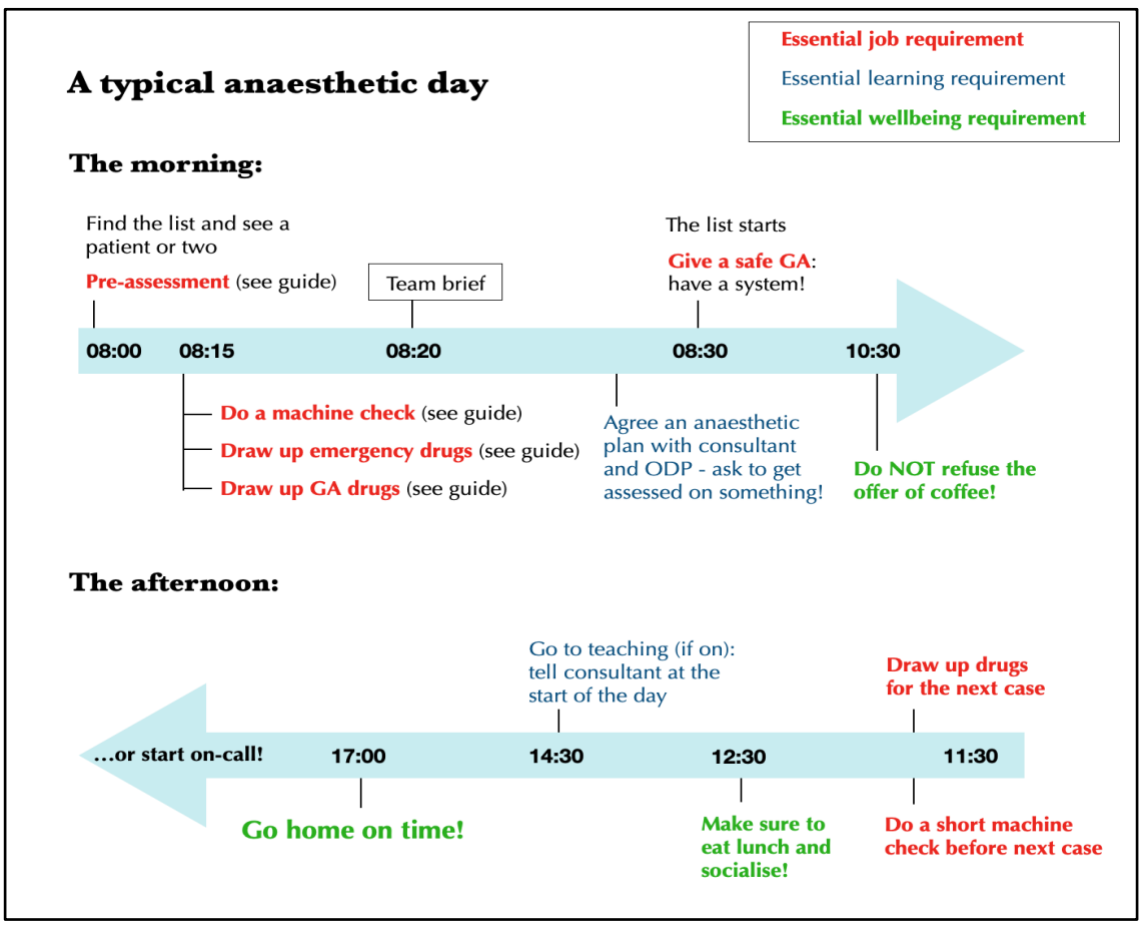
A Typical day in anaesthesia

Anaesthetic days start at 08:00. It is important to be changed and ready to start seeing patients at 08:00. The consultants will normally also be there ready to start then.

During your theatre block you will normally be assigned to one of five anaesthetics areas. Patients will arrive to different areas depending on where you are assigned (although this may change, as the trust changes its pathways in response to Coronavirus):

1. **Main Theatres (elective list).** Patients come to the Day Surgery Unit. The notes are found at the patient bedside. The patient list is found at the DSU internal reception area.
2. **Main Theatres (trauma list).** Patients come to Day Admissions Unit (Level 4, in the Tower near the lifts). Each theatre has a separate trolley with all the sets of notes for that day. The patient list is kept in the theatres hub, but the night team may well have seen the first patient.
3. **Day Surgery.** Patients come to the Day Surgery Unit. The notes are found at the patient bedside. The patient list is found at the DSU internal reception area.
4. **Treatment Centre.** All admissions go to the treatment centre in ***'PACU 1'***. When you arrive there is a red folder with all the printed lists for each theatre on the nurses' station.
5. **Emergency List.** Meet the night on-call team at the board. They will tell you which patients they have seen and which you need to see.

Once one or two patients have been seen you can go to theatres to perform a Machine Check (if you've been shown how) and draw up the emergency and GA for the first patient. The team brief normally starts at 08:20, ready to start the first case at 08:30. Afternoon lists normally start at around 13:30, so if you are on a different list make sure you leave time to have lunch and see the afternoon patients!



On-call in Anaesthetics

Out of hours there are 5 anaesthetists on call for the Lister site, though this may soon increase to 6, with the 6th team member providing additional ITU support. The resident team at the Lister consists of:

On-Call team member	Bleep Number	Roles and Responsibilities
Theatre SHO	#1077	- Emergency List - Cannula Calls - Pain Management – PCA Pumps, Epidural reviews and troubleshooting
Senior Registrar	#1102	- Primarily Supervising Theatre SHO with emergency list - Provides Anaesthesia in remote sites and available open second theatre on labour ward if required. - Generally available as means of support to others
ITU SHO	#1104 (ITU-1) or #1213 (ITU-2)	- Based in ITU with ITU registrar - Attends Cardiac Arrests + Trauma Calls
ITU Registrar	#1104 (ITU-1) or #1213 (ITU-2) #1394 (night)	- Based in ITU with SHO - Attends Cardiac Arrests + Trauma Calls - Responsible for ITU referrals - Supported by Senior Registrar
Obstetric Registrar	#1056	- Responsible for maternity - Supported by Senior Registrar

The on-call doctors are a team: Despite the job roles listed above you are expected to be flexible and endeavour to lighten the workload for one another.

Consultants on call: Before each on call find out who the consultant on call for theatres and ITU is, it is good practice and makes it easier in an emergency.

Shift Handover:

- For the theatre team this occurs at 08:00 and 20:00 in or around Theatre 7 / next to the whiteboard in the main theatre complex
- The night team should aim to see as many patients as they can for the morning emergency and trauma lists. Typically the Senior Registrar will see the trauma patients and the Theatre SHO will see the emergency cases. We suggest commencing pre-assessment of patients before 07:00. Liaison with the patient's parent team should occur where necessary to ensure the patient is ready for theatre
- It is the responsibility of the doctor who has pre-assessed each patient to hand over the information to the incoming day team
- You can mark the patients that have been pre-assessed by ticking them off on the whiteboard
- You will be given teaching on pre-assessment but a quick guide on the fundamentals can be found in the appendices of this handbook

Pain calls

Primarily the 1st on call theatre SHO is called to attend PCA and epidural related issues on the wards. You will have to familiarise yourself with the PCA and epidural pumps. The theatre nurses and the pain nurses work with these every day and will teach you all how to set them up during induction.

Patients with epidurals in situ need to be seen daily over the weekend; the pain nurses will hand over a list of these patients on Friday evening. The list is kept in a black lever arch folder on the top of the drugs cupboard in theatre 7.

Reviewing Epidurals

1. How many days since insertion? Typically this should not exceed 4 days in situ
2. Is patient comfortable? What is the pain score?
3. What rate is the epidural running at? (This is usually approx. 8 ml/hr of 0.1% Bupivacaine + 2mcg/ml Fentanyl but max 15 ml/hr)
4. What is the Bromage score?
5. Is there a block present? To what level? Both sides equal?
6. Check epidural site ?signs of infection ?tenderness on palpation
7. Is the patient ready for step down? If so, ensure that Dalteparin is given > 4 hours after removal

Common Epidural Problems:

1. ***Air in line / Occlusion downstream***. This is the most common epidural issue and the most easily solved. Simply detach the epidural line from the filter (filter to remain attached to patient), unlock the epidural pump (codes below) and select '*Prime*'. The line will prime for 60 seconds and remove any trapped air. Once this is done reattach and restart the infusion. If there is an occlusion then sometimes this can be resolved by repositioning the patient.
2. ***Pain.*** It is common to be called due to breakthrough pain despite a working epidural. Be sure to review the site and check that the epidural has not been accidentally dislodged. If the position appears optimal then a STAT bolus dose can help get control of the pain (a 5-10 ml bolus is a reasonable amount). Care should be taken when administering a bolus; consider the age/frailty of the patient and take into account how significant the neural block is and whether the patient is hypotensive. It takes around 15 mins for these boluses to have an effect. It is important if bolusing significant amounts to carefully monitor the blood pressure and patient condition.
3. ***High Bromage Score.*** Occasionally nurses will call to inform you of a high Bromage score or a unilateral/patchy block. For the insufficient blocks it is worth repositioning the patient to try and encourage redistribution of the analgesia. Significant motor block can be a sign of an intrathecal catheter or can also indicate the presence of a haematoma or epidural abscess. Be sure to stop the epidural and monitor for an improvement of symptoms. If these do not improve then alert a senior. If after stopping the epidural symptoms improve then you can be reassured and try recommencing the epidural at a lower rate.

Important codes:

Enter ****** (new pumps) OR **** (old pumps)** to unlock the PCA or epidural pump

If a patient has an epidural or PCA then you should attend if an issue is reported or if they're on the handover list. However, the parent team should make reasonable attempts at providing adequate pain relief for patients before you go and see them.

Cannulas

Anaesthetists are generally the best doctors in the hospital at cannulation (amongst many other things!). HOWEVER, this does NOT mean that you are responsible for every cannula in the hospital. If you are bleeped about IV access you should consider:

1. **Who is calling?** With the exception of ITU/CCOT, nurses should not be asking you directly to cannulate a patient – they should ask their own doctors first

2. **Has the cannula been escalated within their own team's hierarchy?** The problem should be escalated internally first (SHO, Reg, etc…) before the anaesthetic team are contacted. It is worth

being resistant as there is often someone in closer proximity to the patient who is primarily responsible for their care that can complete the task. Being called across the hospital can be time consuming and remove you from other learning opportunities in theatres so don't be afraid to query this BUT remember to be polite!

3. **It is always worth reviewing why the cannula is indicated.** If it is for antibiotics then can these be stepped down to orals? If the patient needs fluids why are they unable to have oral fluids? It is very easy to overlook that not every patient NEEDS a cannula
4. **Make sure they get the equipment ready for you**. This is very simple but saves a lot of time. It is also worth getting the requesting doctors to be around when you do it so they can learn!
5. **Take a good supply of theatre cannulas with you**. You will become accustomed to using the theatre cannulas so it is better to take equipment that you are most experienced with. The ward cannulas are a different design and slightly more lightweight
6. **For the truly difficult cannula it is worth learning early on how to insert a cannula under ultrasound guidance!**
7. **If the patient is notoriously difficult and has required more definitive access in the past it may be appropriate that the patient is booked on the emergency list for a central line.** We recommend you review this plan with the Senior Registrar before proceeding to summon the patient to theatres. Sometimes you will be called because a central line is no longer working. Obviously please consider how long the line has been in situ but occasionally blocked lines can be cleared by flushing with a **2ml syringe** of normal saline
8. **There is also a piece of equipment called the 'Accuvein' that lives outside theatre 7.** Before you become familiar with inserting under US guidance this is a helpful tool for locating veins.

Emergencies

As part of the on the on-call team you will be bleeped to attend cardiac arrests and trauma calls. All members of the on-call team receive the calls. It is usually the ITU SHO and ITU Registrar that are expected to attend. However, it is always courteous for the theatre team members to check in with their colleagues and ensure that the ITU doctors don't need additional support, so be prepared to attend instead. The Senior Registrar will also get emergency calls for sick patients undergoing PPCI; it is worth going down to assist if possible as it provides good experience at providing anaesthesia in a non-theatre environment. However you should not be going down to the cath lab on your own.

Emergency List

If you are in theatre 7 during the day you are covering the emergency list and are expected to carry the 1st on call SHO bleep. You should receive calls from teams who are booking patients. Days can be busy as you will be required to pre-assess patients and provide the anaesthesia!

Useful information to take over the phone is:

1. Age? If paediatric, what is their weight?
2. Planned surgery? If a laparotomy, what is the NELA / P-POSSUM score
3. Is the patient acutely unwell? How urgent is the case?
4. Significant co-morbidities
5. Any Allergies
6. LOCATION OF PATIENT
7. Are they starved?

Training in Anaesthesia

The first year of training

If you haven't done so already you need to ***register with Royal College of Anaesthetists*** (RCoA): https://rcoa.ac.uk/documents/novice-guide/register-college. This is a requirement for entry into your postgraduate exams. A subscription to the British Journal of Anaesthesia is also included with your membership. After registration, you will be given a ***login to the LifeLong Learning Platform*** (LLP); this is used to complete assessments, record details of your training and keep a logbook of cases. The LLP can be accessed online at: https://lifelong.rcoa.ac.uk/login. You will get further instruction on using it early in your training. The East of England (EoE) school of anaesthesia will also provide you with a ***workbook*** of assessments to complete and give you guidance as to how you should use this to guide your training.

Make sure that you ***meet your Educational Supervisor*** (ES) early. You will need to ***agree a Personal Development Plan*** (PDP) and ***set learning objectives***, which should be recorded on LifeLong Learning. You are also required to record all supervisory meetings too.

Months 0-3:
This is ***the novice period*** where you gain your ***Initial Assessment of Competency (IAC)***. You will need to complete this before you can be left unsupervised. A list of the assessments required as part of the IAC can be downloaded and printed from the college website.

Start a logbook and record all the cases you have done (including in ITU). It is well worth getting in to good habits early and recording cases as you go; it gets increasingly difficult to do this retrospectively as time goes on. You will be required to show your logbook at your ARCP, which takes place yearly in the month before you first joined anaesthetic training. You should expect to complete over 400 cases in your first year if you record everything appropriately.

Months 4-6:
After completing your IAC, you will start on the part of the curriculum called*: **'Introduction to Anaesthetic practice'***. This covers more competencies for core training.

Around this time, ***start thinking about the Primary FRCA MCQ/SBA***. This is a difficult exam and needs good preparation. Up to 6 months' work is required and a good deal of background reading. There are three sittings you could potentially take; usually in March, September and November.

Months 7-12:
After completing the assessments relating to an *'Introduction to Anaesthetic practice'*, you will continue to develop experience in different areas of anaesthesia. This covers more competencies for 'Core anaesthesia' and the assessments you do from here until the end of core training work towards completion of your ***'Basic Training Level Certificate'***.

You need to complete ***one Multi-Source Feedback (MSF) each year***, which is a requirement of training. It often takes some time (2-3 months) to receive a sufficient number of responses, so it is well worth starting well before your end of year review.

Towards the end of your first year you will be required to attend an ***Annual Review of Career Progression (ARCP)***. The panel will want to see that you have made satisfactory progress. They will review your logbook, assessments, MSF, reflections and ensure other paperwork is up to date.

Initial Assessment of Competency (IAC)

This is the first Anaesthetic training milestone and its purpose is to signify that you have achieved a basic understanding of anaesthesia. Completing the IAC is NOT a license for independent practice but indicates that you are able to administer anaesthesia at a level of supervision that is appropriate to your skillset. In most cases this would mean that you could comfortably anaesthetise an ASA 1-2 patient on your own (with a supervisor available nearby).

In other hospitals the completion of the IAC marks the trainee's transition into the on-call rota. Lister Hospital has a unique process wherein you are part of the on-call rota from early on, therefore there is no intimidating jump into working the on-call shifts. Working on-calls from the start of training may seem like a negative but it does wonders for removing the anxieties of progressing up the ladder. The trainees get a good understanding of what is expected of them out of hours and of course are very well supported throughout.

The IAC should be completed within the first 3 months of the anaesthesia programme. To pass the IAC you must complete the following number of workplace based assessments:

- ***A-CEX*** (Clinical Exercise): 5
- ***CBD*** (Case Based Discussion): 8
- ***DOP*** (Directly Observed Procedural Skill): 6

These assessments can only be signed off by consultants.

The coloured table shown below lists the ***19 individual competencies*** that you need to complete to pass the IAC. If these are done one at a time it can become a very long and tedious process. You may notice that some of the assessments cover very similar topics so it is intuitive to complete them together. The consultants are usually happy to sign off more than one assessment at a time as long as you are clear about what you want assessed beforehand and you don't try and throw any cheeky extras in later on!

The table has been colour coded to try and facilitate things for you and match up some competencies that can be completed in one interaction. For example, the **Red** boxes cover *'Conducting a pre-operative assessment'* A-CEX and 'Discuss how the airway was assessed' CBD. Analysis of a patient's airway is an important part of the pre-operative assessment; therefore, as long as the appropriate background reading is done you can complete these two competencies in one episode.

The **Dark Green** boxes both cover the process of failed intubation. This is a very important part of the IAC and there are only a handful of consultants that you should approach to sign this off.

- Dr Alex Czech is the airway lead and also the educational lead for core trainees. He is the most appropriate consultant to sign off these competencies and will most likely organise a teaching session to enable you complete this
- Dr Matt Simpson is a training programme director and has regular ENT lists
- Dr Aki Pathmanathan is college tutor with an interest in airway management

Demonstrating the functions of the Anaesthetic Machine (i.e. Anaesthetic machine check) should be assessed by Dr Sunil Grover or another consultant of his choosing. To help you prepare for this assessment, some information has been provided in the appendices.

Demonstrating cardio-pulmonary resuscitation on a manikin can be signed off by any consultant as long as you can provide a valid ALS/BLS certificate. If you send evidence of completion of one of these courses you will have the competency signed off.

Assessments to be used for the Initial Assessment of Competence

A-CEX

Assessment Code	Assessment
IAC_A01	Preoperative assessment of a patient who is scheduled for a routine operating list [not urgent or emergency] [0-3 months]
IAC_A02	Manage anaesthesia for a patient who is not intubated and is breathing spontaneously [0-3 months]
IAC_A03	Administer anaesthesia for acute abdominal surgery [0-3 months]
IAC_A04	Demonstrate Rapid Sequence Induction [0-3 months]
IAC_A05	Recover a patient from anaesthesia [0-3 months]

DOPS

Assessment Code	Assessment
IAC_D01	Demonstrate functions of the anaesthetic machine [0-3 months]
IAC_D02	Transfer a patient onto the operating table and position them for surgery [lateral, Lloyd Davis or lithotomy position] [0-3 months]
IAC_D03	Demonstrate cardio-pulmonary resuscitation on a manikin. [0-3 months]
IAC_D04	Demonstrates technique of scrubbing up and donning gown and gloves. [0-3 months]
IAC_D05	Basic Competencies for Pain Management – manages PCA including prescription and adjustment of machinery [0-3 months]
IAC_D06	Demonstrates the routine for dealing with failed intubation on a manikin.

CBD

Examine the case-notes. Discuss how the anaesthetic plan was developed. Ask the trainee to explain their approach to pre-op preparation, choice of induction, maintenance, post op care. Select one of the following topics and discuss the trainees understanding of the issues in context.

Assessment Code	Assessment
IAC_C01	Discuss the steps taken to ensure correct identification of the patient, the operation and the side of operation
IAC_C02	Discuss how the need to minimise postoperative nausea and vomiting influenced the conduct of the anaesthetic
IAC_C03	Discuss how the airway was assessed and how difficult intubation can be predicted
IAC_C04	Discuss how the choice of muscle relaxants and induction agents was made
IAC_C05	Discuss how the trainee's choice of post-operative analgesics was made
IAC_C06	Discuss how the trainee's choice of post-operative oxygen therapy was made
IAC_C07	Discuss the problems emergency intra-abdominal surgery causes for the anaesthetist and how the trainee dealt with these
IAC_C08	Discuss the routine to be followed in the case of failed intubation.

The Initial Assessment of Competence Certificate is available for download from the secure area of the College website.

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Assessments

After achieving your IAC, the next target is to complete the part of the curriculum called***: 'Introduction to Anaesthetic practice'***. This should be done within your first 6 months of training. This part of the curriculum consists of 8 'modules' that covers the essential building blocks for anaesthetic practice. For each module, you are expected to complete a number of A-CEXs, CBDs and DOPs.

The Royal College of Anaesthetists has a training curriculum document (Annex B), which outlines the assessments that can be completed for each module. This Annex can be found on the RCoA website: https://www.rcoa.ac.uk/sites/default/files/documents/2019-08/TRG-CCT-ANNEXB.pdf

You do NOT need to complete all the assessments listed in Annex B for a particular module. At the back of Annex B is an 'Assessment Blueprint' that outlines how many assessments of which sort are required in order to have the Module 'signed off'. Typically, each different module will have a different consultant who is nominated as lead for 'Unit of Training' sign-offs.

The EoE workbook can be used as a guide for which assessments to get signed-off and the school expects you to complete more assessments than the minimum number mandated by the RCoA.

After completing the 'Introduction to Anaesthetic Practice', you will then need to start working towards the modules within 'Core Anaesthesia'. This is done in exactly the same was as it is for 'Introduction to Anaesthetic Practice'.

Courses

The EoE school of anaesthesia and the department will ensure you are able attend courses within the first month of commencing your training. The deanery has a live calendar with all the upcoming courses you are expected to attend, and courses of interest, for example, FRCA exam study days, simulation courses etc. It is worth visiting the EOE School of anaesthesia website - it is regularly updated and you can find a lot of information on there: https://heeoe.hee.nhs.uk/anaesthesia

Book and websites

There are a number of books and websites that trainees have found useful during their core training. A list of these can be found in the appendices.

Drugs in Anaesthesia

Anaesthesia uses drugs from a lot of different class. To aid rapid identification, colour-coded drug labels are used:

Induction drugs	Opioids	Anti-emetics	Anti-muscarinics	Reversal agents
Muscle relaxants	Benzodiazepines	Local anaesthetics	Vasoactive drugs	Miscellaneous

A lot of anaesthetic drugs are regulated under Controlled Drugs Regulations; these include opioids, ketamine and midazolam. Your ODP will ask you to sign for any controlled drugs you use in the CD book in each theatre. You should only sign for drugs that you have used yourself.

Emergency Drugs: adults

Emergency drugs are drawn up at the beginning of the day and should be available immediately if needed. Metaraminol, ephedrine and atropine should be drawn up. Propofol and suxamethonium should be readily available, though not routinely drawn up. Suxamethonium is stored in the fridge (with other muscle relaxants), so make sure the fridge is unlocked!

Top tip: If you keep cutting your fingers on vials, use a bit of gauze until you get the hang of it!

Below is a list of the commonly used emergency drugs:

	Indication / comments	Vial contents	Dilute to	Dose (typical)
Metaraminol	Hypotension Can cause bradycardia	10 mg in 1 ml	10 mg in 20 ml (with saline)	0.5 mg (1 ml) aliquots
Ephedrine	Hypotension	30 mg in 1 ml	30 mg in 10 ml (with saline)	3-6 mg (1-2 ml) aliquots
Atropine	Bradycardia	600 µg in 1 ml	Undiluted in 2.5 ml syringe	200-600µg
Propofol 1%	Inadequate depth of anaesthesia	200 mg in 20 ml	Undiluted in 20 ml syringe	Titrate to effect
Suxamethonium	Rapid paralysis. Kept in fridge	100 mg in 2 ml	Undiluted in 2 or 5 ml syringe	1.5-2.0 mg/kg

Emergency Drugs: paediatrics

Paediatric patients require careful preparation of both equipment and drugs, of which dosing is weight-bases. You will be carefully supervised with paediatric cases, so try not to worry too much about these initially. The appendices outline some paediatric considerations for reference if required.

