**Pre-Operative Management**

The management of pre-operative patients is a core function of junior doctors. Although specific management is provided in this article, your own hospital may differ slightly, and it is advised that you also refer to any local guidelines.

A useful tool for structuring your management plan is to utilise the acronym ‘RAPRIOP’ (this can be used for the management of any patient): **R**eassurance, **A**dvice, **P**rescription, **R**eferral, **I**nvestigations, **O**bservations, **P**atient understanding and follow-up*:*

**Reassurance**

It almost goes without saying that most patients are anxious about their upcoming surgery. Recognition of this fact and a kind word will make a big difference to a wary patient.

**Advice**

All pre-operative patients should be given advice regarding fasting\*:

* Stop eating – 6 hours before
* Stop dairy products (including tea and coffee) – 6 hours before
* Stop clear fluids – 2 hours before

*\*Fasting ensures that the stomach is empty of contents. This reduces the risk of pulmonary aspiration, which can occur during the perioperative period, which can lead to both aspiration pneumonitis (inflammation caused by very acidic gastric contents, leading to desquamation) and aspiration pneumonia (due to secondary infection following pneumonitis or direct aspiration of infected material).*

**Prescriptions**

The management of the pre-operative drug regime falls into three categories; prescriptions to stop, prescriptions to alter, and prescriptions to start. In certain patients, bowel preparation and blood productions may also need to be considered.

**Drugs To Stop**

These commonly stopped medications can be remembered as ‘CHOW’.

* **C**lopidogrel – stopped 7 days prior to surgery due to bleeding risk. Aspirin and other anti-platelets can often be continued and minimal effect on surgical bleeding
* **H**ypoglycaemics – see ‘Diabetes Mellitus’ below
* **O**ral contraceptive pill (OCP) or Hormone Replacement Therapy (HRT) – stopped 4 weeks before surgery due to DVT risk. Advise the patient to use alternative means of contraception during this time period.
* **W**arfarin – usually stopped 5 days prior to surgery due to bleeding risk and commenced on therapeutic dose low molecular weight heparin
	+ Surgery will often only go ahead if the INR <1.5, so you may have to reverse the warfarinisation with PO Vitamin K if the INR remains high on the evening before

**Drugs To Alter**

* **Subcutaneous insulin**– may be switched to IV variable rate insulin infusion, as discussed below
* **Long-term steroids**– must be continued, due to the risk of Addisonion crisis if stopped
	+ If the patient cannot take these orally, switch to IV (a simple conversion rate is 5mg PO prednisolone = 20mg IV hydrocortisone)

Pre-Operative Steroid Prescribing

A patient undergoing surgery will elicit a stress response in proportion to the extent of trauma and metabolic insult. A key part of the stress response is activation of the HPA axis, resulting in an increase in the release of endogenous corticosteroids.

Patients on steroid therapy (more than physiological replacement) for over two weeks may experience HPA axis suppression. Patients with confirmed (or suspected) HPA axis suppression (through Short Synacthen testing) are therefore at risk of acute adrenal insufficiency peri-operatively due to their attenuated ability to mount a sufficient endogenous steroid response.

In such patients, peri-operative stress-dose corticosteroid therapy is warranted. No definitive guidelines exist regarding the exact amounts of steroid that should be given, however the decisions around specific dosing is often dependent on the type of surgery being performed and patient pre-operative steroid prescription.

**Drugs To Start**

* **Low Molecular Weight Heparin** – the admitting doctor should complete a VTE Risk Assessment and prescribe appropriately
	+ Most patients will receive this, with the exception of those with either contraindications or who are having neck or endocrine surgery
	+ Patients undergoing major GI surgery for cancer (including oesophageal, gastric, pancreatic, liver and colonic resections) and lower limb joint replacement should be discharged with TEDs and 28 days of prophylactic dose low molecular weight heparin (in the absence of contraindications).
* **TED stockings**– all patients (with the important exception of vascular surgery patients) will receive below knee TED stocking. These need to be prescribed but check for contraindications (especially in the elderly)*.*Contraindications include severe peripheral vascular disease, peripheral neuropathy, recent skin graft, severe eczema.
* **Antibiotic prophylaxis** – patients having orthopaedic, vascular, or gastrointestinal surgery will require prophylactic antibiotics. Generally, these will be prescribed by the anaesthetist or the surgeon but if in any doubt, call your senior to discuss

**Diabetes Mellitus**

The **perioperative care of patients with diabetes mellitus** (DM) is becoming increasingly common. The exact pre-operative management varies between patients, but the following can be used as a basis.

