Royal Cornwall Hospitals
NHS Trust

Enhanced Perioperative Care Unit Standard Operating Procedure

V1.0

March 2024

Table of Contents

Data Protection Act 2018 (UK General Data Protection Regulation – GDPR) Legislation.

The Trust has a duty under the Data Protection Act 2018 and UK General Data Protection Regulations 2016/679 to ensure that there is a valid legal basis to process personal and sensitive data. The legal basis for processing must be identified and documented before the processing begins. In many cases we may need consent; this must be explicit, informed, and documented. We cannot rely on opt out, it must be opt in.

Data Protection Act 2018 and UK General Data Protection Regulations 2016/679 is applicable to all staff; this includes those working as contractors and providers of services.

For more information about your obligations under the Data Protection Act 2018 and UK General Data Protection Regulations 2016/679 please see the Information Use Framework Policy or contact the Information Governance Team.

Royal Cornwall Hospital Trust rch-tr.infogov@nhs.net

1. Introduction

1.1. Enhanced perioperative care aims to provide an enhanced level of care for higher risk elective surgical patients. The aims of the unit are several fold:

- Care for selected higher risk elective patients with a higher acuity of interventions, monitoring and nursing ratios to prevent, identify and treat complications early.
- Improve patient outcomes and satisfaction.
- Liberate critical care beds.
- Prevent undesirable long stays in Recovery.
- Improve flow in theatres for high-risk cases.

1.2. The unit is **not** designed to provide a continuum of critical care by way of a step down from the critical care unit nor provide a service compatible with a High Dependency Unit.

1.3. In that manner it is not designed to be run in accordance with Faculty of Intensive Care medicine (FICM) and Intensive Care Society (ICS) General provision of Intensive care services (GPICS) Core standards for ITU1 or meet ICS consensus statement (March 21) on Level 2/3 critical care criteria2.

1.4. This does not absolutely preclude admission to EPOC for 'step down' critical care patients in extreme circumstances. The unit is also not designed to have care led by a consultant with accredited training in Intensive Care Medicine.

1.5. Key to the success of these goals will be ring fenced elective surgical beds, appropriate patient selection, guaranteed reliable patient discharge from the unit, enhanced monitoring and well defined and supported nurse led protocols.

2. Purpose of this Standard Operating Procedure

2.1. This standard operating procedure (SOP) aims to provide detail of all aspects of the RCHT enhanced perioperative care project. The processes and procedures described in this document or linked directly from it are correct, accepted trust policies or are agreed new practice standards that all staff will adhere to when working in the Enhanced Perioperative Care Unit (EPOC) at RCHT – Treliske.

2.2. Staff members working either directly or indirectly with EPOC patients to whom this document applies include:

- Anaesthetic and preoperative assessment consultants and juniors.
- Preoperative assessment nursing staff.
- Anaesthetic department practitioners.
- Theatre recovery nursing staff.

- Critical care consultants and juniors.
- Critical care nursing staff.
- Surgical consultants and juniors.
- Theatre nursing staff.
- Pharmacy.
- Dietitians.
- Physio- and occupational therapists.
- Site / bed management team.
- Surgical bookers and clerical staff.
- Managerial staff.

2.3. References are included where appropriate although the EPOC RCHT service model, and hence this document are based primarily on guidance issued by the Faculty of Intensive Care Medicine (FICM) and the Centre for Perioperative Care CPOC entitled ‘Guidance on Establishing and Delivering Enhanced Perioperative Care Services – October 20203.

2.4. Some process elements and associated documentation have also been adapted for local purposes and incorporated into this SOP with permission from other NHS trusts with prior experience of establishing enhanced care units.

3. Ownership and Responsibilities

3.1. EPOC Team

3.1.1. Core Leadership Team

Dr Robert Hartley	Consultant Anaesthetist.
Dr Ian Densham	Consultant Anaesthetist.
SN Gemma Ball	EPOC/Recovery Matron.
SN Steve Winn	EPOC Charge Nurse.
Taz Zee / Anola Daniell	Manager POA / EPOC / Critical Care.

3.1.2. Departmental and Care Group Leadership / Other Senior Managers

Dr Russell Evans	Consultant Anaesthetist	Clinical Director (CD).
Dr Thys De Beer	Consultant Intensivist	Clinical Director (CD).
Mr Doug Riley	ACCT - General Manager.	