Commonly used Drugs: adults

There are many drugs used in anaesthetics. Some of the most commonly used are:

	Indication / comments	Concentration [with syringe size to use]	Dose (typical)
Propofol	Induction Can cause pain on injection	10 mg/ml [20ml]	2-3 mg/kg (titrate to effect)
Thiopentone	Induction Normally only used for RSI	25 mg/ml [500mg in 20 ml syringe] Made up with water for injection	5 mg/kg
Atracurium	Muscle relaxant (non-depolarising)	10 mg/ml [5 ml or 10 ml]	0.5 mg/kg
Rocuronium	Muscle relaxant (non-depolarising)	10 mg/ml [5 ml or 10 ml]	0.5 mg/kg 1.1 mg/kg for RSI
Suxamethonium	Muscle relaxant (depolarising)	50 mg/ml [2 ml or 5 ml]	1.5 – 2 mg/kg
Fentanyl	Opioid	50 µg/ml [2 ml normally]	1 µg/kg
Morphine	Opioid	1 mg / ml [10ml] (dilute 10 mg/ml to 10 ml with saline)	0.1 – 0.2 mg/kg
Midazolam	Anxiolytic	1 mg/ml [5 ml]	0.5 – 3.0 mg
Ondansetron	Anti-emetic	2 mg/ml [2 ml or 5 ml]	4 – 8 mg
Dexamethasone	Anti-emetic Some analgesic effects	3.3 mg /ml [2 ml]	3.3 – 6.6 mg
Paracetamol	Analgesic Check not given on ward	1g / 100ml [comes in container] Give slowly	1g (if > 50kg)
Diclofenac	Analgesic Beware contraindications	75 mg /ml [Dilute in at least 100 ml] Give slowly	75 mg
Glycopyrrolate	Anti-Muscarinic Used to treat bradycardia	200 µg/ml [5 ml]	200 – 600 µg
Lidocaine 1% **Lidocaine 2%**	Local Anaesthetic	10 mg/ml 20 mg/ml	Max 3 mg/kg (7 mg/kg with Adrenaline)
Bupivacaine 0.5% **Bupivacaine 0.25%**	Local Anaesthetic	5 mg/ml 2.5 mg/ml	Max 2 mg/kg

Antibiotics are given in a variety of different doses and are given in a variety of different ways. Refer to Microguide for what antibiotic is required (there's an app) and check with your consultant how it should be given

Commonly used Drugs: paediatrics

Again, try not to worry too much about paediatric doses at this stage. The appendices outline some paediatric doses for reference if required.

Guide to Obstetric Anaesthesia

Guide to Obstetric Anaesthesia

Who's who

The Anaesthetists

Obstetric Lead Anaesthetist:

- Dr Melissa Kitching: regular obstetrics sessions on alternate Tuesdays

Consultant Anaesthetists with Obstetric Interest:

- Dr Gowrie-Mohan: regular sessions (special interest in dural puncture & epidural in obesity
- Dr Alastair Moye: regular sessions
- Dr Aki Pathmanathan: regular sessions
- Dr Aditya Singh: regular sessions
- Dr Matt Simpson: regular sessions
- Dr Katie King: regular sessions
- Dr Henry Reynolds: regular sessions
- Dr Martin Gray: regular sessions
- Dr Alex Czech: ad hoc sessions
- Dr Martyn Wildman: ad hoc sessions

The Obstetricians:

- Miss Leonce: Clinical Director, Obstetrics
- Miss Merrifield: Labour ward lead (ward manager)

The Lister Maternity Unit

Diamond Jubilee Maternity Unit

The delivery is located in Level 2 in the **Pink Zone** at the back of the main hospital. It is divided into a 'Consultant led unit' (ground floor) and a 'Midwife-led unit' (first floor). In the consultant-led unit, there are 10 delivery rooms (including water birth) and 2 beds in the High Dependency area.

Maternity Theatres

There are 2 theatres (without anaesthetic rooms) and 2 recovery bays. They are accessed through CLU. Theatre 1 is usually the emergency theatre, theatre 2 mostly for electives. The multibirth room on the main corridor of CLU has an anaesthetic room and can be used in dire emergencies as a third theatre. Please note that there is no scavenging in this room.

The Wards and SCBU

There are two wards located on the first floor of the maternity building. ***Gloucester ward*** is the post-natal ward and ***Dacre ward*** is the ante-natal ward. SCBU is located on the ground floor of the same building.

The Clinics

The Bancroft clinics are located on the corridor that links the maternity building to the main hospital. The anaesthetic department runs a routine pre-operative assessment clinic on Thursday afternoon (usually run by Dr Pathmanathan and Dr Moye) and a 'high risk' clinic every Tuesday afternoon and 2 Tuesday mornings per month (usually run by Dr Kitching, Dr King and Dr Simpson). Patients seen in the High Risk Clinic will have a delivery plan made on the yellow Anaesthetic Chart in the patients hand held notes, and further details of particular cases will be available in the High Risk Anaesthetic Folder in Ali's Office. Please check regularly.

Obstetric Anaesthetist's General Duties

During 'office hours' on weekdays, the department is generally staffed by 3 anaesthetists: a consultant, a senior anaesthetist and a junior anaesthetist. Generally, the consultant and junior anaesthetist cover the elective sections and the senior anaesthetist covers the emergencies. This may change depending on skill mix and staff availability. On weekends, bank holidays and 'after hours', there will be only one anaesthetist on duty with support from the senior registrar in theatres and the general consultant on call.

Labour ward cover (Registrar or SAS)

The obstetric anaesthetist ***carries bleep 1056***. It is your responsibility to ensure that your bleep is not running out of battery. New batteries for the bleep can be obtained from the main theatre office.

The duty hours for the 'Long Day' obstetric anaesthetist are 08:00 to 20:30 and the 'Night' duty is from 20:00 to 08:30. The half an hour overlap is to allow for adequate handover: please use the C-SAFE structure and the handover sheet for handovers. Generally, handover takes place in the anaesthetic office (next to Obstetric theatre 2) at 08:00 and 20:00. This may have to happen in theatre if there is a case ongoing. After that, the day anaesthetist checks the anaesthetic machines and equipment in both theatres and prepares the relevant emergency drugs (see the section on emergency anaesthetic drugs).

The anaesthetists should join the Obstetric handover at 08:30 and 20:00 in the main office and discuss with the obstetric / midwifery team about any concerns. ***It is considered the duty of the Anaesthetist covering emergencies to attend the ward round***.

Follow-ups

The anaesthetists would also do the 'follow-ups' in the morning/early afternoon. This can be done by any of the 3 duty anaesthetists, but is usually done by the Anaesthetist covering Emergencies if the morning is quiet. The ***post-natal patients are found on Gloucester ward*** and the follow-up sheets found in the green folder in the anaesthetic office. The data should be entered into the audit programme (see later). If there is any issue with neuropathies, headaches, etc. then discuss these with the consultant on labour ward. There is a booklet to fill in for any neurological issues (found in anaesthetic office).

Elective Cover (Consultant and SHO)

Elective sections should start promptly at 08:30 starting with the WHO team-brief outside Obstetric theatre 2. There should be no delay as there is a dedicated elective team (including midwives, obstetricians, anaesthetists and ODP). The reason for any significant delay should be documented on the theatre audit sheet. It is important to identify at the team brief any women who will be following the 'Enhanced Recovery' pathway.

The Elective LSCS patients are admitted to the far right hand bay on Dacre Ward at 07:30**.** ***The Elective caesarean list Anaesthetists should be up on the ward by 08:00 to see the patients pre-operatively.*** The vast majority will have been seen in the pre-assessment clinic, but a more detailed history is often required. Basic consent for Regional should have been taken, pre-meds given out, bloods taken and fasting instructions given. The Anaesthetic chart should be found in the patient held notes.

Audit System

There is a computerised Obstetric anaesthetic database in use: ***Epidural Audit system***. All cases must be entered into the computer audit system available on either theatre computer. This includes all theatre cases and epidurals for Labour. ***Login is with a generic login*** (details found next to each computer). A follow up form and a computerised record will be generated and printed in recovery for each case and a folder is kept in the anaesthetic office of theatre 2. Follow ups need to be done and re-entered into the computer, then the form disposed of in the confidential waste. Full instructions are kept in the folder and alongside the computers. Logins exist for locums.

Other house-keeping information

If you are sick and unable to come to work, please call the anaesthetic office (01438 284086) to leave a message. If it is short notice, also contact the Senior Registrar or consultant on call on their mobile (their number can be found by their name on CLWRota).

As well as a bleep there is a set of keys. This includes a key for the epidural pumps and a key to access the fire exit between main theatres and maternity (get someone to show you this quick route between departments).

There is a dedicated ***Obstetric ODP (bleep 1360)*** to assist you, in theatre, at MOH etc. Please call them for support whenever needed. It is expected that the midwife will call them if a patient is being taken to theatre.

Within labour ward there is a (small) coffee room for refreshment and an office behind the main desk for you to do your paperwork. However, please feel free to use the coffee room in main theatre if you prefer. There are computers and printing facilities in the anaesthetic seminar room and trainee room. There is a sofa bed in the anaesthetic office next to theatre 2 for you to rest on nights. Warning: this room gets very hot. The thermostat is opposite this room but it must be kept at 2 if there are babies in recovery.

There are two ODPs each weekday 08:00 – 17:00 to allow cover for two Obstetric theatres to run simultaneously, and Labour Ward will be staffed by a minimum of two competent Anaesthetists during this period. Out of hours, or at weekends, if assistance is required on the Labour Ward the first port of call is the Senior Registrar in main theatres, followed by the Consultant on-call if required.

There is a policy for opening a second Obstetric theatre out of hours. If a second ODP is required out of hours you should liaise with main theatres to try and facilitate this. Opening a second theatre is very difficult logistically and should be avoided if at all possible, and discussed with the Senior Registrar/Consultant on call in a timely manner.

PROMPT Sessions

There are multidisciplinary *PROMPT* (Practical Obstetric Multi-Professional Training) sessions held monthly. Volunteers to assist the running of the anaesthetic station run are greatly appreciated, this may be particularly of interest to trainees with a specialist interest in obstetrics/education (please contact Dr Kitching for more information). It is expected that all trainees on the obstetric on-call rota should attend one of these sessions as a candidate.

Obstetric Anaesthesia Guidelines

Full details of all guidelines can be seen on the Maternity section of the Knowledge Centre. There is a hard copy of all guidelines in the handbook kept in each theatre.

Please familiarise yourself with the information and guidelines contained within the appendices of this guide that relate to obstetric anaesthesia. These cover topics including MOH, PCEA, Remifentanyl PCA, Cell salvage, essential equipment, VTE prophylaxis and other useful guides.

Guidelines exist for General and Regional Anaesthesia, and post-op pain relief. The opiate of choice for Elective LSCS is (currently) morphine or a combination of fentanyl and morphine. For an emergency it may be preferable to use fentanyl alone.

Analgesia and codeine in obstetrics

Please use Paracetamol as first line analgesia, an NSAID - usually Ibuprofen orally or Diclofenac PR if able to tolerate NSAIDs - and Oramorph orally if additional analgesia is required. Oramorph can be prescribed as a TTO for those women needing additional pain relief on discharge; usually those unable to take NSAIDs.

Codeine has been withdrawn for use in Obstetrics following the MHRA advice on use of codeine in breast feeding women. Tramadol is also contra-indicated in breast feeding women.

Antibiotics for LSCS

Prophylactic antibiotics should be administered by the anaesthetist before knife to skin incision (KTS) to all women having a Caesarean Delivery who do not have a history of penicillin anaphylaxis:

- For term deliveries (>37 weeks) give a single dose of Co-amoxiclav 1.2g IV
- For pre-term deliveries give a single dose of Cefotaxime 1g IV plus Metronidazole 500mg IV

In cases of penicillin anaphylaxis, Clindamycin 600mg IV should be administered by the anaesthetist before knife to skin incision and Gentamicin 120mg IV should be administered by the anaesthetist after the cord has been clamped.

Administration before KTS reduces the risk of maternal infection more than prophylactic antibiotics given after skin incision and no effect on neonatal outcomes have been demonstrated. Co-amoxiclav should not be used for pre-term deliveries.

VTE prophylaxis

Dalteparin s/c is given post op (4 hours post spinal or epidural removal after LSCS) for those who are intermediate risk or above (all Emergency LSCS and certain Elective LSCS patients). The dose is weight dependent; a table of weight-dose values are given below the VTE prescription section of the drug chart.

Please refer to guideline 036 “Antenatal and postnatal thromboprophylaxis” for full guideline, which can also be found in the purple postnatal notes. An overview of this guideline can be found on theatre wall or in the appendices of this guide.

Emergency Anaesthetic Drugs

At the beginning of each shift, the duty anaesthetist must prepare (or check) the emergency anaesthetic drugs. Please date them so that everyone knows how old they are.

The following drugs should be prepared, checked and appropriately labelled:

- **Thiopental** 500mg in 20ml syringe
- **Suxamethonium** 100mcg in 2ml syringe
- **Atropine** 600mcg in 2ml syringe
- **Ephedrine** 30mg in 10ml syringe
- **Phenylephrine 10mg in 100ml 0.9% saline** bag (i.e. 100mcg/ml). This can then be drawn up in a 20ml syringe ready to be used (see Guideline 4.28)
- An ampoule each of **Oxytocin** (5 units/ml) and **Atracurium** (50mg/5ml)

Phenylephrine is made up as 100mcg/ml and given by infusion during LSCS as required. Pumps are provided in each theatre. The suggested initial infusion rate is 20ml/hr (=2000mcg/hr = 33mcg/min). Typically 15-30ml/hr is adequate.

These drugs should be changed at least once every 24 hours, except for thiopental, which is every 12 hours. They should be placed in the tray and kept in the fridge. Drugs should be prepared in both theatres during the day. If you run out of any drug labels, please inform the ODP so that they can replace them.

Intralipid is available in both theatres. ***Sugammadex*** for reversal of failed intubation after Rocuronium is in theatre.

Contact numbers for Obstetrics

Phone numbers / extensions		**Bleeps**	
Anaesthetic office (Ali Waller)	01438 28 4086 *(x4086)*	Obstetric Anaesthetic Registrar	b 1056
Ali Waller (direct)	07825 174507	Anaesthetic Senior Registrar	b 1102
Theatre coordinator	07825 932664	Anaesthetic SHO (CT 1st on-call)	b 1077
Gloucester ward	x4071	ITU-1 Trainee	b 1104
Dacre ward	x4072	ITU-2 Trainee	b 1213
		Outreach Consultant (SpR out of hrs)	b 1394
Maternity unit	x5630		
Midwife Station	x6168	ODP: main theatres	b 1388
Labour ward handover room	x5126	ODP: maternity	b 1360
Obstetric theatre 1	x6109	Transfusion / Haematology	b 1005 (x5245)
Obstetric theatre 2	x6110	Biochemistry	b 4690 (x5461)
Labour ward recovery	x5034	Porter	b 1100 (x5311)
		Radiographer	b 5411
(PCA / Epidural codes)	****	Haematology consultant	via switchboard

Guide to Intensive Care

Guide to Intensive Care

A Note from the Faculty Tutor

Welcome to the Lister ICU! We hope that you will enjoy your rotation with us. It is a busy unit with a good mix of medical and surgical cases, as well as the opportunity to engage in audits, QI projects and research. As in every ICU, the nurses are a fantastic source of knowledge and experience and you should be eager to draw on this. It goes without saying that we function as a very close team and have a wonderful working relationship with the nurses and other members of the MDT.

Who's Who?

Dr Steve Bates	Consultant in ICM and Anaesthesia Guardian for Safe Working
Dr Jon Bramall	Consultant in ICM and Anaesthesia Clinical Lead for ICU Associate Medical Director for Patient Safety
Dr Minet Carrington	Consultant in ICM and Anaesthesia
Dr Pietro Ferranti	Consultant in ICM and Anaesthesia Research Lead
Dr Kate Flavin	Consultant in ICM and Anaesthesia Clinical Lead for Vascular Anaesthesia FICM Faculty Tutor Clinical Lead for Organ Donation FICE Mentor
Dr Sandra Gelvez-Zapata	Consultant in ICM
Dr Sunil Grover	Consultant in ICM and Anaesthesia RCOA College Tutor
Dr Mark Hearn	Consultant in ICM and Anaesthesia Divisional Chair for Surgery
Dr Anil Kambli	Consultant in ICM and Anaesthesia Outreach Lead
Dr Baldeep Panesar	Consultant in ICM and Anaesthesia
Dr Ruth van Hoogstraten	Consultant in ICM and Anaesthesia
Jane Unwin	Interim ICU Matron

Bleep Numbers

ICU 1	1104	NIC ICU 1	5594	Outreach	1394
ICU 2	1213	NIC ICU 2	5520		

Daily Running of the Unit

The **ICU registrar** is expected to have an overview of the patients on the unit and coordinate the rest of the team to ensure that jobs are allocated and completed appropriately. There are three consultants on duty during weekdays and two at weekends. The work will be split differently depending on who is on: some like to go around together; others prefer to conduct two smaller ward rounds. One of the consultants will hold the **outreach bleep** in the morning to permit the registrar to attend the whole ward round. The bleep will be handed over to the registrar after the ward round. Please do ask if you would like to join the outreach consultant for your own learning and development and to facilitate assessments. We will endeavour to facilitate this in the mornings if workload on the unit permits, but this is often easier in the afternoons.

The **morning handover** starts with a **drill** that is chaired by the incoming (day) registrar. The handover from the night team follows this. You should expect to provide a full and detailed handover every morning. One of the day trainees should log into PACS and bring up the relevant imaging for review. As in all units, some consultants prefer a briefer overview, but you will get to know who likes what!

Immediately after handover, there is a **huddle** in which the consultants, NIC and CCOT teams discuss potential discharges and patients of concern within the hospital. The ICU registrar should allocate patients to the rest of the junior team and then attend this meeting. Whilst this is ongoing the other trainees should go on to the ward and begin their assessments of the patients. The registrar should join them after the huddle.

The juniors are expected to perform a full assessment of their patients and complete the ward round paperwork: to include examination, review of the bedside chart, blood results and any other pertinent investigations. They should formulate an impression and a plan and be ready to present the patient in full on the consultant ward round.

The **consultant ward round** begins between 9:30-10am - the timing and format of the round may vary depending on who the consultant is that day. Generally, trainees should be prepared to present their patients fully, although this may not always be the case. A Computer On Wheels (COW) should be brought on the round to facilitate easy access to investigation results including radiology, as well as efficient organisation of tests requested on the round. Please be sure to document resus status and any limitations of care, and go through the checklist in the 'Consultant Ward Round' box. This should happen daily: it is important as it reminds us about things that are often overlooked. If you are unsure about anything, please ask the consultant.

Following the round, the team should convene (usually with a cup of tea!) to do a quick **board round** and ensure all the jobs are allocated.

The **afternoon ward round** starts at around 4pm, and the juniors are expected to attend and document in the notes. The trainees who are covering the 5-8pm shift will be released from their training lists in theatre to attend the afternoon round. Please do highlight this to the consultant on the list so they can facilitate this for you.

The day and night teams should print copies of the handover sheet in preparation for handover. Please ensure the information on these is updated at the end of each shift to ensure accuracy of handover.

Debriefing, Wellbeing and Resilience

We recognise that Intensive Care can be a challenging and emotional environment, particularly for new trainees. This is not unique to junior doctors: from time to time we look after patients whose condition and management affects us all. It is important that we support each other in these situations and we sometimes organise a debrief as an MDT to ensure that people can ask questions and discuss their feelings and highlight any difficult issues, or indeed positives, about these cases in a supportive and non-judgmental environment. Please speak to the Nurse in Charge or the consultant if you think there is a case that should be discussed in a forum like this. One of us will lead the discussion. We often find that juniors want to discuss specific points about case management for their learning or to highlight concerns, which we can certainly do but we try to keep this separate to the debrief.

Teaching

There are a number of teaching opportunities each day in the ICU. These are shown in orange on the ICU Weekly Timetable. You are expected to attend these sessions, although we appreciate that this may not always be possible for everyone if clinical workload is high.

You will be asked to present cases in the **Morbidity and Mortality meetings** (and if you lead the discussion and offer opinions you may request a CBD from one of the consultants at the meeting). You will also be allocated slots (and usually a paper) for **Journal Club**. There will be sufficient time for you to prepare for this. Additionally, you may request (or be asked) to prepare teaching sessions for the Tuesday **Consultant-Led Teaching**. This is a good opportunity for you to hone your teaching skills and lead a teaching session, and there will be a consultant present to support you.

Lister ICU Weekly Timetable

Monday	Tuesday	Wednesday	Thursday	Friday
08:00 - 08:45 Morning drill Handover	08:00 - 08:45 Morning drill Handover	08:00 - 08:45 Morning drill Handover	08:00 - 08:45 Morning drill Handover	08:00 - 08:45 Morning drill Handover
08:45 - 09:00 Huddle with CCOT and NIC	08:45 - 09:00 Huddle with CCOT and NIC	08:45 - 09:00 Huddle with CCOT and NIC	08:45 - 09:00 Huddle with CCOT and NIC	08:45 - 09:00 Huddle with CCOT and NIC
09:30 - 12:00 Consultant ward round	09:30 - 12:00 Consultant ward round	09:30 - 12:00 Consultant ward round	09:30 - 12:00 Consultant ward round	09:30 - 12:00 Consultant ward round
13:00 - 14:00 Consultants' meeting	12:00 - 12:30 Radiology meeting	13:00 - 17:00 Core trainee teaching	13:00 - 17:00 Registrar teaching	13:00 - 13:30 Journal club
14:00 - 15:30 M&M meeting	12:30 - 13:30 Consultant-led teaching		13:30 - 14:00 Rehab MDT meeting	
16:00 - 18:00 Evening ward round Handover	16:00 - 18:00 Evening ward round Handover	16:00 - 18:00 Evening ward round Handover	16:00 - 18:00 Evening ward round Handover	16:00 - 18:00 Evening ward round Handover
20:00 - 20:45 Handover	20:00 - 20:45 Handover	20:00 - 20:45 Handover	20:00 - 20:45 Handover	20:00 - 20:45 Handover
20:45 - 21:00 Huddle with CCOT and NIC	20:45 - 21:00 Huddle with CCOT and NIC	20:45 - 21:00 Huddle with CCOT and NIC	20:45 - 21:00 Huddle with CCOT and NIC	20:45 - 21:00 Huddle with CCOT and NIC

Trainees are expected to take ownership of their own education and should actively seek learning opportunities, e.g. an interesting patient on the ward round, rather than expect only didactic teaching from the ICU consultants.

Importantly, the **Rehab MDT Meeting** on Thursdays is an additional educational opportunity. Trainees who are doing their ICU modules are expected to attend and contribute. Phil Tolson, our lead physio, is very proactive and really appreciates being able to work cooperatively with the trainees, so please make yourselves known to him and he will add you in to his email invites.

ICU Module Sign Off

If you are working towards getting your basic ICU module (ACCS / core anaesthetics / medical training) or any of your level 1-3 ICM modules, please make this clear to me at the beginning of your rotation with us.

For anaesthetics trainees, I will expect to see assessments covering all compulsory (plus relevant optional) competences - you may link up to five competences per WPBA. The best way of keeping a record of this is to print off and complete the curriculum matrix. This should then be uploaded on to the LLP and used as evidence before submitting the CUT form for sign off. I would also like to see an MSF performed whilst on your ICU rotation. You should have completed a three-month block on the ICU including on call commitments, and attended and contributed to M&M, teaching and Journal Club meetings.

