
Department of Neurosurgery - Guideline for pre-anaesthetic work-up by surgical residents and interns

Introduction:

The Department of Anaesthesia and Acute Pain Medicine can provide important guidance on the perioperative care of your patients. In addition to providing anaesthesia, we have specific expertise in:

- assessing perioperative risk
- optimisation of medical conditions prior to surgery
- planning post-operative care including acute pain management

The Department of Anaesthesia and Acute Pain Medicine is able to offer the following services in order to help with appropriate pre-anaesthetic work-up and optimisation of your surgical patients:

- Review in PAC-Anaesthesia for elective surgical patients (often possible at short-notice)
- Review on the ward for in-patients or urgent cases
- Contribution to and presentation at case-conferences or MDM's
- Phone advice where appropriate
- Review of notes and telehealth-consult with patient (especially for country patients) to help work out the best course of action

Below is a guide for pre-anaesthetic work-up for patients having elective neurosurgery. It should be used to help guide the following situations:

- When to refer to PAC-Anaesthesia
- When to notify the Neurosurgery Clinical Lead Anaesthetist (Dr Anjalee Brahmbhatt, contactable via switch) or the Anaesthetist In-Charge (14471) if a patient is scheduled for surgery
- What investigations to order pre-operatively (that are in addition to the investigations required by the surgical unit)
 - o Basic blood tests, including FBE, U&E and Gp & hold may be indicated depending on the nature of the procedure and patient factors. They are not considered here.

- When to book an HDU/ICU bed

This is intended to be a guide only, and not all patients or operations will fit neatly in to this approach. The Anaesthetic Department is always available to offer advice and help.

Referral Guidelines:

Low-risk and Intermediate-risk Operations:

- 1 or 2 level lumbar or cervical laminectomy or discectomy
- Pituitary surgery
- Most skull base surgery
- Peripheral nerve surgery
- Most intracranial procedures (non-vascular)
- Deep Brain Stimulator insertion
- Shunt surgery

Patients having low-risk or intermediate-risk operations rarely need referral to PAC-Anaesthesia, complex pre-operative investigations or an HDU bed. Exceptions to this include:

- Patients with confirmed or likely significant cardiac disease, in particular moderate or severe aortic stenosis, moderate or severe pulmonary hypertension, symptomatic cardiac failure or symptomatic or unstable ischaemic heart disease
- BMI > 50
- Moderate or severe OSA
- Patients unable to achieve 4 METS (eg. Climb a flight of stairs)

Patients who fit in to any of these categories should be treated as for “high-risk operations” below.

Higher-risk operations:

- Spinal fusion, especially if > 2 levels
- Other complex spine surgery, including sarcoma
- Sitting position intracranial surgery
- Intracranial aneurysm or AVM surgery, especially if large or complex

Patients having high-risk operations are more likely to need pre-anaesthetic investigation and/or review in PAC-Anaesthesia. They may also need an HDU bed booked, although this is rare. Below is a guide to investigations that may be appropriate (adapted from Up to Date).

Investigations:

- ECG
 - indicated only for patients > 60 years old and those with cardiac disease, peripheral vascular disease, cerebrovascular disease and/or vascular risk factors
- CXR
 - rarely indicated and should not be routine; occasionally useful if there is clinical suspicion of undiagnosed respiratory disease; not useful for assessing severity of CCF or COPD, or for predicting the risk of post-operative respiratory failure
- TTE
 - Indicated if the patient has had an abnormal TTE or confirmed cardiac disease (eg cardiac failure, pulmonary hypertension, aortic stenosis) and no TTE in the last 2 years
 - May also be indicated if the patient has undiagnosed shortness of breath or clinical evidence of undiagnosed cardiac disease (eg a new murmur, new atrial fibrillation, signs of cardiac failure)
- Spirometry
 - Not useful for risk stratification
 - Unlikely to be useful in patients who already have a diagnosis of COPD or other respiratory disease
 - Occasionally useful for assessing response to treatment or diagnosing the cause of dyspnoea
- Non-invasive cardiac stress tests (dobutamine stress-echo or thallium stress test)
 - May be considered if the patient has symptoms suggestive of myocardial ischaemia, especially if pre-operative revascularisation (CABG or PCI) could be considered; May also be indicated if the patient cannot achieve 4 METS and is having intermediate or high risk surgery
 - If you are considering ordering a non-invasive cardiac stress test based on clinical suspicion then please also discuss these patients with the anaesthetist doing the list (via ext 14471) or the Neurosurgery Clinical Lead Anaesthetist. A perioperative physician or cardiologist will also need to be involved to ensure follow-up of the test result.

Other situations:

Other situations in which referral to PAC-Anaesthesia or discussion with the anaesthetic department will be useful:

- Past-history of anaesthetic complication/difficulty
- Severe chronic pain or opiate tolerance – this is not uncommon in patients having spine surgery
- Severe liver or renal disease
- Significant pre-operative malnutrition or anaemia

ICU/HDU beds:

- Elective neurosurgery patients rarely require an ICU or HDU bed unless there are specific patient factors
- Exceptions include intracranial AVM surgery where the AVM is particularly large or complex, and occasionally very prolonged or complex spinal surgery