SN Claire Blake	ACCT - Head of Nursing.	
Dr Nicholas Marshall	Consultant Anaesthetist	Scientific Director (SD).
Dr Will English	Consultant Anaesthetist / Intensivist	Scientific Director (SD).

3.2. EPOC Staff

EPOC is based on a nurse driven model of care, with appropriate junior and senior medical support, using evidence based intervention pathways and supported by pharmacy and allied health care professionals.

Their responsibilities are detailed later in the document.

3.2.1. Nursing Staff

EPOC has a designated nurses (Band 7, 6 and 5) who will be rostered for EPOC. During times of increased demand they may be asked to support nursing staff in other clinical areas however, their overriding area of responsibility is to EPOC. They will not be moved from EPOC at the detriment of EPOC service provision.

Supernumerary rotation of nurses from other areas through EPOC will be encouraged to support education of acute surgical nursing colleagues or other ACCT nursing colleagues.

Nursing provision for a shift in EPOC will look to provide a ratio of 1 nurse: 2 patients.

The allocation of specific nurses to specific patients on a given day will depend on skill and experience mix on that day and will be at the discretion of senior nursing staff in charge of EPOC.

Nursing students/associates are supernumerary to the staffing rota.

3.2.2. Pharmacy

Pharmacists will assist the unit on a daily basis with accurate and appropriate prescription of both admission medication but also any acute changes as part of the admission. This will extend to discharge medication.

3.2.3. Allied health professionals

Allied health professionals including physiotherapy, occupational therapy and dietetics will attend the unit on a daily basis to assist in patient mobilisation and preparation for discharge.

3.2.4. Senior Medical Staff

Currently senior medical staff will be provided via a cohort of anaesthetic consultants or speciality doctors with an interest in perioperative medicine and intensive care consultants.

3.2.5. EPOC staffing presence

		Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
am	nurses	Closed	√	√	√	√	√	Closed
	consultants / top cover		x 1 CC	x 1 CC	x 1 EPOC	x 1 EPOC		Closed
	fellows		1x0800-1400&1x1300-2100	1x0800-1400&1x1300-2100	1x0800-1400&1x1300-2100	1x0800-1400&1x1300-2100	x 1 - 0800-1400	Closed
pm	nurses	√	√	√	√	√	√	Closed
	consultants / top cover	x 1 EPOC				x 1 EPOC		Closed
	fellows	1x0800-1400&1x1300-2100	1x0800-1400&1x1300-2100	1x0800-1400&1x1300-2100	1x0800-1400&1x1300-2100	1x0800-1400&1x1300-2100	none	Closed
eve	nurses	√	√	√	√	√	Closed	Closed
	consultants / top cover						Closed	Closed
	fellows	1x0800-1400&1x1300-2100	1x0800-1400&1x1300-2100	1x0800-1400&1x1300-2100	1x0800-1400&1x1300-2100	1x0800-1400&1x1300-2100	Closed	Closed
night	nurses	√	√	√	√	√	Closed	Closed
	consultants / top cover						Closed	Closed
	fellows	none	none	none	none	none	Closed	Closed

	Consultant presence
√	Nursing presence
	Fellow presence
	Top cover - See next sheet

3.2.6. Junior Medical Staff – Perioperative Medicine Fellows

Perioperative clinical fellows will based on EPOC. Clinical fellows are appointed via a formal NHS application process to the RCHT clinical fellow scheme and have completed foundation training as a minimum requirement.

Fellows are not intended to be anaesthetic trainees or trained in advanced airway management.

3.2.7. Junior Medical Staff – Anaesthetic Trainees

Anaesthetic trainees may be rostered to attend EPOC on occasion. Such trainees will generally be undertaking a specialist perioperative medicine module and will be supernumerary in terms of EPOC service provision. During such sessions it may be appropriate for the trainee to attend to theatre to manage an inbound EPOC patient or a POA / cardiopulmonary exercise test (CPET) if more valuable.

During day time hours anaesthetic trainees should only be used for service provision on EPOC in exceptional circumstances following consultation with both the individual trainee and the college tutor.