Please be organised! If you would like to complete an assessment with a consultant, please ask them **before the round** and send the form promptly (or do it in person at the time - this often is easier). It goes without saying that you should not leave all your assessments until the last minute. If you are having trouble getting WPBAs completed, please discuss this with your ES or myself.

Please do come to me or any of the other consultants with any problems, particularly if you are finding things difficult or if you are having problems getting assessments done or attending the teaching regularly. We would rather know of any issues early so we can work with you to improve things for you.

We hope you enjoy your time with us and, again, a warm welcome to the ICU!

Best wishes,

Dr Kate Flavin (FICM Faculty Tutor)

Paperwork and Housekeeping on ICU

There is a considerable amount of important paperwork and housekeeping that must be completed in a timely manner as this forms a key part of good clinical practice.

Admission Clerking Proforma

This is an electronic document found in the following location on Computer: V drive → ICUAdmissions → Admission notes → Blank Admissions Template. This should be completed as soon as practicable with sufficient detail. It is particularly important to mention pertinent details in the history of presenting complaint (both pre-hospital and in-hospital), past medical history and social history as these may influence subsequent management of the patient including treatment escalation plans.

For post-operative patients it is useful to record any significant cardio-respiratory or metabolic derangements peri-operatively, including an accurate estimation of blood loss and also any significant surgical complications. In order to be concise and ensure salient points are covered, it is helpful to use the following format:

Operative procedure:
Indication:
Anaesthetic:
Analgesia:
Antibiotics:
Fluids / blood products administered:
Urine output:
Surgical complications:
Estimated blood loss:
Anaesthetic complications:

Once completed, the electronic document should be saved as the patient's name in the correct folder (depending on the year and month at the time of admission) and printed out and put in the bedside notes. Generally, if there is a junior involved in the case in theatre intra-operatively, they tend to complete the admission notes. Please ensure that both the operation note and anaesthetic chart are filed in the ICU notes for easy reference, rather than left in the ward notes.

Care Plans

We perform a number of interventions on ICU some of which are invasive. In order to ensure safe post-procedure care (especially with regards to infection control), there are specific LocSSIPs and care plans for each of these interventions, listed below, which should be **completed by the doctor performing them** and **not** delegated to the nurses. Please see following pages for examples of the first four LocSSIPs, which are designed to be used like a WHO checklist.

- **Intubation** - of particular importance the C-L grade on laryngoscopy must be recorded
- **Bronchoscopy**
- **Chest drain insertion**

- CVC and Vascath insertion - please note a CXR is *not* required to confirm correct placement of IJV or subclavian lines prior to use (rather it is to detect complications): if the line has been straightforward, transduction confirms a CVP trace and a venous gas confirms venous placement then the line may be used immediately - this is unit policy
- **Tracheostomy**
- **NG tube insertion**
- **Arterial line insertion**
- **Peripheral venous cannula insertion**

Drug charts

Whilst the wards have separate drug charts for diabetics and non-diabetics, there is one universal drug chart for all ICU patients which is yellow. These drug charts have additional sections for prescription of specialist drugs specific to ICU such as inotropes and sedatives, compared to the ward charts. Please ensure that **re-writing of drug charts is not left for the on call teams**.

Daily notes proforma

These are yellow coloured 4-paged, A4 sized booklets that are used for the daily ward rounds. Please ensure they are **completed in full** including dates and times, number of days on the ICU, the limits of care and resuscitation status, and the checklist in the Consultant Ward Round box as these are national requirements and are regularly audited.

Lab results

A sheet with a matrix containing the daily blood test results is kept in the bedside notes folder and is updated by the nurses every day.

Microbiology Proforma

This is for documentation of any microbiology culture results (both positive and negative) that have been sent and also where any discussions with the microbiology consultants must be recorded, even if the information has been recorded in the daily notes proforma.

Relative Communication Sheets

These are green A4 sheets that are used to document any discussions with family / next of kin. Please do not record this information in the daily notes proforma.

Handover List

This is found in the following location on Computer: V drive → ICUAdmissions → Drs' Handover → [year] → [month]. The handover list contains information pertinent to a patient's admission and current status. It is the responsibility of the SHOs to ensure that the list is updated prior to the end of their shift and sufficient

copies are printed for those incoming. In particular, the problem list must be accurate and any progress updated properly in order to ensure significant points are not missed during handover.

Updating the Board

In the handover room there are two whiteboards: one for each ITU. These are essentially more concise versions of the handover list and again it is the SHOs' duty to ensure these are updated before the end of their shift.

Discharge Summaries

This is found in the following location on Computer: V drive → ICUAdmissions → Discharge Summaries → blank discharge summary. For most patients that have had a short stay the discharge summary should be relatively straightforward. However, occasionally there are patients who are complex and have had a prolonged length of stay. In these situations, it is essential that an **accurate account of all significant events and decisions** (particularly with respect to invasive & surgical interventions) is conveyed in the discharge summary. It is sensible to begin writing discharge summaries pre-emptively in advance for such patients; these can be saved in the 'Summaries in Progress' folder.

When a patient is being discharged, it is essential that the **treatment escalation plan and DNACPR status is accurately reflected** in the discharge summary. Please discuss this with a senior prior to discharge if there is any doubt.

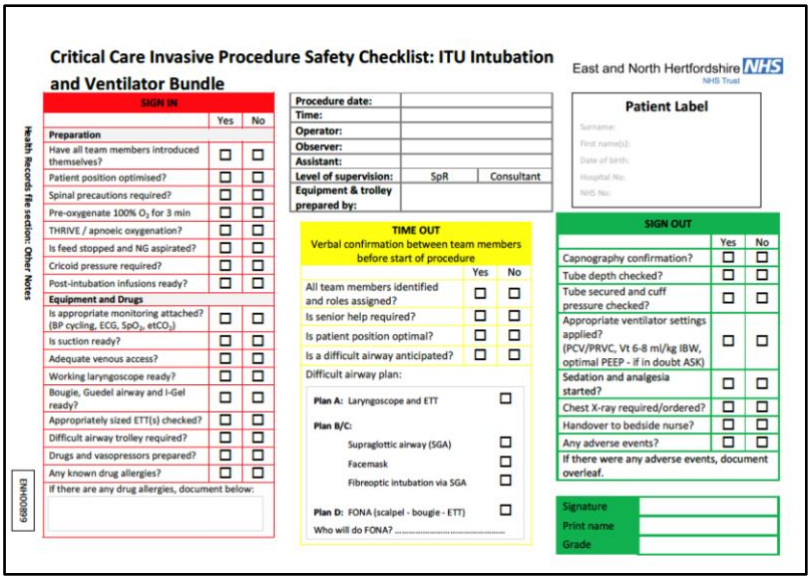
The patient's ward drug chart must be written prior to discharge, and a handover must be given via telephone to the relevant team.

Emergency Drug Box

On the bottom of the Difficult Airway Trolley there is a drugs box for use in emergencies on the unit. These have specific drugs (not drawn up) and labelled syringes with blunt drawing-up needles as per the list inside the box. It is the responsibility of the **doctor who used the drugs to restock the box immediately**, according to the list inside. Please do not forget to do this: consider your colleagues who may have to intubate a patient in an emergency. Unlisted items or drugs **must not** be put inside the box.

LocSSIPs for Intensive Care

Intubation LocSSIP and Spontaneous Breathing Trial Paperwork



Critical Care Invasive Procedure Safety Checklist: ITU Intubation and Ventilator Bundle

East and North Hertfordshire NHS
NHS Trust

Health Records File section: Other Notes

ENH00899

SIGN IN	Yes	No
Preparation		
Have all team members introduced themselves?	☐	☐
Patient position optimised?	☐	☐
Spinal precautions required?	☐	☐
Pre-oxygenate 100% O_2 for 3 min	☐	☐
THRIVE / apnoeic oxygenation?	☐	☐
Is feed stopped and NG aspirated?	☐	☐
Cricoid pressure required?	☐	☐
Post-intubation infusions ready?	☐	☐
Equipment and Drugs		
Is appropriate monitoring attached? (BP cycling, ECG, SpO_2, $etCO_2$)	☐	☐
Is suction ready?	☐	☐
Adequate venous access?	☐	☐
Working laryngoscope ready?	☐	☐
Bougie, Guedel airway and I-Gel ready?	☐	☐
Appropriately sized ETT(s) checked?	☐	☐
Difficult airway trolley required?	☐	☐
Drugs and vasopressors prepared?	☐	☐
Any known drug allergies?	☐	☐

If there are any drug allergies, document below:

Procedure date:	
Time:	
Operator:	
Observer:	
Assistant:	
Level of supervision:	SpR / Consultant
Equipment & trolley prepared by:	

Patient Label

Surname:
First name(s):
Date of birth:
Hospital No:
NHS No:

TIME OUT
Verbal confirmation between team members before start of procedure

	Yes	No
All team members identified and roles assigned?	☐	☐
Is senior help required?	☐	☐
Is patient position optimal?	☐	☐
Is a difficult airway anticipated?	☐	☐

Difficult airway plan:

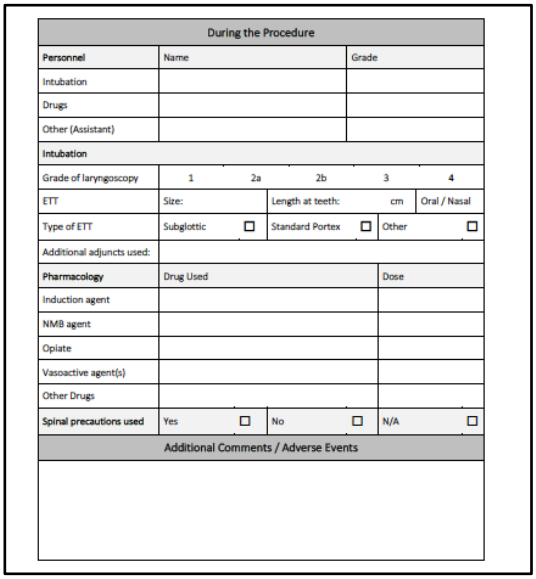
- **Plan A:** Laryngoscope and ETT ☐
- **Plan B/C:**
  - Supraglottic airway (SGA) ☐
  - Facemask ☐
  - Fibreoptic intubation via SGA ☐
- **Plan D:** FONA (scalpel - bougie - ETT) ☐

Who will do FONA? .....

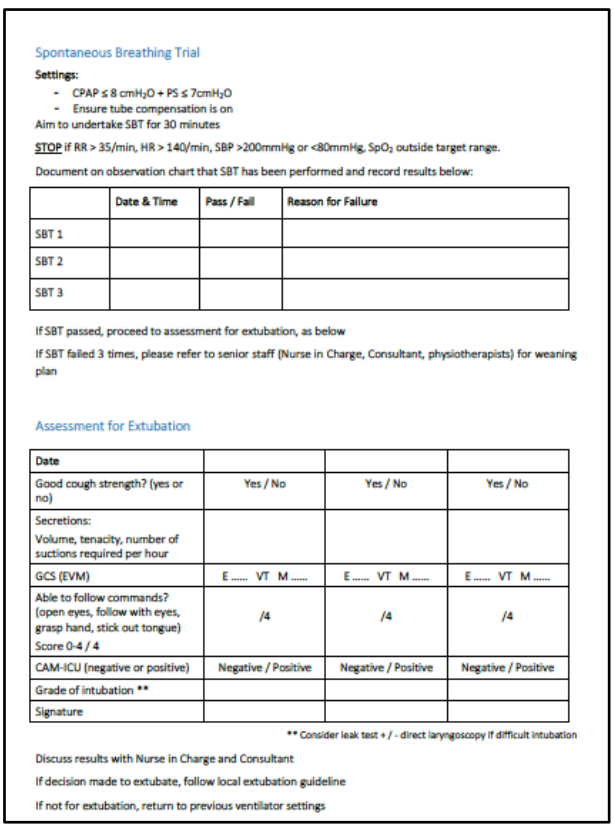
SIGN OUT	Yes	No
Capnography confirmation?	☐	☐
Tube depth checked?	☐	☐
Tube secured and cuff pressure checked?	☐	☐
Appropriate ventilator settings applied? (PCV/PRVC, Vt 6-8 ml/kg IBW, optimal PEEP - if in doubt ASK)	☐	☐
Sedation and analgesia started?	☐	☐
Chest X-ray required/ordered?	☐	☐
Handover to bedside nurse?	☐	☐
Any adverse events?	☐	☐

If there were any adverse events, document overleaf.

Signature	
Print name	
Grade	



During the Procedure					
Personnel	Name			Grade	
Intubation					
Drugs					
Other (Assistant)					
Intubation					
Grade of laryngoscopy	1	2a	2b	3	4
ETT	Size:		Length at teeth: cm		Oral / Nasal
Type of ETT	Subglottic ☐		Standard Portex ☐		Other ☐
Additional adjuncts used:					
Pharmacology	Drug Used			Dose	
Induction agent					
NMB agent					
Opiate					
Vasoactive agent(s)					
Other Drugs					
Spinal precautions used	Yes ☐		No ☐	N/A	☐
Additional Comments / Adverse Events					



Spontaneous Breathing Trial

Settings:

- CPAP ≤ 8 cmH_2O + PS ≤ 7cmH_2O
- Ensure tube compensation is on

Aim to undertake SBT for 30 minutes

STOP if RR > 35/min, HR > 140/min, SBP >200mmHg or <80mmHg, SpO_2 outside target range.

Document on observation chart that SBT has been performed and record results below:

	Date & Time	Pass / Fail	Reason for Failure
SBT 1			
SBT 2			
SBT 3			

If SBT passed, proceed to assessment for extubation, as below

If SBT failed 3 times, please refer to senior staff (Nurse in Charge, Consultant, physiotherapists) for weaning plan

Assessment for Extubation

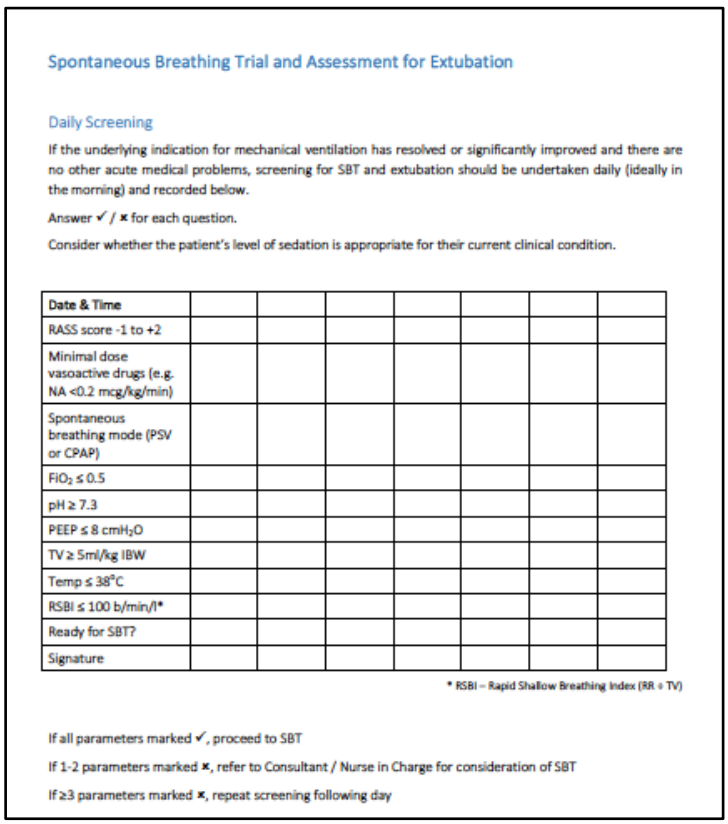
Date			
Good cough strength? (yes or no)	Yes / No	Yes / No	Yes / No
Secretions: Volume, tenacity, number of suctions required per hour			
GCS (EVM)	E ..... VT M	E ..... VT M	E ..... VT M .....
Able to follow commands? (open eyes, follow with eyes, grasp hand, stick out tongue) Score 0-4 / 4	/4	/4	/4
CAM-ICU (negative or positive)	Negative / Positive	Negative / Positive	Negative / Positive
Grade of intubation **			
Signature			

** Consider leak test + / - direct laryngoscopy if difficult intubation

Discuss results with Nurse in Charge and Consultant

If decision made to extubate, follow local extubation guideline

If not for extubation, return to previous ventilator settings



Spontaneous Breathing Trial and Assessment for Extubation

Daily Screening

If the underlying indication for mechanical ventilation has resolved or significantly improved and there are no other acute medical problems, screening for SBT and extubation should be undertaken daily (ideally in the morning) and recorded below.

Answer ✓ / ✗ for each question.

Consider whether the patient's level of sedation is appropriate for their current clinical condition.

Date & Time							
RASS score -1 to +2							
Minimal dose vasoactive drugs (e.g. NA <0.2 mcg/kg/min)							
Spontaneous breathing mode (PSV or CPAP)							
FiO_2 ≤ 0.5							
pH ≥ 7.3							
PEEP ≤ 8 cmH_2O							
TV ≥ 5ml/kg IBW							
Temp ≤ 38°C							
RSBI ≤ 100 b/min/l*							
Ready for SBT?							
Signature							

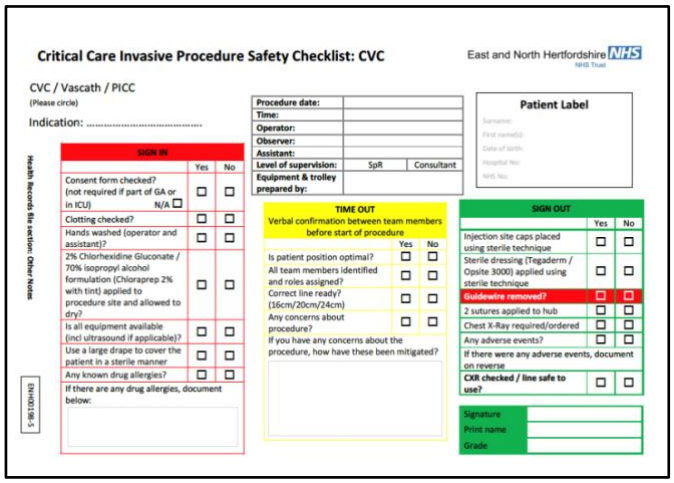
* RSBI – Rapid Shallow Breathing Index (RR ÷ TV)

If all parameters marked ✓, proceed to SBT

If 1-2 parameters marked ✗, refer to Consultant / Nurse in Charge for consideration of SBT

If ≥3 parameters marked ✗, repeat screening following day

Central Line LocSSIP



Critical Care Invasive Procedure Safety Checklist: CVC

East and North Hertfordshire NHS
NHS Trust

CVC / Vascath / PICC
(Please circle)

Indication: .....

Procedure date:	
Time:	
Operator:	
Observer:	
Assistant:	
Level of supervision:	SpR / Consultant
Equipment & trolley prepared by:	

Patient Label

Surname:
First name(s):
Date of birth:
Hospital No:
NHS No:

Health Records file section: Other Notes

SIGN IN

	Yes	No
Consent form checked? (not required if part of GA or in ICU) N/A ☐	☐	☐
Clotting checked?	☐	☐
Hands washed (operator and assistant)?	☐	☐
2% Chlorhexidine Gluconate / 70% isopropyl alcohol formulation (Chloraprep 2% with tint) applied to procedure site and allowed to dry?	☐	☐
Is all equipment available (incl ultrasound if applicable)?	☐	☐
Use a large drape to cover the patient in a sterile manner	☐	☐
Any known drug allergies?	☐	☐
If there are any drug allergies, document below:		

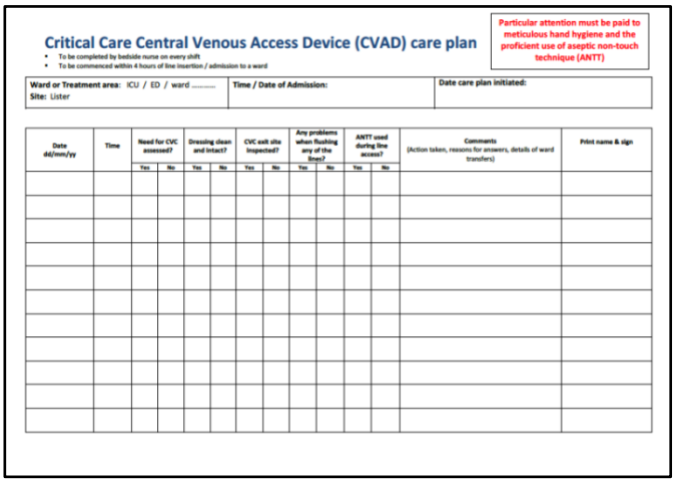
TIME OUT
Verbal confirmation between team members before start of procedure

	Yes	No
Is patient position optimal?	☐	☐
All team members identified and roles assigned?	☐	☐
Correct line ready? (16cm/20cm/24cm)	☐	☐
Any concerns about procedure?	☐	☐
If you have any concerns about the procedure, how have these been mitigated?		