**Type I Diabetes Mellitus**

All patients with Type I DM should be first on the morning list and they may need admitting on the night before the operation (depending on how major the procedure is)

* On the night before surgery, **reduce** their subcutaneous basal insulin dose by 1/3rd. Omit their **morning insulin** and commence an **IV variable rate insulin infusion** pump (commonly termed ‘sliding scale’), which is a syringe driver that usually contains 49.5mL of normal saline with 50 units of Actrapid.
* Whilst the patient is nil by mouth, you will also need to prescribe an infusion of**5% dextrose**, which is usually given at a rate of 125mL/hr. Ask the nurse to check the **capillary glucose** (‘BM’) every 2 hours and to alter the infusion rate accordingly.
* Continue until the patient is able to eat and drink. Once they are doing so, you must **overlap** their IV variable rate insulin infusion stopping and their normal SC insulin regimens starting. To do this, give their SC rapid acting insulin ~20 minutes before a meal and stop their IV infusion ~30-60 minutes after they’ve eaten.

**Type II Diabetes Mellitus**

Management is dependent on they way that their Type II DM is controlled. If diet controlled, no action is required peri-operatively.

If, however, the patient is controlled by oral hypoglycaemics, metformin should be stopped on the morning of surgery, whilst all others should be stopped ~24 hours before the operation. These patients will then be put on IV variable rate insulin infusion along with 5% dextrose as described above and managed peri-operatively the same as a Type I diabetic.

**Bowel Preparation**

Patients having colorectal surgery may need **bowel preparation** (laxatives or enemas) to clear their colon pre-operatively.

Bowel preparation is used less frequently, as the fluid shifts can be harmful to patients who are elderly or have cardiac or renal disease. Additionally it has been shown that use of bowel preparations can prolong patient recovery and length of stay.



Figure 1 – Blood products are required to correct heavy blood loss and must be x-matched before use.

The exact protocol will vary between hospitals but a general guide is:

* **Upper GI, HPB,**or**small bowel surgery**: none required
* **Right hemi-colectomy** or **extended right hemi-colectomy**: none required
* **Left hemi-colectomy**, **sigmoid colectomy**, or **abdominal-perineal resection**: Phosphate enema on the morning of surgery
* **Anterior resection**: 2 sachets of picolax the day before or phosphate enema on the morning of surgery

**Bathing and surgical site cleaning , shaving, surgical site marking**

**Ensuring the right sets, implants, equipment is available**

**Patient carries to theatre the right images, has an identification tag**

**Blood Products**

It is essential to ensure all patients undergoing major GI, HPB, vascular, gynaecological or orthopaedic surgery have a **group and save** requested. Others will need blood **cross-matching** in advance. Read more about prescribing blood products [here](https://www.teachmesurgery.com/pre-operative/blood-products/).

**Referral**

Consider where the patient may need a **HDU or ITU bed** to be booked. Any concern, it is best to discuss this with your senior.

**Investigations**

There are a range of pre-operative investigations that can be requested. The nature of the exact investigations required depends on a number of factors, including co-morbidities, age, and the seriousness of the procedure. Read more about pre-operative investigations [here](https://www.teachmesurgery.com/pre-operative/assessment/).

**Patient Understanding and Follow Up**

Ensure that the patient is fully informed and understands the plan for their care and discharge. Most major surgical patients will require an appointment in the follow-up clinic, so ensure that this done at a time which your consultant wishes. Patients undergoing day-case surgery will receive telephone follow-up from a nurse specialist only or may not require follow-up.

**Quiz**

Pre-Operative Management

Question 1 of 5

Regarding NBM status, which of the following are recommended (for most operations)?

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**24 hour food fasting**

****

**All fluids permitted up to 2 hours before**

****

**Clear fluids up to 2 hours before**

****

**NBM, food and drink, for only 2 hours pre-op**

Question 2 of 5

Which medication should be stopped earliest before surgery?

****

**Aspirin**

****

**Clopidogrel**

****

**Dipyridamole**

****

**Warfarin**

Where possible, in the pre-operative period, when should the oral contraceptive pill be stopped?

****

**Be permanently discontinued**

****

**Be stopped 4 days before**

****

**Be stopped 4 weeks before**

****

**Not be stopped**

Which of the following is not a contraindication to low molecular weight heparin prophylaxis?

****

**Recent neck surgery**

****

**Bleeding peptic ulcer disease**

****

**Recent cerebral haemorrhage**

****

**Chronic venous insufficiency**

Which of the following procedures usually requires a phosphate enema the morning of the operation?

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**Laparotomy + adhesiolysis**

****

**Left hemi-colectomy**

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**Right hemi-colectomy**

****

**Gastrectomy**

CASE SCENARIO

25 yr old male, scheduled for right knee arthroscopy for a suspected medial meniscus tear.