Out of hours, on call anaesthetic trainees may be contacted as part of escalation pathways.

3.2.8. Parent Surgical Teams

During normal working hours, the parent surgical teams will review their EPOC patients with multi-disciplinary (MDT) communication and planning for each patient to ensure safe discharge back to ward level care when appropriate.

The surgical teams will be required to review their patients on EPOC prior to 11am on a Saturday morning. This is to facilitate early planning or discussions if any concerns.

4. Standards and Practice

4.1. EPOC Patient Selection

Admission criteria for EPOC are based on 2020 guidance from FICM and CPOC which states:

Admission Criteria should be based on risk assessment using a validated system OR evaluation of functional capacity OR the specific type of surgery and should take into account the immediate postoperative need for EPOC and the possibility of developing that need in the first 24 hours[3].

EPOC is different from other areas in that almost all patients will come from POA recommendations, and all patients must be 'Low risk' or 'Green' from an infection control perspective. Other ward areas, including critical care, are populated by a mix of mostly emergency with some elective patients.

4.2. EPOC Capacity and Capabilities

EPOC has 7 beds divided between 2 bays. Where possible patients will be separated by gender, this is not mandated on EPOC due to its critical care status. Every effort should be made to ensure patient privacy and dignity at all times in keeping with trust values.

Specific interventions provided on EPOC include the following. In all cases existing RCHT trust policies will be used where possible:

4.2.1. **Cardiovascular Support:**

- Metaraminol infusion (0.5mg/ml): 0.5mg – 10mg/h (1-20ml/h).
- Other vasoactive / anti-arrhythmic medications.
- Blood transfusion.
- Post-operative IV iron for pre-operative iron deficiency anaemia.

4.2.2. **Respiratory Support:**

- Patient's own CPAP.
- Instigation of new CPAP should prompt discussion with critical care.

4.2.3. **Analgesia Support:**

- Epidural management.
- Patient Controlled Analgesia.
- Peripheral Nerve block.
- Fascial plane catheters / Local Anaesthetic infusions.

4.3. EPOC Exclusion Criteria

EPOC function depends on the admission of certain selected patient cohorts. The following patient groups should not be admitted to EPOC.

- Patients <16years old.
- Medical patients.
- Emergency surgical / trauma patients.
- Amber / Red patient (with respect to infection control status).
- Re-admissions (i.e. those already discharged from EPOC to the ward).
- **Respiratory:**
  - New tracheostomy
  - CPAP via tracheostomy
  - $Fi0_2 > 0.5$
- **Cardiovascular support:**
  - Noradrenaline via central line.
  - Metaraminol (0.5mg/ml) > 10mg/h (equivalent of >20ml/h)
- **Acute renal replacement therapy:**
  - Need or likelihood of needing acute renal replacement therapy
  - If replacement therapy established, surgery not likely to involve significant fluid shifts and patient would able to attend renal unit for dialysis, then this would be deemed acceptable.

4.4. EPOC Admission Criteria

All patients referred to the preoperative assessment service will be triaged by POA nurses and procedures on the '**EPOC Procedures List'** automatically referred for risk stratification in the high-risk anaesthetic clinic by a consultant anaesthetist.

Objective risk assessment will be undertaken using the surgical outcome risk tool (SORT) score, the American College of Surgeons National Surgical Quality Improvement Programme (ACS – NSQIP) score, cardio-pulmonary exercise testing (CPET) or the Carlisle calculator.

If the SORT/AC-NSQIP/Carlisle score >7% (using the worst score) the POA outcome will be a recommendation for a critical care bed post-op, otherwise EPOC is the appropriate level of post-op care.

The outcome from POA will be as follows:

- **HDU minimum** – should not proceed without HDU bed.
- **HDU ideal** – could be stepped down to EPOC if no HDU bed and clinical agreement on the day.
- **EPOC minimum** – should not proceed without EPOC bed.
- **EPOC ideal** – could be stepped down to ward level if no EPOC bed and clinical agreement on the day.
- **Ward -** This process will be under constant review by EPOC leads and as part of the EPOC consultant daily responsibilities for the unit.