SIGN OUT

	Yes	No
Injection site caps placed using sterile technique	☐	☐
Sterile dressing (Tegaderm / Opsite 3000) applied using sterile technique	☐	☐
Guidewire removed?	☐	☐
2 sutures applied to hub	☐	☐
Chest X-Ray required/ordered	☐	☐
Any adverse events?	☐	☐
If there were any adverse events, document on reverse		
CXR checked / line safe to use?	☐	☐

Signature	
Print name	
Grade	



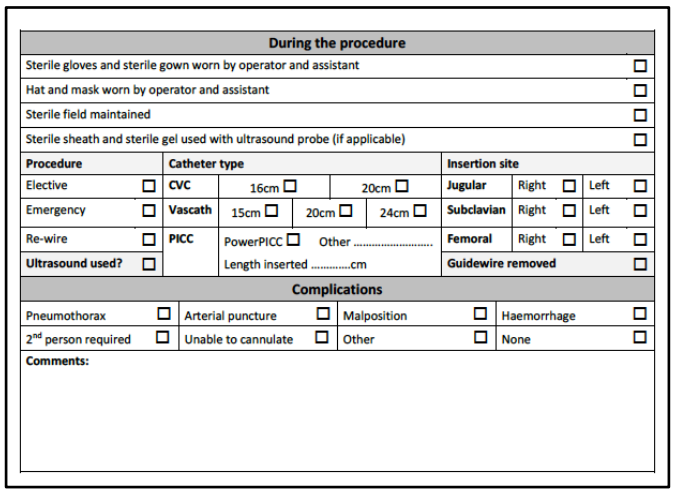
Critical Care Central Venous Access Device (CVAD) care plan

- To be completed by bedside nurse on every shift
- To be commenced within 4 hours of line insertion / admission to a ward

Particular attention must be paid to meticulous hand hygiene and the proficient use of aseptic non-touch technique (ANTT)

Ward or Treatment area: ICU / ED / ward ..... Site: Lister	Time / Date of Admission:	Date care plan initiated:

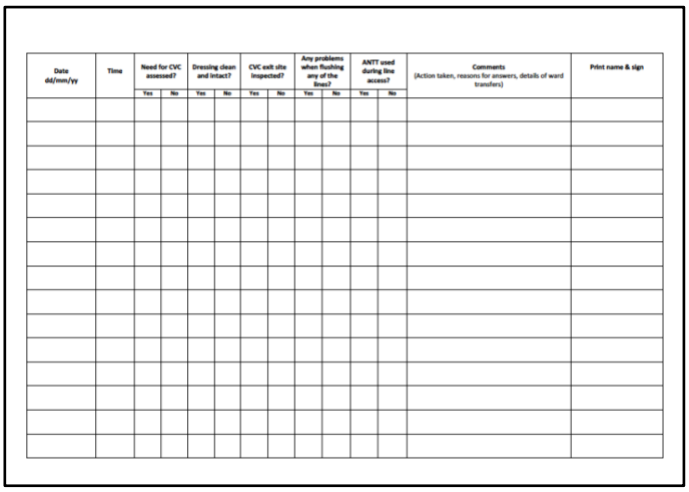
Date dd/mm/yy	Time	Need for CVC assessed? Yes	Need for CVC assessed? No	Dressing clean and intact? Yes	Dressing clean and intact? No	CVC exit site inspected? Yes	CVC exit site inspected? No	Any problems when flushing any of the lines? Yes	Any problems when flushing any of the lines? No	ANTT used during line access? Yes	ANTT used during line access? No	Comments (Action taken, reasons for answers, details of ward transfers)	Print name & sign



During the procedure							
Sterile gloves and sterile gown worn by operator and assistant							☐
Hat and mask worn by operator and assistant							☐
Sterile field maintained							☐
Sterile sheath and sterile gel used with ultrasound probe (if applicable)							☐
Procedure	**Catheter type**			**Insertion site**			
Elective ☐	**CVC**	16cm ☐	20cm ☐	**Jugular**	Right ☐	Left ☐	
Emergency ☐	**Vascath**	15cm ☐	20cm ☐	24cm ☐	**Subclavian**	Right ☐	Left ☐
Re-wire ☐	**PICC**	PowerPICC ☐	Other	**Femoral**	Right ☐	Left ☐	
Ultrasound used? ☐		Length inserted .....cm		**Guidewire removed**			☐

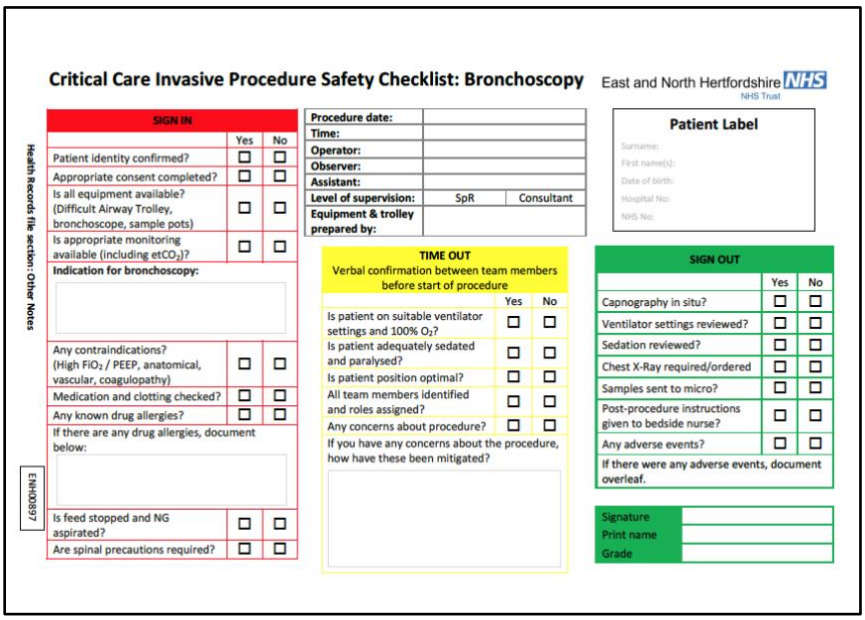
Complications			
Pneumothorax ☐	Arterial puncture ☐	Malposition ☐	Haemorrhage ☐
2nd person required ☐	Unable to cannulate ☐	Other ☐	None ☐

Comments:



Date dd/mm/yy	Time	Need for CVC assessed? Yes	Need for CVC assessed? No	Dressing clean and intact? Yes	Dressing clean and intact? No	CVC exit site inspected? Yes	CVC exit site inspected? No	Any problems when flushing any of the lines? Yes	Any problems when flushing any of the lines? No	ANTT used during line access? Yes	ANTT used during line access? No	Comments (Action taken, reasons for answers, details of ward transfers)	Print name & sign

Bronchoscopy LocSSIP



Critical Care Invasive Procedure Safety Checklist: Bronchoscopy

East and North Hertfordshire NHS
NHS Trust

Health Records file section: Other Notes

SIGN IN	Yes	No
Patient identity confirmed?	☐	☐
Appropriate consent completed?	☐	☐
Is all equipment available? (Difficult Airway Trolley, bronchoscope, sample pots)	☐	☐
Is appropriate monitoring available (including $etCO_2$)?	☐	☐
Indication for bronchoscopy:		
Any contraindications? (High FiO_2 / PEEP, anatomical, vascular, coagulopathy)	☐	☐
Medication and clotting checked?	☐	☐
Any known drug allergies?	☐	☐
If there are any drug allergies, document below:		
Is feed stopped and NG aspirated?	☐	☐
Are spinal precautions required?	☐	☐

Procedure date:	
Time:	
Operator:	
Observer:	
Assistant:	
Level of supervision:	SpR / Consultant
Equipment & trolley prepared by:	

Patient Label
Surname:
First name(s):
Date of birth:
Hospital No:
NHS No:

TIME OUT
Verbal confirmation between team members before start of procedure

	Yes	No
Is patient on suitable ventilator settings and 100% O_2?	☐	☐
Is patient adequately sedated and paralysed?	☐	☐
Is patient position optimal?	☐	☐
All team members identified and roles assigned?	☐	☐
Any concerns about procedure?	☐	☐

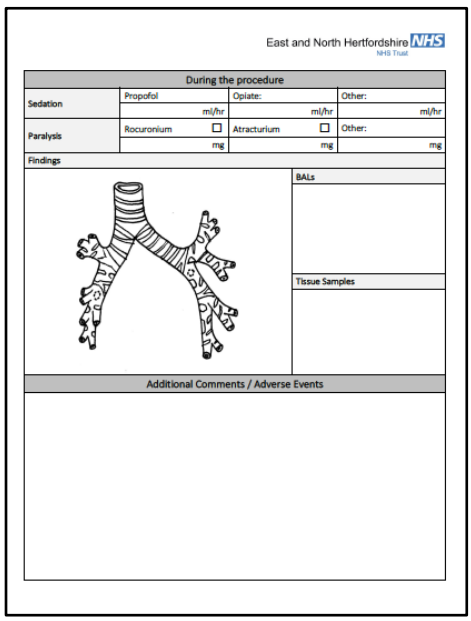
If you have any concerns about the procedure, how have these been mitigated?

SIGN OUT	Yes	No
Capnography in situ?	☐	☐
Ventilator settings reviewed?	☐	☐
Sedation reviewed?	☐	☐
Chest X-Ray required/ordered	☐	☐
Samples sent to micro?	☐	☐
Post-procedure instructions given to bedside nurse?	☐	☐
Any adverse events?	☐	☐

If there were any adverse events, document overleaf.

Signature	
Print name	
Grade	

ENH00897



East and North Hertfordshire NHS
NHS Trust

During the procedure			
Sedation	Propofol ml/hr	Opiate: ml/hr	Other: ml/hr
Paralysis	Rocuronium ☐ mg	Atracturium ☐ mg	Other: mg

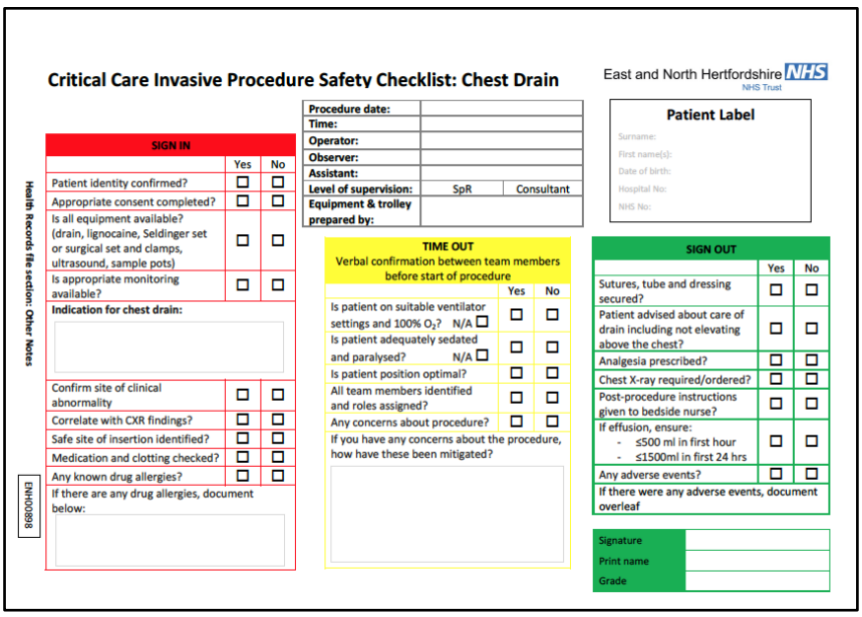
Findings

BALs

Tissue Samples

Additional Comments / Adverse Events

Chest Drain LocSSIP



Critical Care Invasive Procedure Safety Checklist: Chest Drain

East and North Hertfordshire NHS
NHS Trust

Health Records file section: Other Notes

SIGN IN	Yes	No
Patient identity confirmed?	☐	☐
Appropriate consent completed?	☐	☐
Is all equipment available? (drain, lignocaine, Seldinger set or surgical set and clamps, ultrasound, sample pots)	☐	☐
Is appropriate monitoring available?	☐	☐
Indication for chest drain:		
Confirm site of clinical abnormality	☐	☐
Correlate with CXR findings?	☐	☐
Safe site of insertion identified?	☐	☐
Medication and clotting checked?	☐	☐
Any known drug allergies?	☐	☐
If there are any drug allergies, document below:		

Procedure date:	
Time:	
Operator:	
Observer:	
Assistant:	
Level of supervision:	SpR / Consultant
Equipment & trolley prepared by:	

Patient Label
Surname:
First name(s):
Date of birth:
Hospital No:
NHS No:

TIME OUT
Verbal confirmation between team members before start of procedure

	Yes	No
Is patient on suitable ventilator settings and 100% O_2? N/A ☐	☐	☐
Is patient adequately sedated and paralysed? N/A ☐	☐	☐
Is patient position optimal?	☐	☐
All team members identified and roles assigned?	☐	☐
Any concerns about procedure?	☐	☐

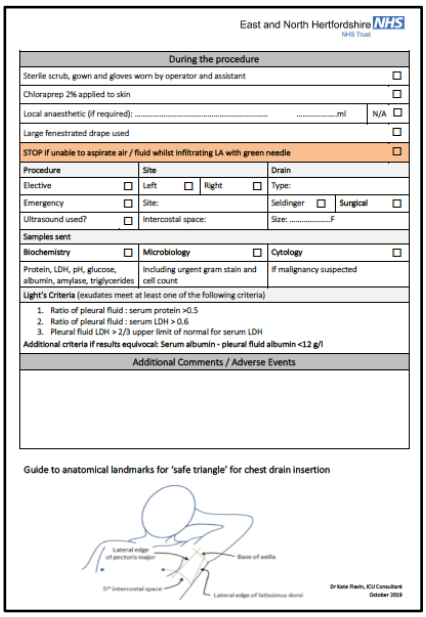
If you have any concerns about the procedure, how have these been mitigated?

SIGN OUT	Yes	No
Sutures, tube and dressing secured?	☐	☐
Patient advised about care of drain including not elevating above the chest?	☐	☐
Analgesia prescribed?	☐	☐
Chest X-ray required/ordered?	☐	☐
Post-procedure instructions given to bedside nurse?	☐	☐
If effusion, ensure: - ≤500 ml in first hour - ≤1500ml in first 24 hrs	☐	☐
Any adverse events?	☐	☐

If there were any adverse events, document overleaf

Signature	
Print name	
Grade	

ENH00898



East and North Hertfordshire NHS
NHS Trust

During the procedure			
Sterile scrub, gown and gloves worn by operator and assistant			☐
Chloraprep 2% applied to skin			☐
Local anaesthetic (if required): ..... ml			N/A ☐
Large fenestrated drape used			☐
STOP if unable to aspirate air / fluid whilst infiltrating LA with green needle			☐
Procedure	**Site**		**Drain**
Elective ☐	Left ☐	Right ☐	Type:
Emergency ☐	Site:		Seldinger ☐ Surgical ☐
Ultrasound used? ☐	Intercostal space:		Size: .....F
Samples sent			
Biochemistry ☐	**Microbiology** ☐		**Cytology** ☐
Protein, LDH, pH, glucose, albumin, amylase, triglycerides	including urgent gram stain and cell count		If malignancy suspected

Light's Criteria (exudates meet at least one of the following criteria)

1. Ratio of pleural fluid : serum protein >0.5
2. Ratio of pleural fluid : serum LDH > 0.6
3. Pleural fluid LDH > 2/3 upper limit of normal for serum LDH

Additional criteria if results equivocal: Serum albumin - pleural fluid albumin <12 g/l

Additional Comments / Adverse Events

Guide to anatomical landmarks for 'safe triangle' for chest drain insertion

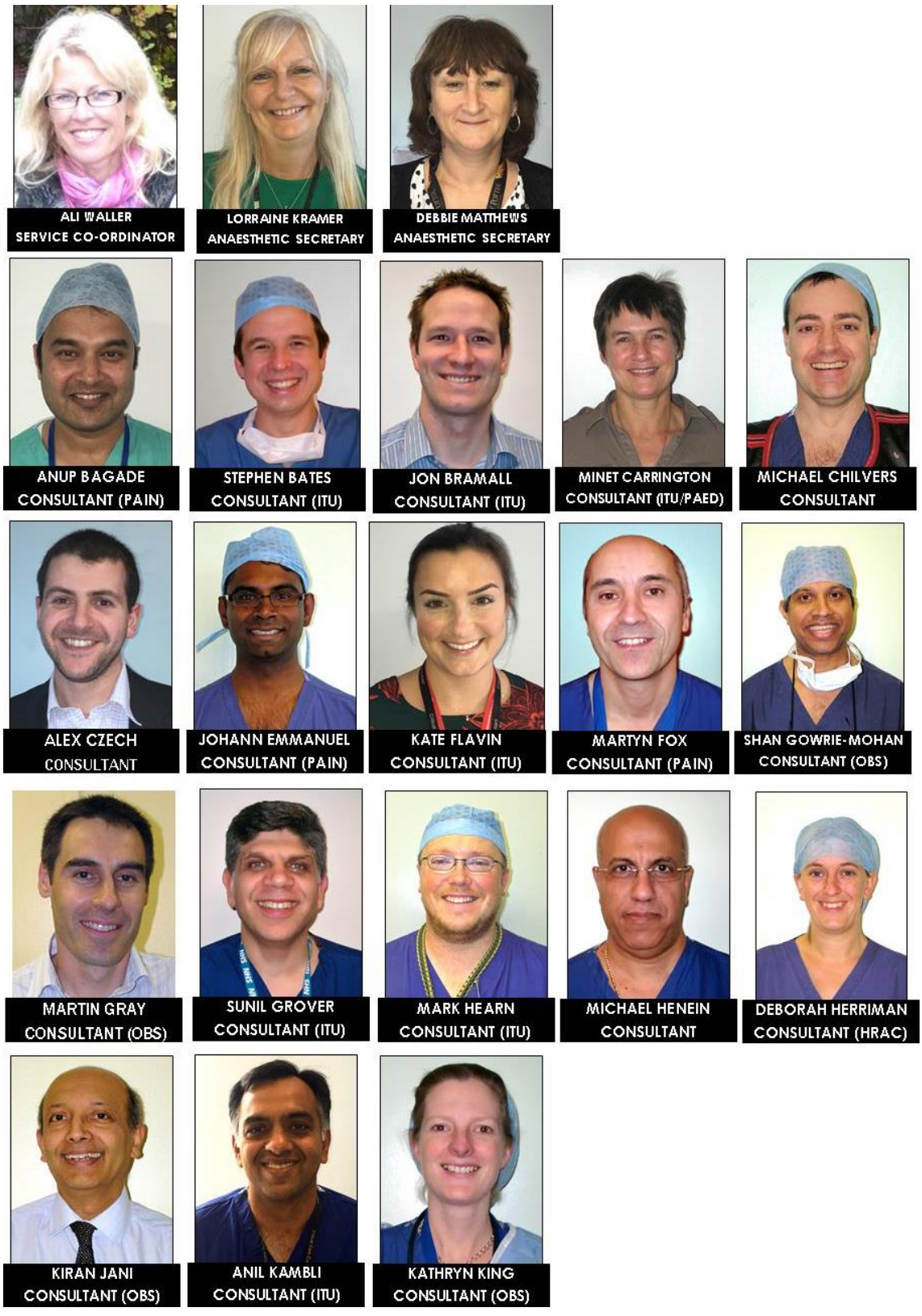
Dr Kate Flavin, ICU Consultant
October 2019

Appendices:
Anaesthetic Department

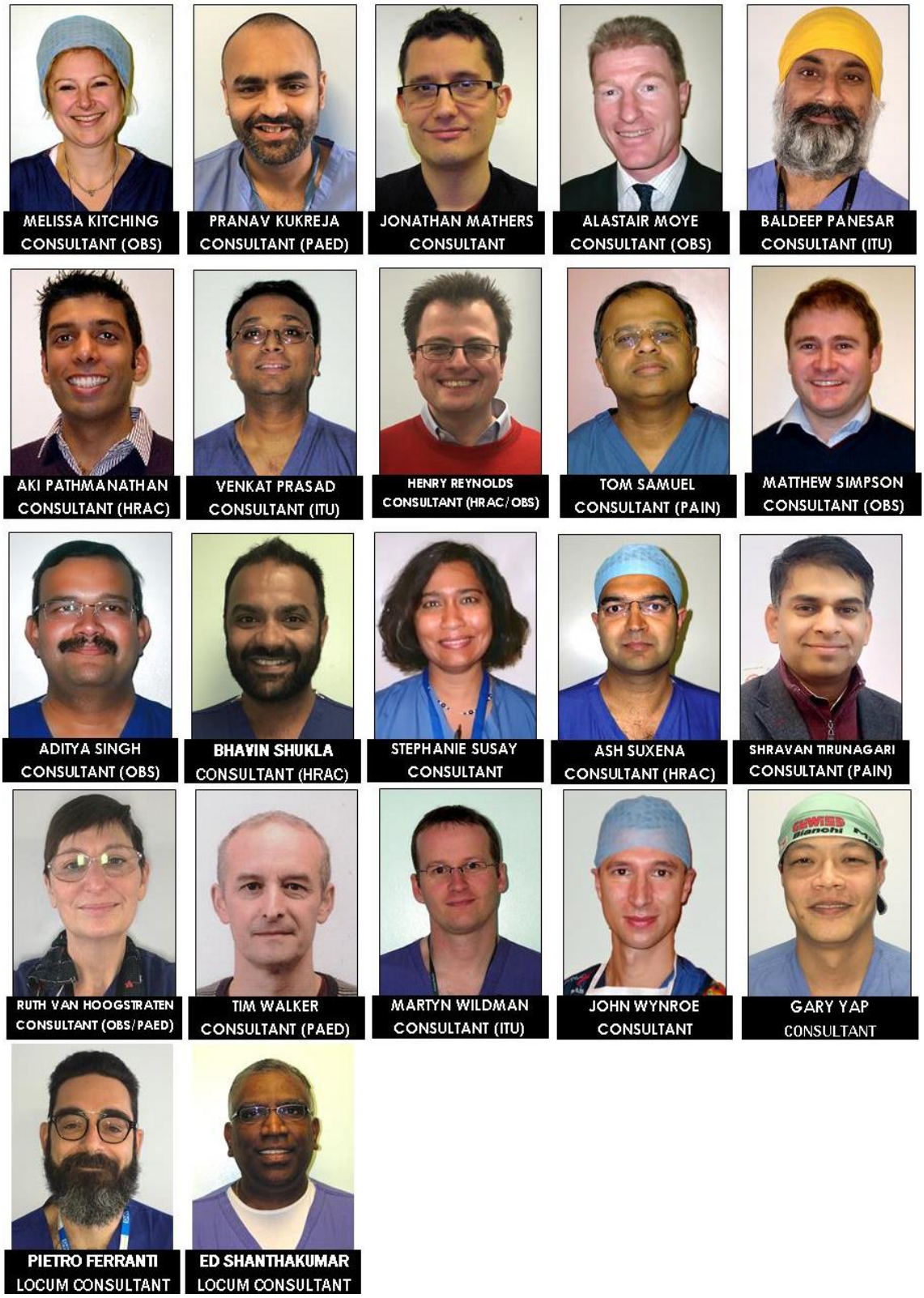
Appendices: Anaesthetic Department

Who's who?!

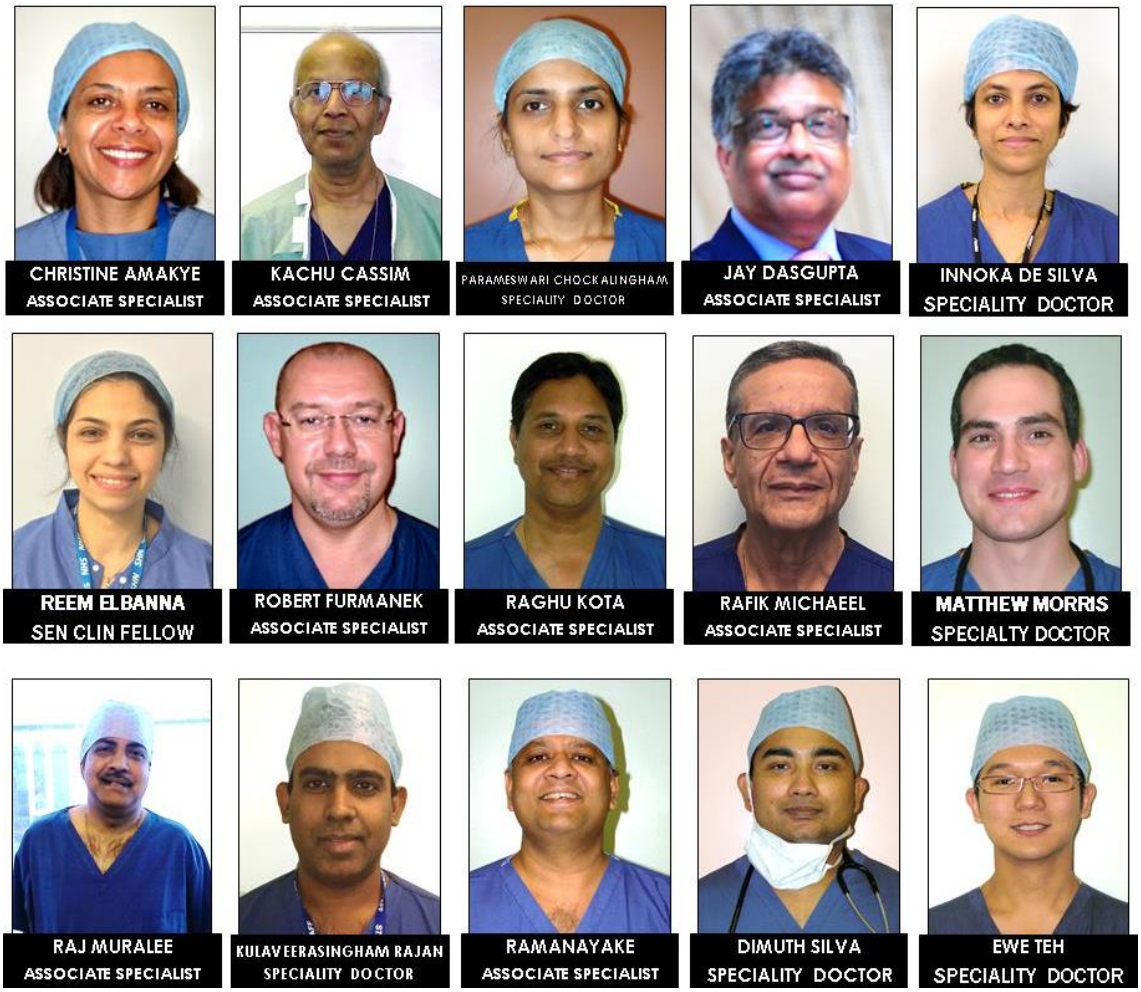
The Service co-ordinators and Consultants



More Consultants!



Associate Specialists, Speciality doctors and Senior Clinical Fellows



Lister Relocation Expenses Process

This was one trainee's experience of requesting relocation expenses. It is included as an indication of what steps must be followed.

	E-mails required
Contact Lister HR: Get relocation expenses form.	**3**
(Do not accept statements like: "EoE or London Deanery provide the forms or payment")	
Complete form & send back to HR	**3**
HR approve form and send to EoE. (Needs chasing)	4
EoE review form. (Need chasing)	2
EoE request previous info of all claims	2
Provide EoE details of all previous jobs (hospitals & dates) and claims	**2**
EoE sign off form and send approval letter. (Needs chasing)	3
Forward approval letter Lister travel department (not HR or payroll)	**1**
Travel dept set-up online expenses SEL account. (Needs chasing)	6
Travel dept send vehicle approval form.	0!
Get line manager (Gavin Bacon) car to sign form + review car insurance docs	**2**
Travel dept approve car on SEL. (Needs chasing)	2
Submit claims on SEL (ensure 3 month restriction removed)	**2 + 2 calls**
Claims approved on SEL by Jodie McElligott. (Needs chasing)	2
Payment made on next pay round.	

It took about 8 months from start to finish and in my case 43 e-mails. However for 9 months on a 1 in 7 rota this resulted in £1619.90 in repayments. (n.b: this sum is taxed).

I hope this helps as a rough guide to other trainees. It is essentially a three stage process, but it's easy to get lost in / beaten by the system if you don't know the process and how much chasing is required.

Further contact numbers

Main Theatre		**Treatment Centre**	
Theatre 1	5911	Theatre 1	8166
Theatre 2	5901	Theatre 2	8181
Theatre 3 & 4	4884	Theatre 3	8174
Theatre 5 & 6	4886	Theatre 4	8171/8172
Theatre 7 Nurse	4784	Theatre 5	8169
Theatres 7 & 8	4885	Theatre 6	8168
Theatre 9	5367	PACU 1	8154
Recovery	5593/4881	PACU2	8130/8158
Pre op	4880	Admission Bay	8198
Coffee Room	5449		
Theatre coordinator	07825932664		
Maternity Unit	5630	**DSU**	
Midwife Station	6168	Nurses Station	5776/5775
Theatre 1	6109	Theatre A	5772
Theatre 2	6110	Theatre B	5774
Recovery	5034	Recovery	5773
Critical Care Unit		**Support Services**	
Critical Care North	4325/4322	Haematology	Bleep 1005/ X 5245
Critical Care Central	4085/5488	Biochemistry	Bleep 4690
Critical Care South	5650/5651	Radiographer	Bleep 5411
Coffee Room	4316	Porter	Bleep 1100/ X5311
Consultants Office	4538		

Appendices:
for Novice Anaesthetists

Appendices for Novice Anaesthetists

Patient pre-assessment

You will receive teaching on pre-assessment, both on the novice course and by consultants and more senior trainees during your time at Lister. However, below is a brief outline of the key features involved in pre-assessing a patient:

Medical history: Patients will hopefully have been seen in pre-assessment clinic prior to coming in (unless they are on the emergency list). Use this assessment or the notes as the basis for further information gathering as appropriate. There are a few particular things that are important for choice of conduct of anaesthesia:

- Make a note of the severity of co-morbidities and anything that makes them worse
- Assess general fitness and exercise tolerance (eg, can they manage a flight of stairs, etc.)
- Do they get reflux? If so, is it well controlled? Is it worse lying down?

Anaesthetic history: Check there have been no problems with GAs in the past (or FHx if N/A). Problems usually relate to PONV or intolerance to certain meds but can be more significant (allergic reaction, airway difficulties, etc)

Drug allergies: What exactly is the reaction if there is one

Are they starved: >2 hours for clear fluids, >6 hours for anything else (milk in tea counts as food!)

Airway assessment: This takes a long time to get a feel for and you'll get teaching on it. Essentially the purpose is to make a judgement as to whether you are going to be able to (i) Bag ventilate the patient, (ii) Visualise the glottis and (iii) Instrument the airway. The consultant will make their own assessment (make sure they know you're a CT1!).

Assessment includes (but is not limited to):

- How wide can they open their mouth?
- Can they protrude their jaw? Is it recessive? Do they have buck teeth?
- Mallampati score?
- Can they extend their neck?
- What is the distance between the thyroid cartilage and tip of their chin (thyromental distance)?
- Are there any loose teeth/caps/crowns/dentures? Any missing or damaged teeth?
- Sometimes there is an old anaesthetic chart in the notes - if there is, were they easy to ventilate and is there an intubation grade noted?

Investigations: Are blood results acceptable? Has the patient got a G&S (if appropriate)? Has the patient got an ECG if appropriate (e.g. any cardiovascular issues)? Other appropriate investigations will depend on other co-morbidities

Patient size: There should be a weight and height in the pre-assessment book. These are potentially important for airway and anaesthetic choice and for TIVA.

Consent and explanation: Generally, the choice for surgery is one of:

1) LA +/- sedation
2) Regional anaesthesia or neuraxial block (spinal, epidural, CSE) +/- sedation +/- GA
3) GA +/- local anaesthetic (or nerve block)

Most surgeries will be straightforward GAs but if you're not sure, you can either check with the consultant (ideal), or let the patient know about potential options. Explain what the patient can expect (eg, gown, anaesthetic room, monitoring, cannula, oxygen, anaesthetic, recovery. Discuss the risks. ***For GAs***, most people will discuss: PONV, pain and analgesia, sore throat and dental damage. ***For blocks***, most people will discuss: failure, headache (if neuraxial - PDPH), infection and nerve damage as well as motor block and duration of numbness.

Flag any concerns to the consultant. Expect to be slow to begin with!

Anaesthetic checklist

It is important when giving an anaesthetic to have some sort of system to make sure that the patient is safe and that you are not missing anything that may be important. Most anaesthetists will make an A-C type of assessment, so that they are able to quickly and systematically assess a patient. Everyone does this slightly differently but the important thing is that you develop a system so that, particularly early on in your career and under times of stress, you are able to give a safe anaesthetic. Below is an example (A-M) checklist that you might run through:

A	**Airway**	Appropriate airway? Patent airway?	*Patient's own, adjuncts, LMA, ETT, Tracheostomy* *Check: EtCO2 trace, misting of circuit, pattern of breathing*
B	**Breathing**	Oxygenation… Ventilation…	*Check: Sats, FiO2, PEEP, Adequate flow* *Check: mode (SV, PCV, VCV..), RR, TV, EtCO2 (+trace), Peak pressure*
C	**Circulation**	Blood Pressure… Heart Rate… ECG morphology… (CO vs TPR…)	*Appropriate pressure?* *Appropriate rate?* *Rhythm? Change compared to baseline? Ischaemia?* *CO monitoring needed? [Remember: (MAP -CVP) = (HR x SV) x TPR]*
D	**Disability**	Adequate anaesthesia? Muscle relaxants? Glucose monitoring…	*Patient behaviour, EtAA (MAC), Modelled plasma/brain drug levels* *Required for airway management or to facilitate surgery?* *Monitor if required*
E	**Exposure**	Temperature… Warming needed? Patient position? Pressure areas?	*Measure every 30 mins* *Bair hugger, under patient heating, warmed fluids* *Comfortable and neutral* *Padded and protected. Eyes taped*
F	**Fluids**	Input… Output…	*Appropriate fluids running? Volume to give? Goal-directed therapy?* *Catheter needed? UO measurement?*
G	**Gastro**	Starvation status… Nasogastric tube… Antiemetics… Laxatives…	*Should be 6 hours for food, 2 hours for clear fluids* *Required for procedure or post-op?* *For post-op* *Required post-op?*
H	**Haematinics**	Hb, Plts, INR G&S / Cross match U&Es, others	*Need for transfusion?* *Available if required?* *Need for electrolyte management?*
I	**Infection**	Current antibiotics ABX prophylaxis WCC / CRP	*If so, why and when last?* *As per protocol (Microguide)? Surgeons happy? Required post-op?* *Evidence of active infection or inflammation?*
L	**Lines**	Sufficient IV access? Art / CVC needed?	*Bleeding or fluids shifts expected? Infusions needed intra/post-op?* *Need for close BP monitoring, blood sampling or central meds?*
M	**Medications**	Allergies? Need for blocks? Analgesia VTE prophylaxis	*If so, what reaction?* *LA / Regional /Neuraxial required?* *Oral vs IV vs LA infusions* *LMWH, TEDS, Flowtrons prescribed as per risk profile?*

Inducing General Anaesthesia: the absolute basics

By the time the patient arrives in the anaesthetic room, there will have been a team brief, the patient will have been seen and consented by both surgical and anaesthetic teams and the anaesthetic team will have agreed amongst themselves how the GA will be conducted. GA drugs (including emergency ones) will have been drawn up and the machine checks confirmed.

The following is how a typical GA may be conducted once a patient arrives in the anaesthetic room:

Pre-induction:

1) The patient removes the outer gown and lies on the trolley, taking care not to sit on their gown.
2) The ***WHO checks*** are completed - confirming important details and reducing the chance of surgical never events!
3) ***AAGBI standard monitoring*** is attached to the patient: BP cuff, Sats probe and ECG monitoring, capnography attached to the breathing circuit
4) A ***cannula*** is inserted in to the most appropriate vein (normally avoiding the ACF)
5) The patient is then ***pre-oxygenated*** with high flow 100% O2 via the facemask, in order to increase the time available before desaturation occurs
6) Small talk generally continues!

Induction of anaesthesia:

1) Normally the trainee will take the 'top end' and hold the mask, taking care not to make the patient feel claustrophobic with hands to close to the face
2) The senior person in the room generally gives the drugs
3) Fentanyl (can be another opioid) is often given first, to aid with suppression of laryngeal reflexes (though it takes 3-5 mins for this to hit peak effect)
4) Once the opioid takes effect (sometimes straight after being given), propofol is given. Often this is titrated to effect but sometimes a judgement is made about the appropriate dose!
5) Once the patient is asleep - they no longer respond and don't mind a good jaw thrust - the person at the top-end will usually try to ventilate the patient. Giving a jaw thrust in to the mask (+/- a chin lift) and making a tight seal, the APL valve is closed (to about 15-20cm H20 - but adjusted to feel) and attempts at ventilation are made
6) At the same time as ventilating the patient, the volatile (often sevoflurane) is turned on (to around 4% on the dial - depending on age, etc.) in order to maintain anaesthesia, as the propofol will already be redistributing from the blood stream in to vascular rich and fatty tissues
7) If there is any difficulty in ventilating the patient, an adjunct (such as a guedel) can be used to help maintain airway patency. Sometimes ventilation can be difficult and is occasionally a two person job (one to hold the mask, the other to squeeze the bag)
8) Once the patient is adequately anaesthetised (usually quite quick) the airway can be instrumented. An LMA can be inserted or a tracheal tube inserted. For the insertion of a tracheal tube, muscle relaxant is normally given and time given for this to take effect (45-180 seconds, depending on relaxant and dose)
9) Once the airway is placed, adequate ventilation is confirmed with chest movement, misting of the airway and EtCO2 readings. If the airway is inadequate, it is adjusted or removed and other steps taken to secure the airway

Post-induction:

1) Whilst concentrating on the airway, the senior person on the list will be ***monitoring the patient*** and treating low blood pressure if this occurs. As a general rule, anaesthesia causes vasodilation and metaraminol is a reasonable first choice (as it is primarily a vasoconstrictor). However, metaraminol can cause a reflex bradycardia, so if the heart rate is low ephedrine is often used
2) Once the airway is secured (with tie or tape), the ventilator can take over from the bag, or the patient allowed to breathe spontaneously depending on technique. ***Continuously re-assess the patient*** (A-C) and concentrate on other procedures that might be necessary, such as larger drips, invasive lines, temperature probe, throat pack or asleep blocks (the list is long)
3) Once the patient is ready, they can be transferred in to theatre, connected to the theatre ventilator and a full check of patient stability and required jobs can be made, often using a cognitive aid (see Anaesthetic checklist)

Paediatric anaesthesia: some very brief notes

Anaesthesia for paediatrics is a sub-specialist area and a significant experience is required to anaesthetise children safely. As such, you will be heavily supervised when anaesthetising a child.

What can you usefully do if there is a child on the list?

- Pre-assessment: do this with a senior the first few times until you get a feel for the conversation. Important information to gather includes: the ***weight*** of the child, problems around the time of birth (e.g. SCBU stay, intubation) and how co-operative the child may be with anaesthesia!
- Write down a list of emergency drug doses, including volumes. You don't want to be doing this in a hurry – they all involved weight-based calculations
  - For example: for a 12 kg child: "Atropine 20 mcg/kg = 240 mcg = 0.4 ml"
- Write down a list of other things you might need in an emergency. Use ***WET FLAG*** (see below)

The table below outlines some of the commonly drugs used in paediatrics. The following drugs should be drawn up as emergency drugs:

- **Suxamethonium**: for both intubation and laryngospasm. Draw up the exact dose for each child
- **Atropine**: for bradycardia
- **Propofol**: for laryngospasm and inadequate depth of anaesthesia

	Indication / comments	Concentration [with syringe size to use]	Dose (typical)
Propofol	Induction Can cause pain on injection	10 mg/ml [10 - 20ml]	5-7 mg/kg (titrate to effect)
Atracurium	Muscle relaxant (non-depolarising)	10 mg/ml [5 ml or 10 ml]	0.5 mg/kg
Suxamethonium	Muscle relaxant (depolarising)	50 mg/ml [1 ml or 2 ml]	1.5 – 2 mg/kg
Atropine	To treat bradycardia (bradycardia is normally 2° hypoxia)	600 µg/ml [1 ml]	20 µg/ml
Fentanyl	Opioid	50 µg/ml [1 ml or 2 ml]	1 µg/kg
Morphine	Opioid	1 mg / ml [10ml] (dilute 10 mg/ml to 10 ml with saline)	0.1 – 0.2 mg/kg
Ondansetron	Anti-emetic	2 mg/ml [2 ml]	0.15 mg/kg
Dexamethasone	Anti-emetic	3.3 mg /ml [2 ml]	0.15 mg/kg
Paracetamol	Analgesic Check not given on ward	1g / 100ml [comes in container]	15 mg/kg
Diclofenac	Analgesic Unlicensed but widely used	75 mg /ml [Dilute in at least 100 ml] Give slowly	1 mg/kg

WET FLAG:

Weight :	(Age + 4) x 2 (if unknown)
Energy:	4 J/kg (defibrillation)
Tube size:	Diameter: Age/4 + 4 (uncuffed). Length: Age/2 + 12 (oral)
Fluid bolus:	20 ml/kg (fluid resuscitation)
Lorazepam:	0.1 mg/kg (seizure)
Adrenaline:	0.1 ml/kg of 1:10000 adrenaline (cardiac arrest)
Glucose:	2 ml/kg of 10% dextrose

For more information, the CATS website is excellent: https://cats.nhs.uk/emergency-tools/ (see "IN A HURRY").

Machine checks: AAGBI guidelines

The AAGBI guidelines outline how to do a full machine check (these should be on the side of every anaesthetic machine), which you will need to learn. You will be taught how to do an abbreviated machine check by people you work with. Two good resources about machine checks are:

https://portal.e-lfh.org.uk Background information which is found on the e-LH website
https://youtu.be/Z3FyxJRkycl Demonstration by the consultant who used to sign off this competency!

Check self-inflating bag available	
Perform manufacturer's (automatic) machine check	
Power supply	• Plugged in • Switched on • Back-up battery charged
Gas supplies and suction	• Gas and vacuum pipelines – 'tug test' • Cylinders filled and turned off • Flowmeters working (if applicable) • Hypoxic guard working • Oxygen flush working • Suction clean and working
Breathing system	• Whole system patent and leak free using 'two-bag' test • Vaporisers – fitted correctly, filled, leak free, plugged in (if necessary) • Soda lime - colour checked • Alternative systems (Bain, T-piece) – checked • Correct gas outlet selected
Ventilator	• Working and configured correctly
Scavenging	• Working and configured correctly
Monitors	• Working and configured correctly • Alarms limits and volumes set
Airway equipment	• Full range required, working, with spares

THE TWO-BAG TEST

A two-bag test should be performed after the breathing system, vaporisers and ventilator have been checked individually

i. Attach the patient end of the breathing system (including angle piece and filter) to a test lung or bag.

ii. Set the fresh gas flow to 5 $l.min^{-1}$ and ventilate manually. Check the whole breathing system is patent and the unidirectional valves are moving. Check the function of the APL valve by squeezing both bags.

iii. Turn on the ventilator to ventilate the test lung. Turn off the fresh gas flow, or reduce to a minimum. Open and close each vaporiser in turn. There should be no loss of volume in the system.

CHECKS BEFORE EACH CASE

Breathing system	Whole system patent and leak free using 'two-bag' test Vaporisers – fitted correctly, filled, leak free, plugged in (if necessary) Alternative systems (Bain, T-piece) – checked Correct gas outlet selected
Ventilator	Working and configured correctly
Airway equipment	Full range required, working, with spares
Suction	Clean and working

Useful Information from elsewhere

Useful Websites

- www.rcoa.ac.uk this is the college website
- http://www.e-lfh.org.uk/projects/ela/index.html this is the e learning website there is a plethora of online tutorials on this website, really useful! Also a selection of college MCQs are on this site. MCQs from this site are used in the exam, sometimes word for word!
- www.frca.co.uk a great website with useful exam information, past questions, revision courses and reading lists
- http://www.aagbi.org/ this the Association of Anaesthetists of Great Britain and Ireland, not only does it have guidelines on anaesthetic practice it has lots of useful information on training
- http://www.ficm.ac.uk/ this the website for the Faculty of Intensive Care Medicine
- http://www.accsuk.org.uk/ this is a useful resource for ACCS trainees

Useful iPhone Apps

- CLWRota – departmental rota (you will be provided a login upon starting)
- iDAS – difficult airway society guidelines
- BJA Journals – iPhone access to British Journal of Anaesthesia
- Induction – provides all the bleep and extensions for the majority of the hospital
- MicroGuide – the trust antibiotic guidelines

Useful Books

There are a number of good books that can be used to learn about anaesthesia and prepare for the primary exam. Like most educational resources, the choice of materials are a matter of taste and individual preferences, but below are a selection of books that trainees have found particularly useful in the past:

Fundamentals of Anaesthesia. Edited by Tim Smith, Colin Pinnock, Ted Lin, Robert Jones. **ISBN**: 0521692490
A lot of useful information!

Pharmacology for Anaesthesia and Intensive Care. Tom Peck, Sue Hill. **ISBN**: 1107657261
Sue Hill writes the exam so it's the unofficial core pharmacology text book

Drugs in Anaesthesia and Intensive Care. Oxford University Press. **ISBN**: 0199599386
A great quick reference on most anaesthetic drugs

Basic Physics and Measurement in Anaesthesia. Gavin Kenny, Paul Davis. **ISBN**: 0750648287
All things physics!

Essentials of Anaesthetic Equipment. Baha Al-Shaikh, Simon Stacey. **ISBN**: 0702049549
A comprehensive book on equipment with clear pictures and diagrams

Physics, Pharmacology and Physiology for Anaesthetists: Key Concepts for the FRCA. Cross, Plunkett **ISBN:** 1107615887
Contains lots of good diagrams for the dreaded SOE part of the Primary!

Guide to the FRCA Examination - The Primary
This is the Royal College text on the Primary!

Useful Courses

There are several courses that will help you through your anaesthetic training. A select list is below:

1. START Course – transfer course done at Anglia Ruskin University. This is the course recommended by the deanery
2. ATLS
3. APLS
4. Mersey Course – this is for the Primary FRCA. The MCQ course is very popular and trainees often say this course helped them pass!

As well as formal courses there is monthly regional teaching which is based at hospitals in the region (Stevenage, Luton, Bedford, Watford and Peterborough). This is mainly focussed on common topics assessed in the Primary FRCA. Departmental teaching for both ACCS and Anaesthetic CTs takes place weekly on a Wednesday afternoon.

Study leave is relatively easy to get (6 weeks notice required) and you do receive a study allowance each year. Getting the money is somewhat harder to get and you need to make sure you jump through the multiple hoops!

Appendices:
Obstetric Anaesthesia

Appendices: Obstetric Anaesthesia

Major Obstetric Haemorrhage (MOH)

To activate a Major Obstetric Haemorrhage (MOH) call, please dial '5555' to inform the switchboard.
An MOH call is put out for blood loss of 1500ml and ongoing.

The following people will automatically receive the MOH bleep:

- Obstetric Registrar
- Obstetric SHO
- Obstetric Anaesthetist
- Obstetric ODP
- Senior Anaesthetic registrar
- Porter

The following people are NOT automatically contacted and it is **your** responsibility to contact them (or delegate this job to another member of the team e.g. ODP / midwives):

- ***Anaesthetic Consultant:*** They **MUST** be informed even if you do not need their attendance and please document the name of the consultant on the anaesthetic chart
- ***Transfusion lab:*** inform them of the details of the patient so that they can start preparing blood products for you (Note: **NOTHING** will be automatically released from blood bank unless specifically requested)
- ***Haematology Consultant:*** contact via switchboard for advice
- ***Obstetric Consultant***

Please refer to the 'guidelines' section for the full version (Guideline 5.2 Management of Major Obstetric Haemorrhage) for further details.

Difficult intubation guidelines for Obstetrics: DAS

For more details see: https://das.uk.com/guidelines/obstetric_airway_guidelines_2015

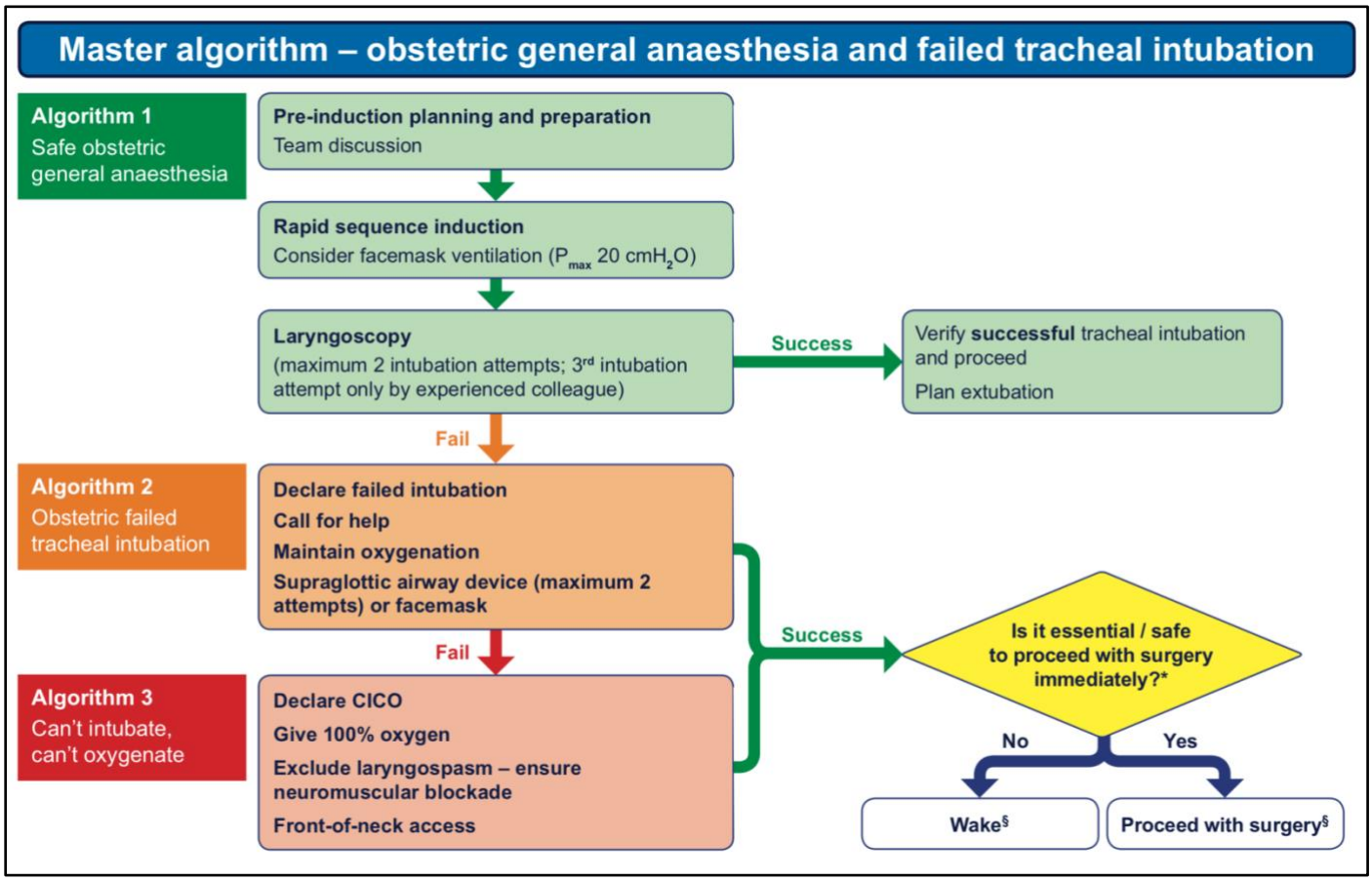


Table 1 – proceed with surgery?