4.5. EPOC (Higher Level Care) Procedures List

4.5.1. General surgery

- Right hemicolectomy.
- Left hemicolectomy.
- Hartmann's procedure (elective).
- Anterior Resection.
- Abdomino-peroneal resection (AP resection).
- ELAPE (extralevator abdomino-peroneal excision).
- Bowel resection for non-cancer operations (eg IBD).
- Complex incisional hernia surgery.
- Bariatric surgery with uncontrolled co-morbidities.

4.5.2. Urology

- Open nephrectomy / nephroureterectomy.
- Laparoscopic nephrectomy / nephroureterectomy – at discretion of clinical team.

4.5.3. Vascular

- Open AAA / aorto-bifemoral bypass grafts – default HDU minimum.
- EVAR.
- Carotid endarterectomy.
- Elective complex Femoral – distal revascularisation.

4.5.4. Gynaecology surgery

- Cytoreductive surgery – not anticipated to involves significant peritoneal stripping / fluid shifts.

4.5.5. Head and neck surgery

- New tracheostomy – default HDU minimum.
- Other cases – at discretion of clinical team.

4.5.6. Orthopaedic surgery

- Elective complex primary or revision joint surgery where POA decision is too high risk for St Michael's Hospital Higher Level Care unit (SMH-HLC)*.

*All elective and some trauma orthopaedic surgery should be undertaken at SMH-HLC where safe for the patient. Only in significant circumstances where POA feels that EPOC is the safest post-op location is this acceptable.

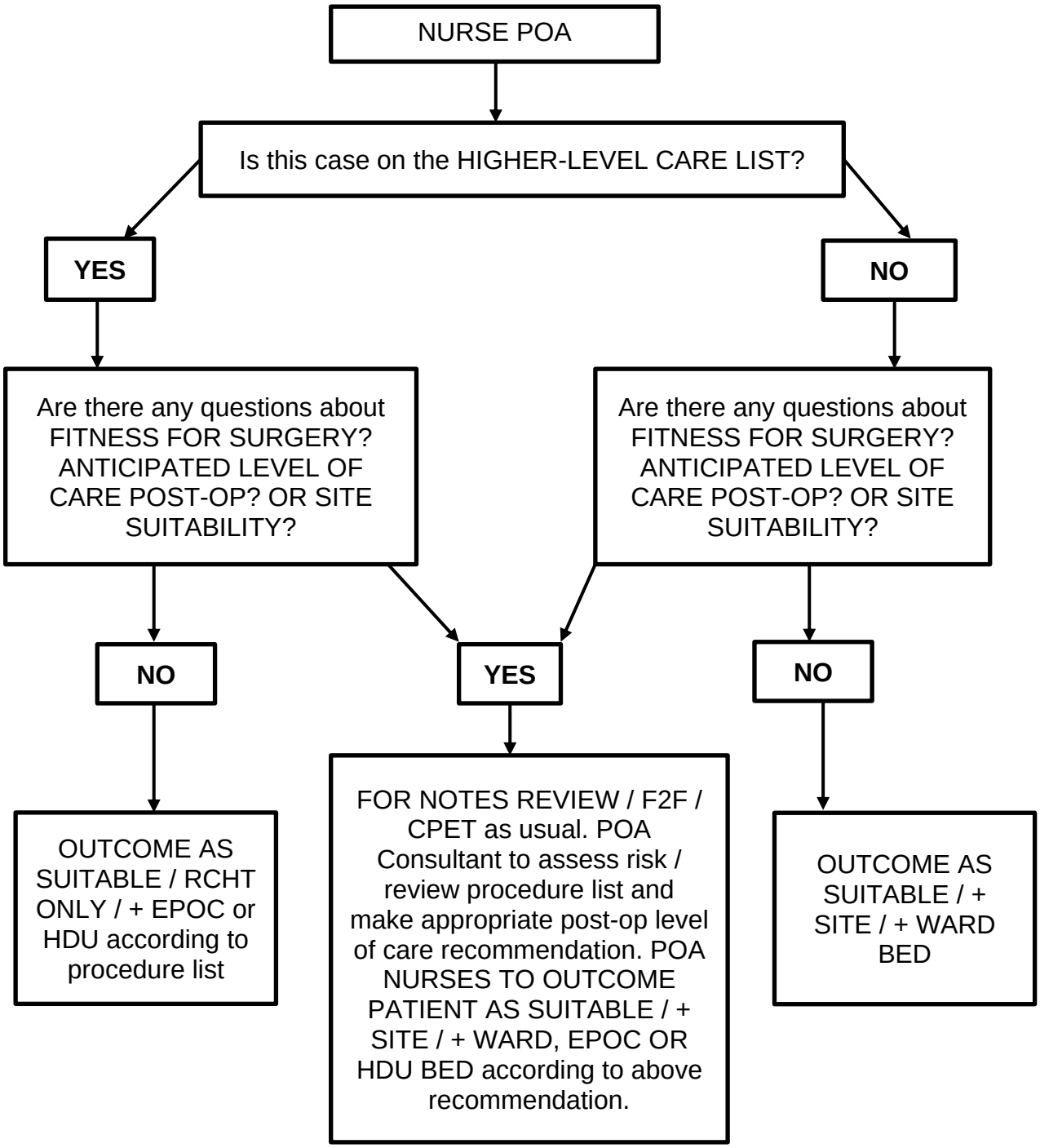
4.6. Decision To Operate And Timing Of Surgery