Factors to consider		WAKE	←	→	PROCEED
Before induction	**Maternal condition**	• No compromise	• Mild acute compromise	• Haemorrhage responsive to resuscitation	• Hypovolaemia requiring corrective surgery • Critical cardiac or respiratory compromise, cardiac arrest
	Fetal condition	• No compromise	• Compromise corrected with intrauterine resuscitation, pH < 7.2 but > 7.15	• Continuing fetal heart rate abnormality despite intrauterine resuscitation, pH < 7.15	• Sustained bradycardia • Fetal haemorrhage • Suspected uterine rupture
	Anaesthetist	• Novice	• Junior trainee	• Senior trainee	• Consultant / specialist
	Obesity	• Supermorbid	• Morbid	• Obese	• Normal
	Surgical factors	• Complex surgery or major haemorrhage anticipated	• Multiple uterine scars • Some surgical difficulties expected	• Single uterine scar	• No risk factors
	Aspiration risk	• Recent food	• No recent food • In labour • Opioids given • Antacids not given	• No recent food • In labour • Opioids not given • Antacids given	• Fasted • Not in labour • Antacids given
	Alternative anaesthesia • **regional** • **securing airway awake**	• No anticipated difficulty	• Predicted difficulty	• Relatively contraindicated	• Absolutely contraindicated or has failed • Surgery started
After failed intubation	**Airway device / ventilation**	• Difficult facemask ventilation • Front-of-neck	• Adequate facemask ventilation	• First generation supraglottic airway device	• Second generation supraglottic airway device
	Airway hazards	• Laryngeal oedema • Stridor	• Bleeding • Trauma	• Secretions	• None evident

Patient Controlled Epidural Analgesia

We provide a patient controlled epidural analgesia (PCEA) service. Please do not let midwives persuade you to write up 'midwife bolus top-up' method (which we believe is inferior to PCEA). The laminated guide for the programming of the PCEA pump can be found attached to the pump. It is rather easy to use. If you are still unsure, please contact the Acute Pain Team (during working hours only) or the consultants for advice. The anaesthetist needs to give the first dose. Bolus regime is Bupivacaine 0.1% + Fentanyl 2 µg/ml, with a bolus dose 9 ml and 15 minutes lockout.

When you commence a labour epidural please fill out an anaesthetic chart, and leave this with the notes. This makes it easier to assess the woman quickly, if she is later rushed to theatre.

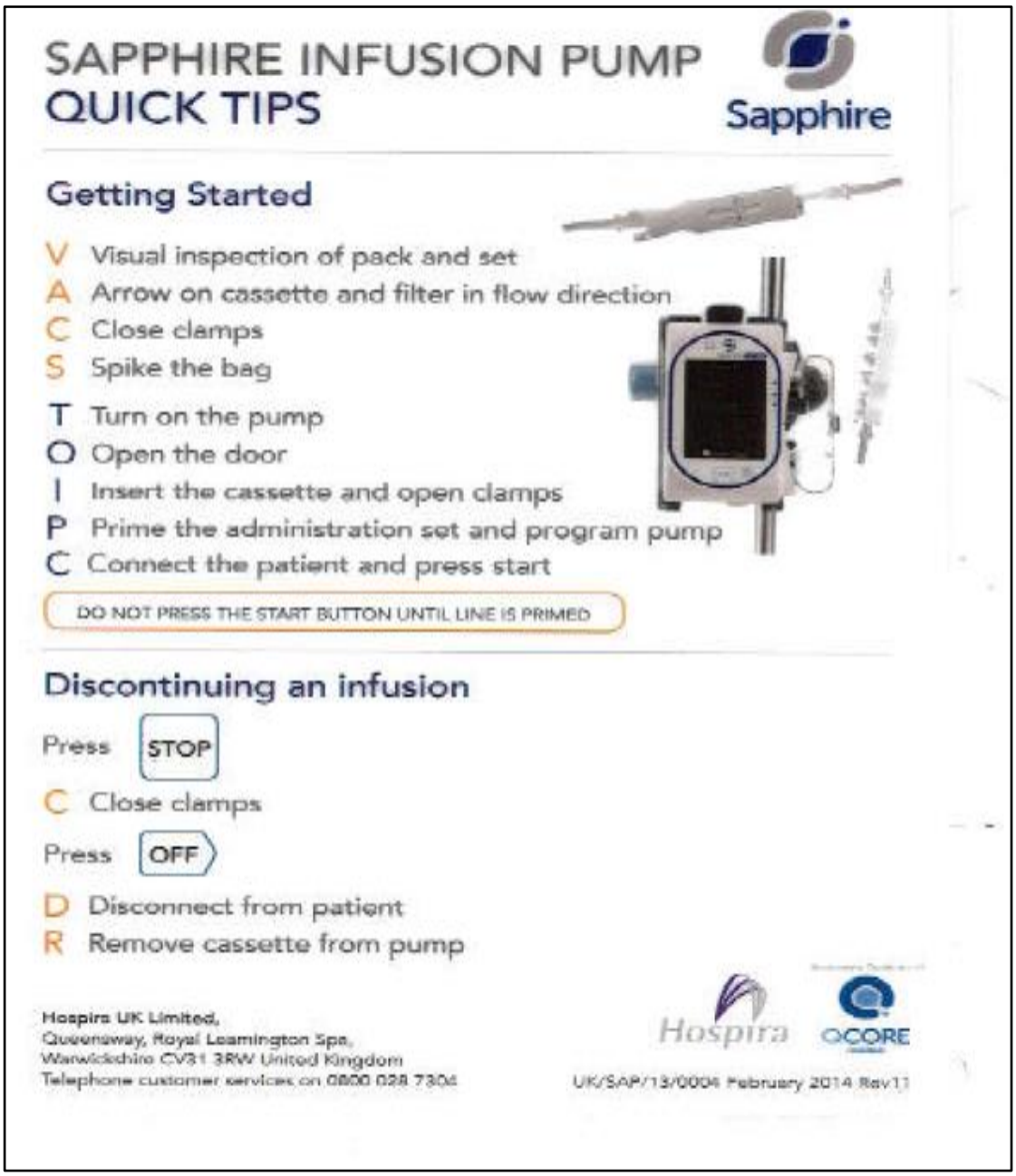


Figure 1: PCEA pumps, quick tips I

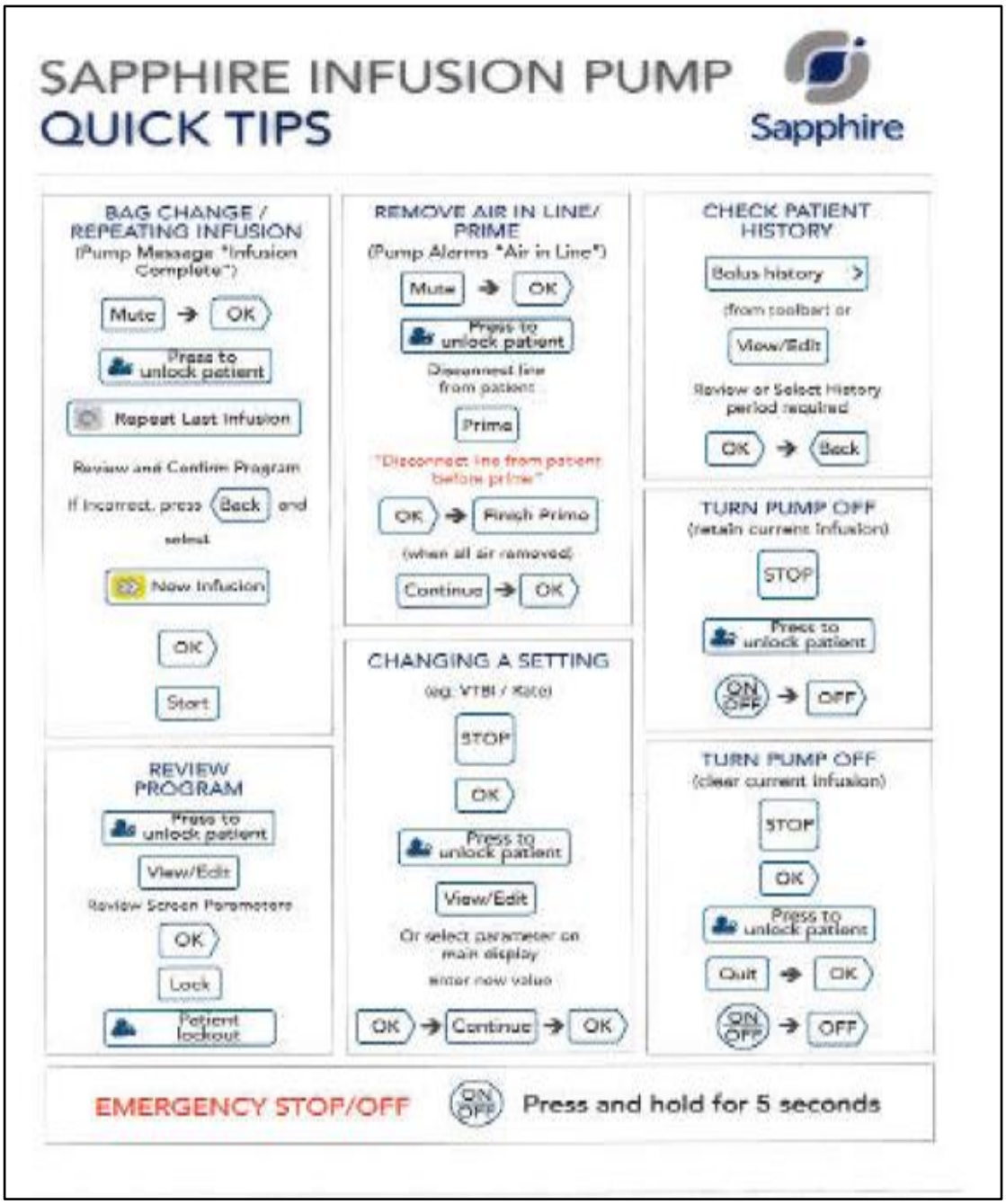


Figure 2: PCEA pumps, quick tips II

Remifentanil PCA in Labour

Occasionally, we provide remifentanil PCA for analgesia in labour for very carefully selected patients. This group of patients would usually have been seen by Dr Kitching in the 'high risk' clinic. Remifentanil is not licensed for this use, however it has been well described as a safe alternative to epidural analgesia for those in whom an epidural is contraindicated (e.g. certain spinal problems, low platelets, recent heparin, coagulation disorders, etc).

Protocol for the use of Patient Controlled Remifentanil for analgesia in labour

Technique:

- Prepare Remifentanil 20 micrograms/ml by dissolving 2mg in a 100ml bag of 0/9% NaCl (Remifentanil is a stock item in the Main theatre recovery CD cupboard)
- Use the dedicated Sapphire Remifentanil PCA pump that is kept in labour ward theatres
- Instruct the patient to press for a dose as soon as they are aware of a contraction
- The pump is programmed to give a **bolus dose of 20μg**
- The **lockout period is set at 3 min** – the aim is to allow a dose with each contraction
- Anticipate a consumption of 300μg – 1000μg per hour (6 – 20ml)
- If side effects are severe, the bolus dose should be decreased or PCA discontinued
- **Co-administration of Entonox is permitted**

Note: Use a dedicated (separate) intravenous line and make sure it is well secured. This IV line should not be used for anything else. Using a PCA giving set attached to a drip is **NOT** recommended as this slows administration resulting in a delayed onset of analgesia. This makes timing the dose very difficult and the patients tend to get the peak effect between contractions, resulting in more sedation. Also once the PCA is discontinued, the dedicated cannula must be removed, without flushing, to prevent an inadvertent bolus of remifentanil being delivered.

Monitoring:

- A Pulse Oximeter **must be used continuously** throughout labour
- Oxygen is recommended via nasal cannulae
- Naloxone should be prescribed and immediately available
- The patient should be continuously observed BY THE MIDWIFE. ***One to one care is mandatory at all times***. If this is not possible then this drug **CANNOT** be used
- Be alert for opioid side-effects: over-sedation, respiratory depression, respiratory arrest (rare)
- The anaesthetist should observe the initial effects of the PCA. Thereafter, the anaesthetist should visit the patient frequently. The anaesthetist must expect to have to spend more time with this patient than with a typical epidural patient, **BUT THE ANAESTHETIST DOES NOT NEED TO STAY WITH THE PATIENT AT ALL TIMES**
- Do **NOT** alter the loading dose
- The consultant anaesthetist on call must be informed when starting this PCA
- Please let Dr Kitching know when a Remifentanil PCA has been used and leave the patient details including the prescription form in her pigeon hole
- Record this patient in the Anaesthesia Register on Labour Ward, and follow up as usual

Cell Salvage

Currently the cell saver in main theatres can be used electively on a named patient basis for Jehovah's Witnesses and other groups unable to receive blood. This will be mainly Elective Caesarean deliveries taking place in main theatres by prior arrangement.

There is no emergency provision for cell salvage at present.

Important Equipment List

This is a list of important equipment kept in the labour ward. This list is by no mean exhaustive. Please familiarise yourself with this equipment and be prepared to use them whilst on duty.

- **Anaesthetic machine**: drager primus
- **Airway trolley**: selection of blades, McCoy, Airtraq, Supraglottic airways
- **Syringe drivers / pumps**: use these for phenylephrine / insulin infusion
- **Infusion pumps**: these are typically used for the infusion of oxytocin and are usually set up by midwives / ODP
- **Fluid warmers**: in theatre
- **Bair hugger**: in theatre
- **Sequential compression device** (i.e. flowtrons): in theatre
- **Haemacue**: in 'anaesthetic' shelf in theatre
- **Glucometer**
- **PCEA pumps**: these are kept in 'clean utility' room with laminated instruction cards
- Theatre procedure trolleys: one in each theatre, for spinal / CSE in theatre, stocked by ODP
- **Labour epidural trolleys**: these are found in the main delivery suite corridor and should be stocked by midwives/CSW
- **Manujet**
- **Oxford Help Pillow**
- **MAC Video Laryngoscope** (McGrath): normal blades size 3 and 4 and difficult airway blade
- **Ambu A-scope**: fibreoptic disposable scope
- **THRIVE**: Transnasal Humidified Rapid Insufflation Ventilatory Exchange – can be used for supplemental oxygenation during induction of anaesthesia for high-risk, high BMI women, or those with anticipated airway difficulty
- **Ultrasound machine**: for central line/block placement (theatre 1)

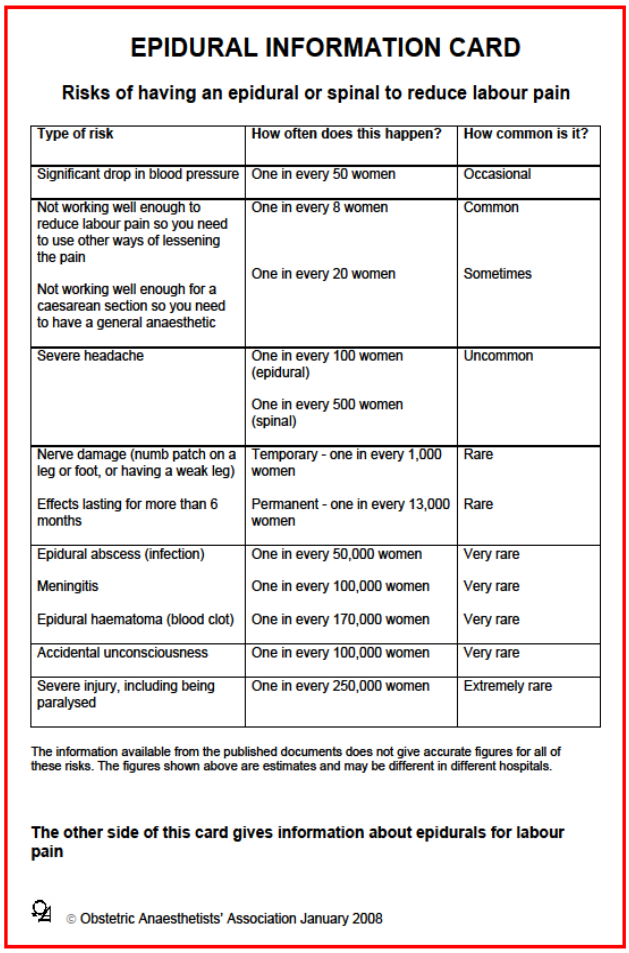
The following equipment may be 'borrowed' from main theatre (with permission) if necessary:

- **MH anaesthetic machine**
- **'Level 1 rapid infusor'**
- **PCA pump**: for remifentanil (in labour) or morphine (post-op) This is kept in the drugs room in recovery
- **Accuvein** vein finder

If you need to transfer a patient to critical care, please borrow the transfer monitor & OxyLog ventilator from ITU. 'Inotrope' pumps may also be borrowed from ITU if required.

OAA Epidural Information Card

The OAA produced a very useful information card (double-sided), the first side briefly explains the epidural procedure, and the reverse includes a table with risks of regional anaesthesia. We have placed laminated copies of this in each of the delivery rooms so that women who lack knowledge about epidurals can read it during the early stages of labour when they are more able to understand the information. There are also some spare copies in the same drawer of the epidural prescription forms. Please note that in the OAA website, there are such cards in various other languages, which can be downloaded and printed if necessary: https://www.labourpains.com/International_Translations



EPIDURAL INFORMATION CARD

Risks of having an epidural or spinal to reduce labour pain

Type of risk	How often does this happen?	How common is it?
Significant drop in blood pressure	One in every 50 women	Occasional
Not working well enough to reduce labour pain so you need to use other ways of lessening the pain	One in every 8 women	Common
Not working well enough for a caesarean section so you need to have a general anaesthetic	One in every 20 women	Sometimes
Severe headache	One in every 100 women (epidural) One in every 500 women (spinal)	Uncommon
Nerve damage (numb patch on a leg or foot, or having a weak leg)	Temporary - one in every 1,000 women	Rare
Effects lasting for more than 6 months	Permanent - one in every 13,000 women	Rare
Epidural abscess (infection)	One in every 50,000 women	Very rare
Meningitis	One in every 100,000 women	Very rare
Epidural haematoma (blood clot)	One in every 170,000 women	Very rare
Accidental unconsciousness	One in every 100,000 women	Very rare
Severe injury, including being paralysed	One in every 250,000 women	Extremely rare

The information available from the published documents does not give accurate figures for all of these risks. The figures shown above are estimates and may be different in different hospitals.

The other side of this card gives information about epidurals for labour pain

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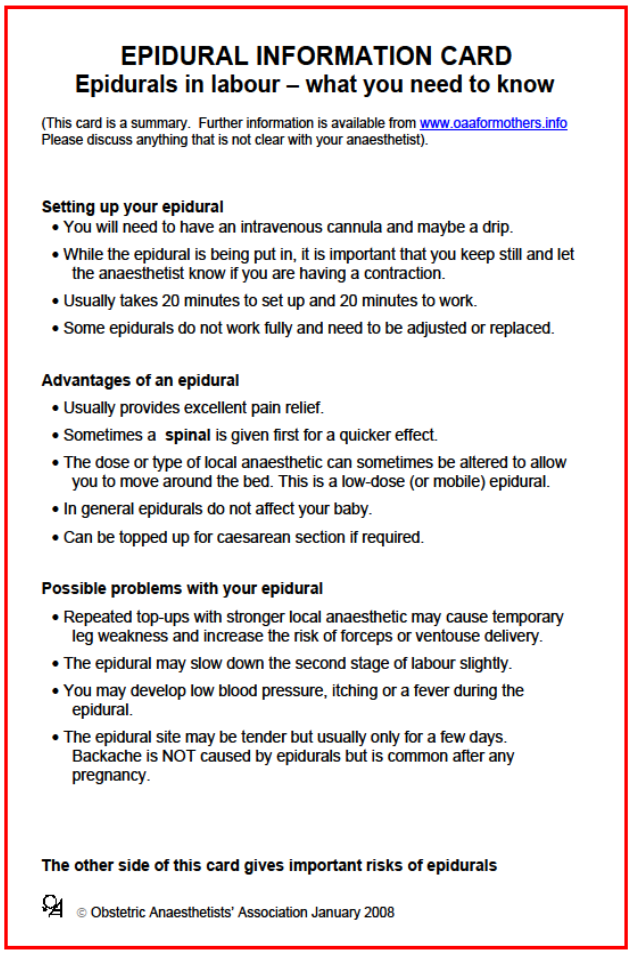

EPIDURAL INFORMATION CARD
Epidurals in labour – what you need to know

(This card is a summary. Further information is available from www.oaaformothers.info
Please discuss anything that is not clear with your anaesthetist).

Setting up your epidural

- You will need to have an intravenous cannula and maybe a drip.
- While the epidural is being put in, it is important that you keep still and let the anaesthetist know if you are having a contraction.
- Usually takes 20 minutes to set up and 20 minutes to work.
- Some epidurals do not work fully and need to be adjusted or replaced.

Advantages of an epidural

- Usually provides excellent pain relief.
- Sometimes a **spinal** is given first for a quicker effect.
- The dose or type of local anaesthetic can sometimes be altered to allow you to move around the bed. This is a low-dose (or mobile) epidural.
- In general epidurals do not affect your baby.
- Can be topped up for caesarean section if required.

Possible problems with your epidural

- Repeated top-ups with stronger local anaesthetic may cause temporary leg weakness and increase the risk of forceps or ventouse delivery.
- The epidural may slow down the second stage of labour slightly.
- You may develop low blood pressure, itching or a fever during the epidural.
- The epidural site may be tender but usually only for a few days. Backache is NOT caused by epidurals but is common after any pregnancy.

The other side of this card gives important risks of epidurals

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OAA High BMI Leaflet

This leaflet has been produced by the OAA to give information to pregnant women with a high body mass index. It is self-explanatory and can be downloaded from the OAA website: https://www.labourpains.com/assets/_managed/cms/files/A4%20High%20BMI%20Leaflet.pdf

Summary

If your BMI is above 35, you are more likely to need some sort of help with the delivery of your baby than someone with a lower BMI.

- It is generally better to stay awake while your baby is delivered.
- Giving you a general anaesthetic may be more difficult than for women with a lower BMI, and the anaesthetists need to plan for that.
- It can be more difficult and take longer to do epidurals and spinals. It may be better to have an epidural early in labour rather than later, in case you need a Caesarean section or we need to deliver your baby quickly using forceps or ventouse.
- When you go onto the labour ward to have your baby, tell the midwives that you need to see the anaesthetist on duty.
- When you are in labour it is best not to eat any solid or fatty foods.

This booklet was written by the obstetric anaesthetists at the Royal Berkshire Hospital. It has been edited by the Information for Mothers Subcommittee of the Obstetric Anaesthetists' Association.

The subcommittee is made up of the following people.

- Dr Rosie Jones (chairman)
- Charis Beynon (National Childbirth Trust representative)
- Shaheen Chaudry (consumer representative)
- Dr Rachel Collis
- Dr Rhona Hughes (Royal College of Obstetricians and Gynaecologists representative)
- Gail Johnson (Royal College of Midwives representative)
- Dr Michael Kinsella
- Dr Ratnasabapathy Sashidharan

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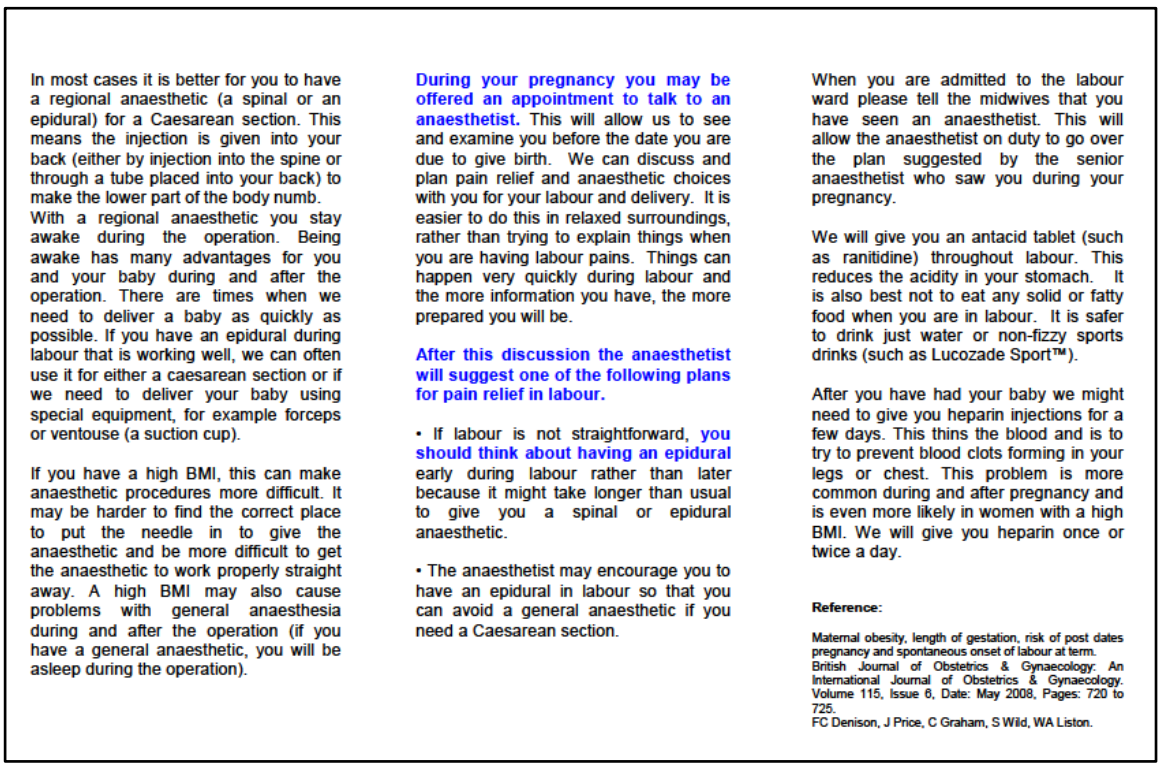
October 2009

Crystal Mark 18773 Clarity approved by Plain English Campaign

Why do I need to see an anaesthetist during my pregnancy?

Information for pregnant women with a high body mass index (BMI)

One of the aims of care during pregnancy is to identify those women who may need extra help with delivering their baby. One thing that makes this more likely is a high body mass index – BMI. (Body mass index is a relationship between your height and your weight, and is a way of working out how overweight you are.) For example, if your BMI is above 35, you are twice as likely to need a Caesarean section (and need an anaesthetic) compared to women whose BMI lies within the normal range of 20 to 25 (the scientific paper containing this research is listed at the end of this leaflet).



In most cases it is better for you to have a regional anaesthetic (a spinal or an epidural) for a Caesarean section. This means the injection is given into your back (either by injection into the spine or through a tube placed into your back) to make the lower part of the body numb. With a regional anaesthetic you stay awake during the operation. Being awake has many advantages for you and your baby during and after the operation. There are times when we need to deliver a baby as quickly as possible. If you have an epidural during labour that is working well, we can often use it for either a caesarean section or if we need to deliver your baby using special equipment, for example forceps or ventouse (a suction cup).

If you have a high BMI, this can make anaesthetic procedures more difficult. It may be harder to find the correct place to put the needle in to give the anaesthetic and be more difficult to get the anaesthetic to work properly straight away. A high BMI may also cause problems with general anaesthesia during and after the operation (if you have a general anaesthetic, you will be asleep during the operation).

During your pregnancy you may be offered an appointment to talk to an anaesthetist. This will allow us to see and examine you before the date you are due to give birth. We can discuss and plan pain relief and anaesthetic choices with you for your labour and delivery. It is easier to do this in relaxed surroundings, rather than trying to explain things when you are having labour pains. Things can happen very quickly during labour and the more information you have, the more prepared you will be.

After this discussion the anaesthetist will suggest one of the following plans for pain relief in labour.

- If labour is not straightforward, **you should think about having an epidural** early during labour rather than later because it might take longer than usual to give you a spinal or epidural anaesthetic.
- The anaesthetist may encourage you to have an epidural in labour so that you can avoid a general anaesthetic if you need a Caesarean section.

When you are admitted to the labour ward please tell the midwives that you have seen an anaesthetist. This will allow the anaesthetist on duty to go over the plan suggested by the senior anaesthetist who saw you during your pregnancy.

We will give you an antacid tablet (such as ranitidine) throughout labour. This reduces the acidity in your stomach. It is also best not to eat any solid or fatty food when you are in labour. It is safer to drink just water or non-fizzy sports drinks (such as Lucozade Sport™).

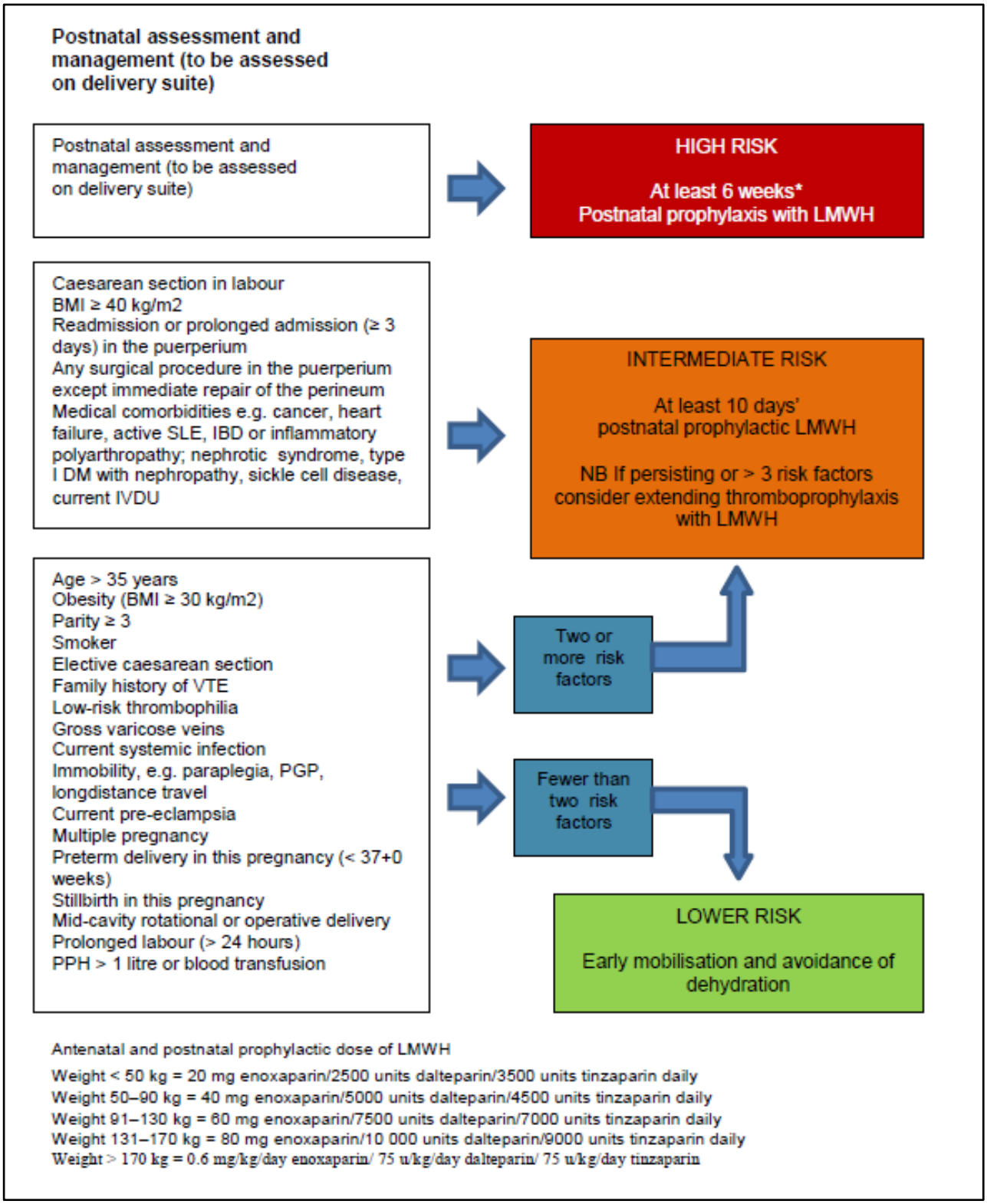
After you have had your baby we might need to give you heparin injections for a few days. This thins the blood and is to try to prevent blood clots forming in your legs or chest. This problem is more common during and after pregnancy and is even more likely in women with a high BMI. We will give you heparin once or twice a day.

Reference:

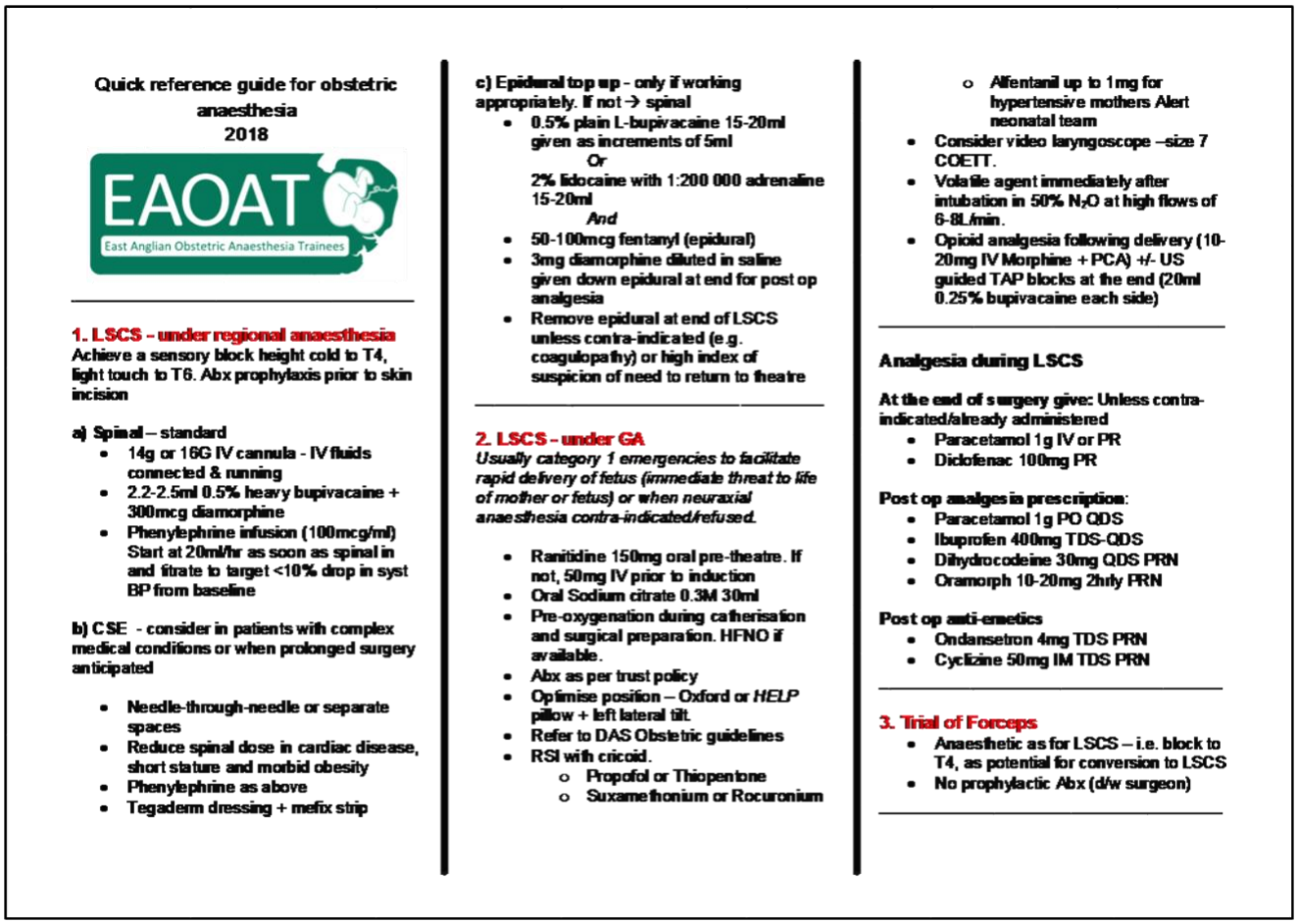
Maternal obesity, length of gestation, risk of post dates pregnancy and spontaneous onset of labour at term. British Journal of Obstetrics & Gynaecology: An International Journal of Obstetrics & Gynaecology. Volume 115, Issue 6, Date: May 2008, Pages: 720 to 725.
FC Denison, J Price, C Graham, S Wild, WA Liston.

VTE Prophylaxis guideline overview

Please refer to guideline 036 “Antenatal and postnatal thromboprophylaxis” for full guideline, which can also be found in the purple postnatal notes.



AEOAT Quick reference guide



Quick reference guide for obstetric anaesthesia
2018

EAOAT
East Anglian Obstetric Anaesthesia Trainees

1. LSCS – under regional anaesthesia
Achieve a sensory block height cold to T4, light touch to T6. Abx prophylaxis prior to skin incision

a) Spinal – standard
- 14g or 16G IV cannula - IV fluids connected & running
- 2.2-2.5ml 0.5% heavy bupivacaine + 300mcg diamorphine
- Phenylephrine infusion (100mcg/ml) Start at 20ml/hr as soon as spinal in and titrate to target <10% drop in syst BP from baseline

b) CSE - consider in patients with complex medical conditions or when prolonged surgery anticipated
- Needle-through-needle or separate spaces
- Reduce spinal dose in cardiac disease, short stature and morbid obesity
- Phenylephrine as above
- Tegaderm dressing + mefix strip

c) Epidural top up - only if working appropriately. If not → spinal
- 0.5% plain L-bupivacaine 15-20ml given as increments of 5ml
  Or
  2% lidocaine with 1:200 000 adrenaline 15-20ml
  And
- 50-100mcg fentanyl (epidural)
- 3mg diamorphine diluted in saline given down epidural at end for post op analgesia
- Remove epidural at end of LSCS unless contra-indicated (e.g. coagulopathy) or high index of suspicion of need to return to theatre

2. LSCS – under GA
Usually category 1 emergencies to facilitate rapid delivery of fetus (immediate threat to life of mother or fetus) or when neuraxial anaesthesia contra-indicated/refused.

- Ranitidine 150mg oral pre-theatre. If not, 50mg IV prior to induction
- Oral Sodium citrate 0.3M 30ml
- Pre-oxygenation during catheterisation and surgical preparation. HFNO if available.
- Abx as per trust policy
- Optimise position – Oxford or *HELP* pillow + left lateral tilt.
- Refer to DAS Obstetric guidelines
- RSI with cricoid.
  - Propofol or Thiopentone
  - Suxamethonium or Rocuronium
  - Alfentanil up to 1mg for hypertensive mothers Alert neonatal team
- Consider video laryngoscope –size 7 COETT.
- Volatile agent immediately after intubation in 50% N_2O at high flows of 6-8L/min.
- Opioid analgesia following delivery (10-20mg IV Morphine + PCA) +/- US guided TAP blocks at the end (20ml 0.25% bupivacaine each side)

Analgesia during LSCS

At the end of surgery give: Unless contra-indicated/already administered
- Paracetamol 1g IV or PR
- Diclofenac 100mg PR

Post op analgesia prescription:
- Paracetamol 1g PO QDS
- Ibuprofen 400mg TDS-QDS
- Dihydrocodeine 30mg QDS PRN
- Oramorph 10-20mg 2hrly PRN

Post op anti-emetics
- Ondansetron 4mg TDS PRN
- Cyclizine 50mg IM TDS PRN

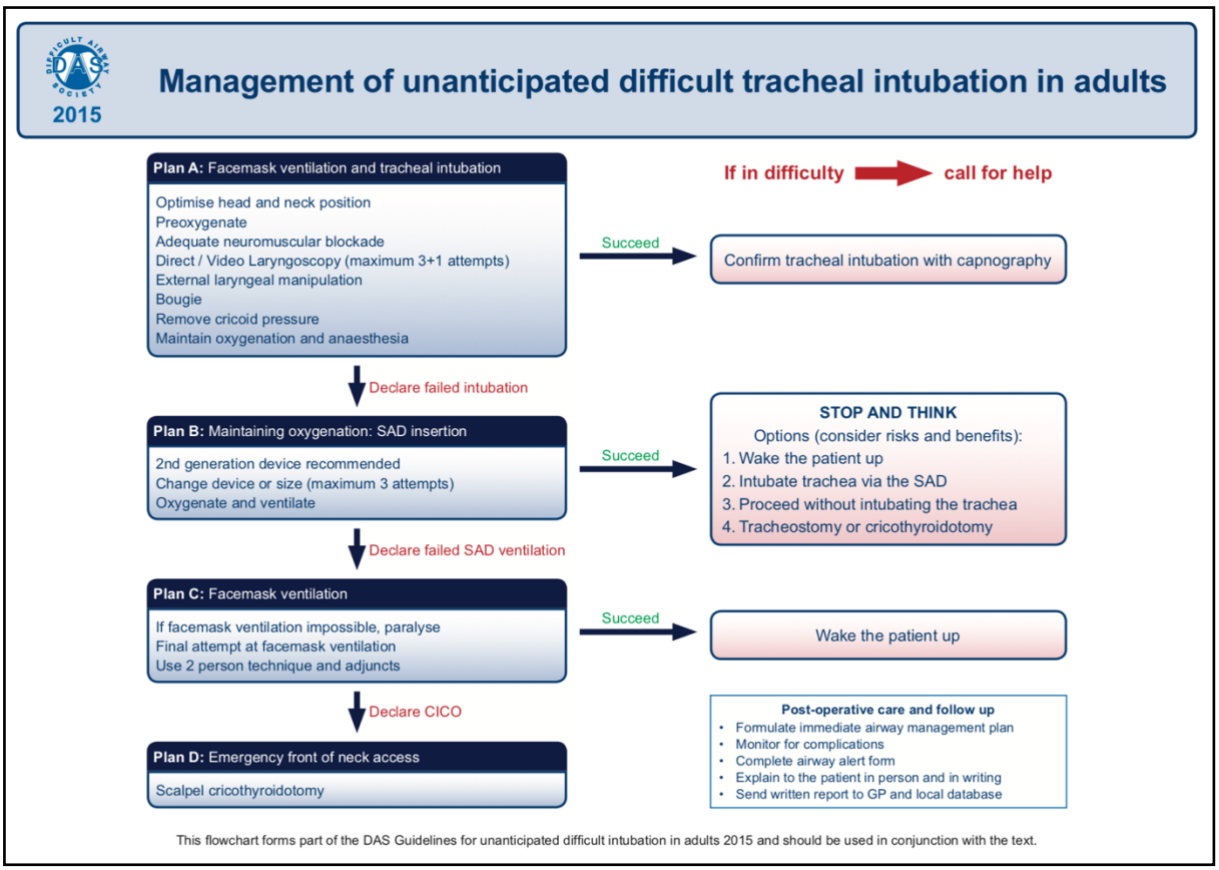
3. Trial of Forceps
- Anaesthetic as for LSCS – i.e. block to T4, as potential for conversion to LSCS
- No prophylactic Abx (d/w surgeon)

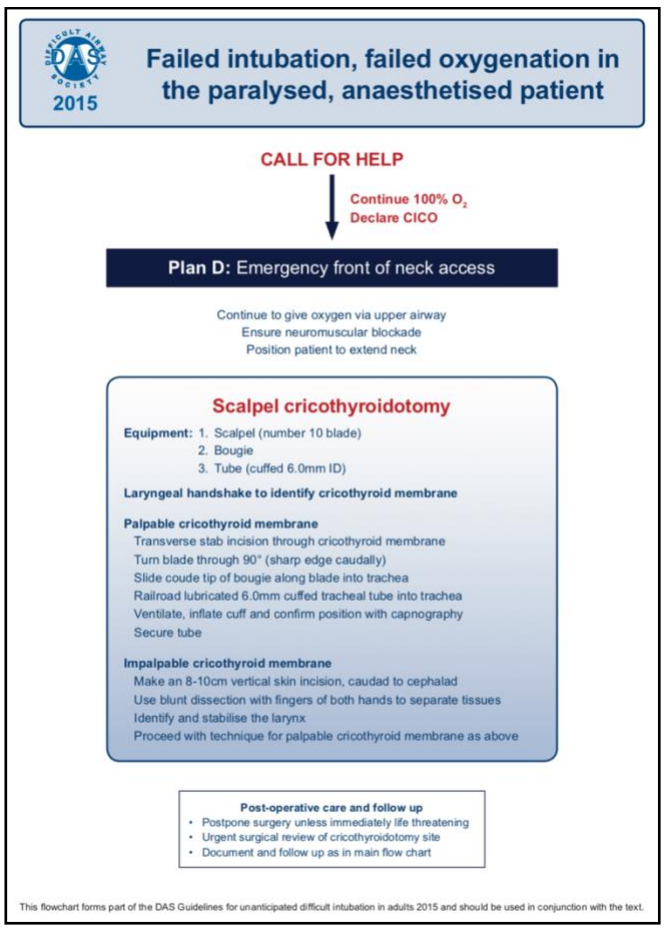
Appendix: Emergency Guidelines

Emergency Guidelines

Difficult intubation guidelines: DAS

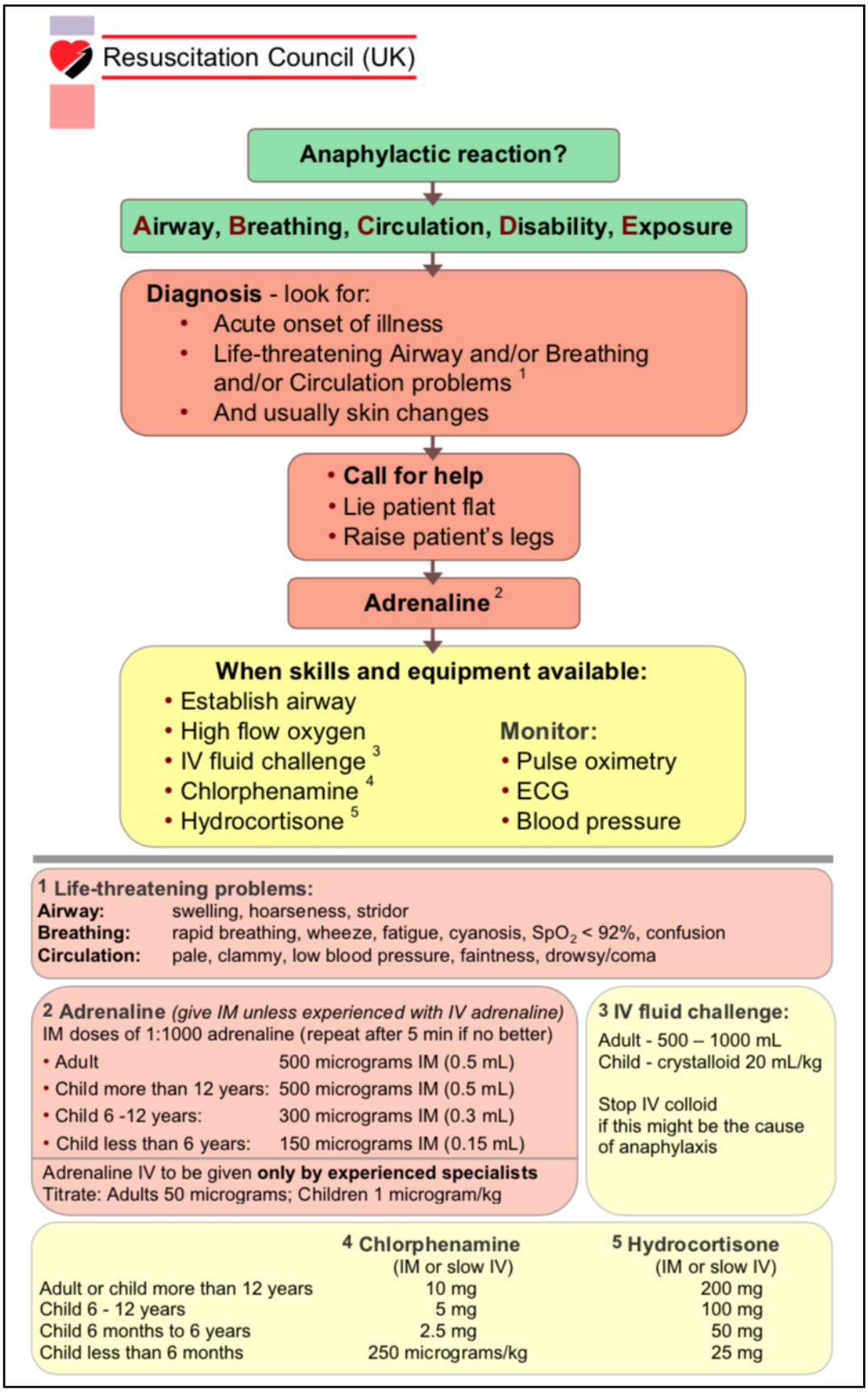
For more details see: https://das.uk.com/guidelines/das_intubation_guidelines





Anaphylaxis guideline: RC-UK

For more details see: https://www.resus.org.uk/sites/default/files/2020-06/EmergencyTreatmentOfAnaphylacticReactions%20%281%29.pdf



Local Anaesthetic Systemic Toxicity (LAST) guidelines: AAGBI

For more details see: https://anaesthetists.org/Home/Resources-publications/Guidelines/Management-of-severe-local-anaesthetic-toxicity

AAGBI Safety Guideline

Management of Severe Local Anaesthetic Toxicity

1 Recognition

Signs of severe toxicity:

- Sudden alteration in mental status, severe agitation or loss of consciousness, with or without tonic-clonic convulsions
- Cardiovascular collapse: sinus bradycardia, conduction blocks, asystole and ventricular tachyarrhythmias may all occur
- Local anaesthetic (LA) toxicity may occur some time after an initial injection

2 Immediate management

- Stop injecting the LA
- Call for help
- Maintain the airway and, if necessary, secure it with a tracheal tube
- Give 100% oxygen and ensure adequate lung ventilation (hyperventilation may help by increasing plasma pH in the presence of metabolic acidosis)
- Confirm or establish intravenous access
- Control seizures: give a benzodiazepine, thiopental or propofol in small incremental doses
- Assess cardiovascular status throughout
- Consider drawing blood for analysis, but do not delay definitive treatment to do this

3 Treatment

IN CIRCULATORY ARREST

- Start cardiopulmonary resuscitation (CPR) using standard protocols
- Manage arrhythmias using the same protocols, recognising that arrhythmias may be very refractory to treatment
- Consider the use of cardiopulmonary bypass if available

GIVE INTRAVENOUS LIPID EMULSION
(following the regimen overleaf)

- Continue CPR throughout treatment with lipid emulsion
- Recovery from LA-induced cardiac arrest may take >1 h
- Propofol is not a suitable substitute for lipid emulsion
- Lidocaine should not be used as an anti-arrhythmic therapy

WITHOUT CIRCULATORY ARREST
Use conventional therapies to treat:

- hypotension,
- bradycardia,
- tachyarrhythmia

CONSIDER INTRAVENOUS LIPID EMULSION
(following the regimen overleaf)

- Propofol is not a suitable substitute for lipid emulsion
- Lidocaine should not be used as an anti-arrhythmic therapy

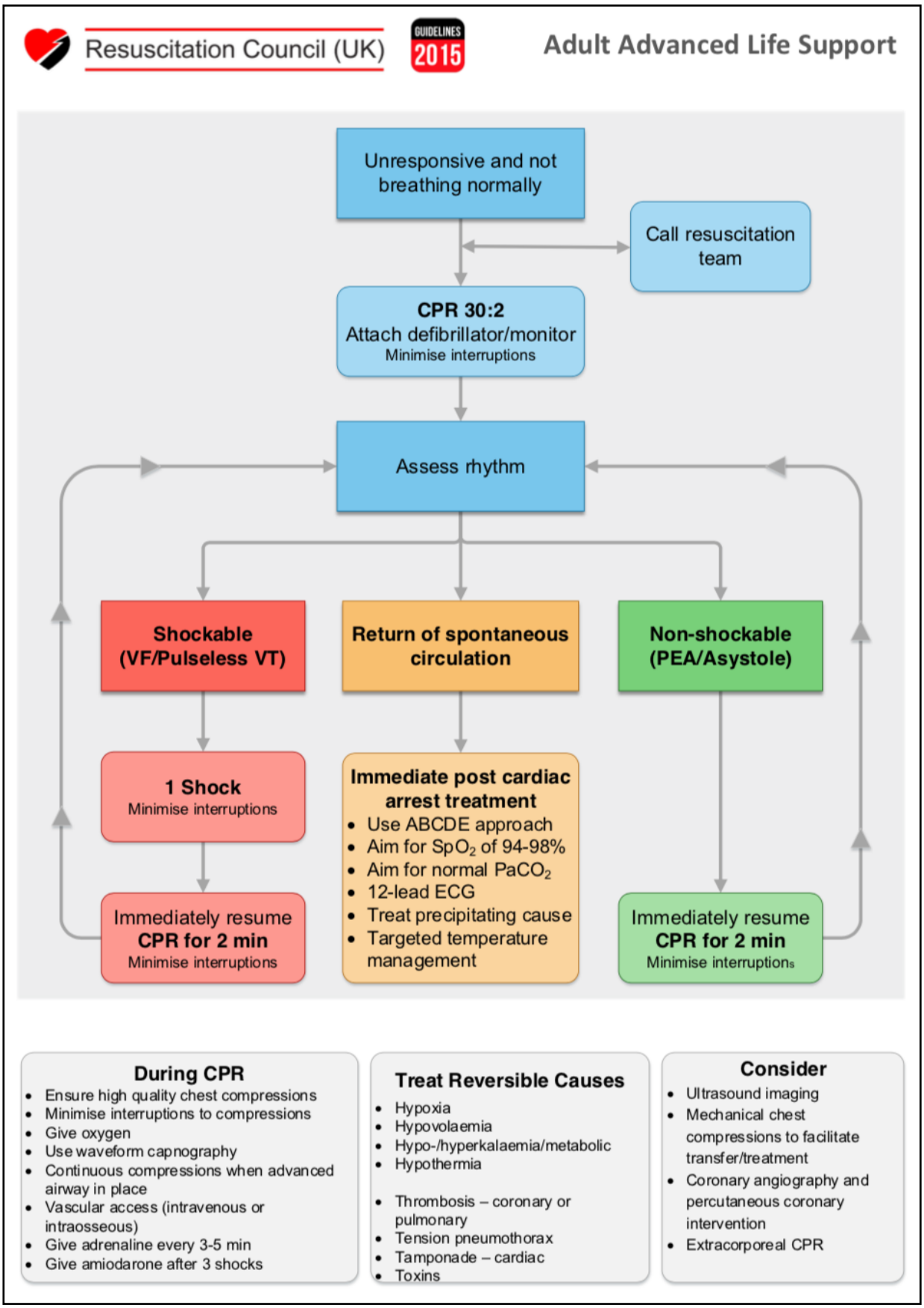
4 Follow-up

- Arrange safe transfer to a clinical area with appropriate equipment and suitable staff until sustained recovery is achieved
- Exclude pancreatitis by regular clinical review, including daily amylase or lipase assays for two days
- Report cases as follows:
  in the United Kingdom to the National Patient Safety Agency (via **www.npsa.nhs.uk**)
  in the Republic of Ireland to the Irish Medicines Board (via **www.imb.ie**)

If Lipid has been given, please also report its use to the international registry at **www.lipidregistry.org**. Details may also be posted at **www.lipidrescue.org**

Adult Life Support (ALS) algorithm: RC-UK

For more details see: https://www.resus.org.uk/library/2015-resuscitation-guidelines/guidelines-adult-advanced-life-support



Malignant Hyperthermia guideline: AAGBI

For more details: https://anaesthetists.org/Home/Resources-publications/Guidelines/Malignant-hyperthermia-crisis

Malignant Hyperthermia Crisis

AAGBI Safety Guideline

Successful management of malignant hyperthermia depends upon early diagnosis and treatment; onset can be within minutes of induction or may be insidious. The standard operating procedure below is intended to ease the burden of managing this rare but life threatening emergency.

1 Recognition

- Unexplained increase in $ETCO_2$ **AND**
- Unexplained tachycardia **AND**
- Unexplained increase in oxygen requirement
  (Previous uneventful anaesthesia does **not** rule out MH)
- Temperature changes are a late sign

2 Immediate management

- **STOP** all trigger agents
- **CALL FOR HELP.** Allocate specific tasks (action plan in MH kit)
- Install clean breathing system and **HYPERVENTILATE** with **100% O_2 high flow**
- Maintain anaesthesia with intravenous agent
- **ABANDON/FINISH** surgery as soon as possible
- Muscle relaxation with non-depolarising neuromuscular blocking drug

3 Monitoring & treatment

- Give **dantrolene**
- Initiate active **cooling** avoiding vasoconstriction
- **TREAT:**
  - **Hyperkalaemia:** calcium chloride, glucose/insulin, $NaHCO_3^-$
  - **Arrhythmias:** magnesium/amiodarone/metoprolol **AVOID** calcium channel blockers - interaction with dantrolene
  - **Metabolic acidosis:** hyperventilate, $NaHCO_3^-$
  - **Myoglobinaemia:** forced alkaline diuresis (mannitol/furosemide + $NaHCO_3^-$); may require renal replacement therapy later
  - **DIC:** FFP, cryoprecipitiate, platelets
- Check plasma CK as soon as able

DANTROLENE
2.5mg/kg immediate iv bolus.
Repeat 1mg/kg boluses as required to max 10mg/kg

For a 70kg adult

- **Initial bolus: 9 vials dantrolene** 20mg (each vial mixed with 60ml sterile water)
- Further boluses of 4 vials dantrolene 20mg repeated up to 7 times.

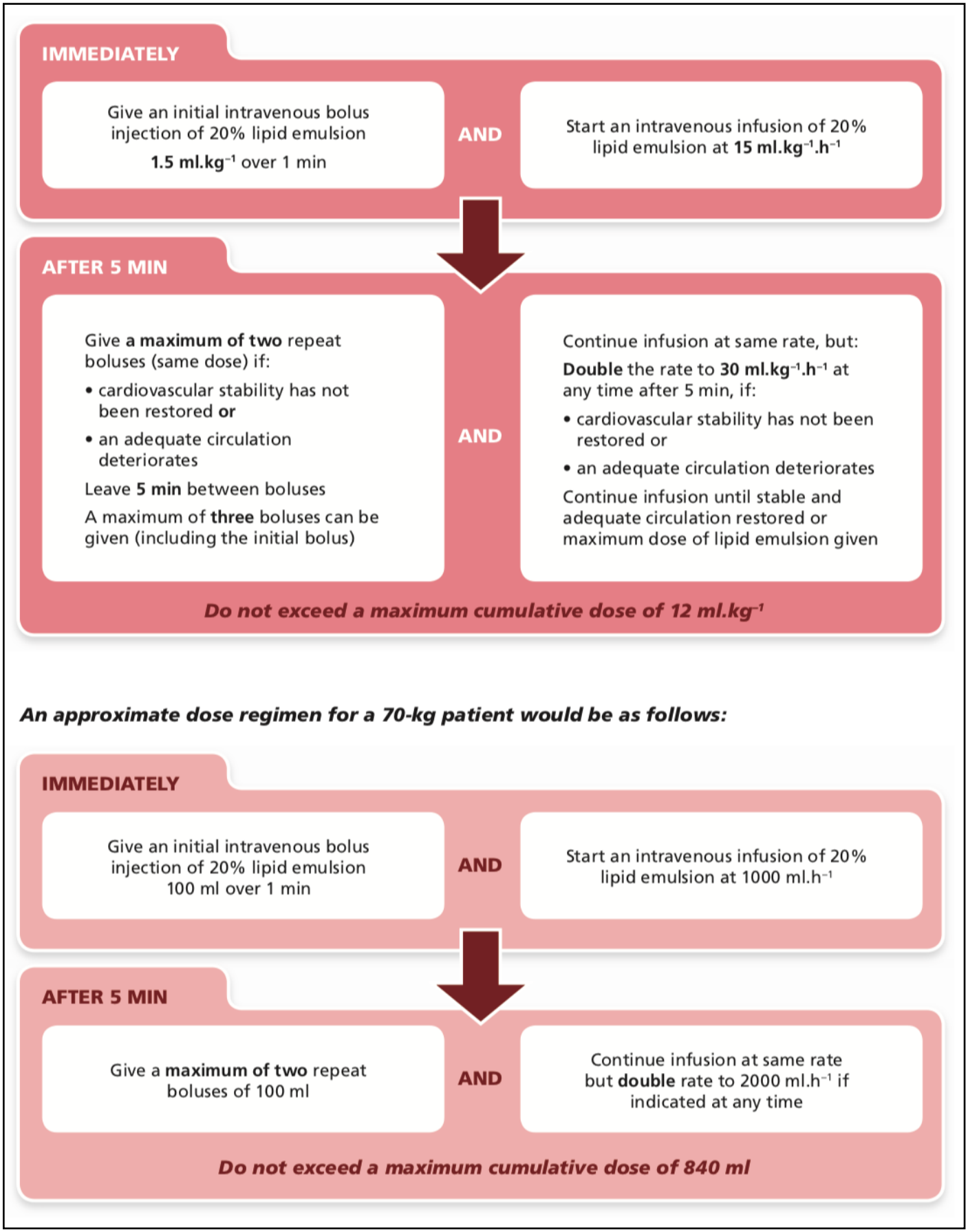
Continuous monitoring
Core & peripheral temperature
$ETCO_2$
SpO_2
ECG
Invasive blood pressure
CVP

Repeated bloods
ABG
U&Es (potassium)
FBC (haematocrit/platelets)
Coagulation

4 Follow-up

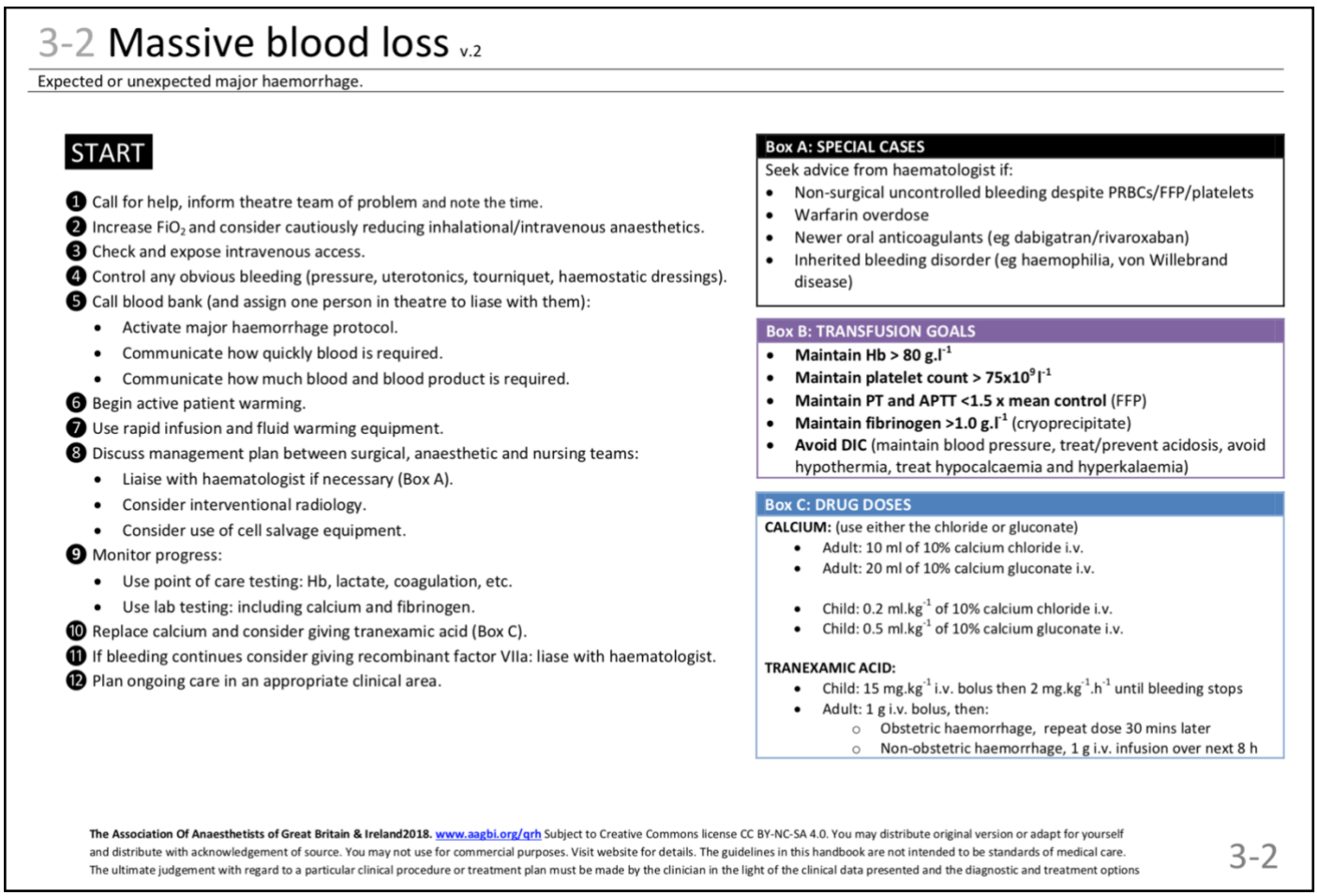
- Continue monitoring on ICU, repeat dantrolene as necessary
- Monitor for acute kidney injury and compartment syndrome
- Repeat CK
- Consider alternative diagnoses (sepsis, phaeochromocytoma, thyroid storm, myopathy)
- Counsel patient & family members
- Refer to MH unit (see contact details below)

Dantrolene administration guideline: AAGBI



Major Haemorrhage Quick Reference Guide: AAGBI

For more details and to view the AAGBI Quick Reference Handbook (QRH) in its entirety, see: https://anaesthetists.org/Home/Resources-publications/Safety-alerts/Anaesthesia-emergencies/Quick-Reference-Handbook/PDF-version



3-2 Massive blood loss v.2

Expected or unexpected major haemorrhage.

START

1. Call for help, inform theatre team of problem and note the time.
2. Increase FiO_2 and consider cautiously reducing inhalational/intravenous anaesthetics.
3. Check and expose intravenous access.
4. Control any obvious bleeding (pressure, uterotonics, tourniquet, haemostatic dressings).
5. Call blood bank (and assign one person in theatre to liase with them):
   - Activate major haemorrhage protocol.
   - Communicate how quickly blood is required.
   - Communicate how much blood and blood product is required.
6. Begin active patient warming.
7. Use rapid infusion and fluid warming equipment.
8. Discuss management plan between surgical, anaesthetic and nursing teams:
   - Liaise with haematologist if necessary (Box A).
   - Consider interventional radiology.
   - Consider use of cell salvage equipment.
9. Monitor progress:
   - Use point of care testing: Hb, lactate, coagulation, etc.
   - Use lab testing: including calcium and fibrinogen.
10. Replace calcium and consider giving tranexamic acid (Box C).
11. If bleeding continues consider giving recombinant factor VIIa: liase with haematologist.
12. Plan ongoing care in an appropriate clinical area.

Box A: SPECIAL CASES

Seek advice from haematologist if:

- Non-surgical uncontrolled bleeding despite PRBCs/FFP/platelets
- Warfarin overdose
- Newer oral anticoagulants (eg dabigatran/rivaroxaban)
- Inherited bleeding disorder (eg haemophilia, von Willebrand disease)

Box B: TRANSFUSION GOALS

- **Maintain Hb > 80 $g.l^{-1}$**
- **Maintain platelet count > $75x10^9 l^{-1}$**
- **Maintain PT and APTT <1.5 x mean control** (FFP)
- **Maintain fibrinogen >1.0 $g.l^{-1}$** (cryoprecipitate)
- **Avoid DIC** (maintain blood pressure, treat/prevent acidosis, avoid hypothermia, treat hypocalcaemia and hyperkalaemia)

Box C: DRUG DOSES

CALCIUM: (use either the chloride or gluconate)

- Adult: 10 ml of 10% calcium chloride i.v.
- Adult: 20 ml of 10% calcium gluconate i.v.
- Child: 0.2 $ml.kg^{-1}$ of 10% calcium chloride i.v.
- Child: 0.5 $ml.kg^{-1}$ of 10% calcium gluconate i.v.

TRANEXAMIC ACID:

- Child: 15 $mg.kg^{-1}$ i.v. bolus then 2 $mg.kg^{-1}.h^{-1}$ until bleeding stops
- Adult: 1 g i.v. bolus, then:
  - Obstetric haemorrhage, repeat dose 30 mins later
  - Non-obstetric haemorrhage, 1 g i.v. infusion over next 8 h

3-2

Acknowledgments

There have been many contributors to the information contained in this guide. We are grateful to all of them, particularly:

Guide to the Anaesthetic Department:
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