For elective cases the proposed admission date following decision to operate should allow sufficient time for the normal POA referral, assessment and bed booking process to occur.

Emergency procedures requiring a higher level of care than the ward are not eligible for EPOC and should be referred to Critical Care.

Certain EPOC procedures such as carotid endarterectomies for example often require late booking. Concerns regarding comorbidity and/or suitability for such procedures are currently reviewed either via weekly MDT or ad hoc following informal referral by individual surgeons for anaesthetic opinion. If in doubt, or time is insufficient, such cases should be treated as emergency cases and referred to critical care.

4.7. **Preoperative Assessment for EPOC Patients**



Outcomes on PAS BEA should be recorded as HDU/EPOC/Critical Care – this is what the bed managers will see. The ‘minimum’ and ’ideal’ labels will be there to guide decision making further from a clinical perspective.

4.8. Pre-EPOC Admission – Day of Surgery

4.8.1. Pre theatre – establishing bed status

Patient arrives at RCHT and is admitted to surgical admission area as usual. Bed manager assigns them an EPOC bed post-op. Bed manager reviews PENDING EPOC DISCHARGES with EPOC charge nurse and assigns ward bed.

If there is potential EPOC capacity to accept a patient then theatres can proceed at risk with the case.

4.8.2. Patient attends theatre

Responsible anaesthetist will complete the **EPOC Anaesthetic Assessment** during the procedure on Nerve Centre (NC) – see Appendix. This will contain pre and intra-op patient relevant information, including target post-op parameters as decided by the clinical team. This document forms part of the handover which should also include a verbal handover to the EPOC team.

Anaesthetist will also complete any appropriate paper care pathways and ensure post-operative analgesia and fluid prescriptions are completed.

As part of the prescription anaesthetist to prescribe **EPOC bundle** on JAC/EPMA. This is a bundle of routine interventions for nursing staff including art line flushes, Hartmann's boluses.

The EPOC fellow will attend theatre / recovery to liaise directly with the anaesthetic/surgical team and take a handover.

It is anticipated that patients will initially go to EPOC via the recovery/post anaesthesia care unit. Our goal as EPOC processes mature is for patients to go directly from theatre to EPOC – this will require advance communication with EPOC.

4.9. EPOC Admission

4.9.1. Patient Arrival on EPOC - Admission Process

On arrival in EPOC or when settled in recovery unit, clinical assessment should be undertaken by clinical fellow. The Fellow should document this in the **EPOC Admission Assessment.**

Nursing assessment will happen when the patient arrives on EPOC and the responsible nurse should complete an **EPOC Nursing Assessment.**

As part of this admission process the **Cardiovascular (CVS)** and **Renal pathways** will be initiated by nursing staff (See Appendix). Part of the admission is to ensure the admission medications and are appropriately prescribed, and to ensure VTE prophylaxis has been prescribed by the surgical team. Medical staff to ensure **EPOC Admission** bundle on JAC is also completed.

Admission arterial blood gas (ABG) where an arterial line is present will be taken (unless done in Recovery), and ECG, and will be reviewed and actioned appropriately.

Once settled on the unit, an attempt should be made to contact family / next of kin to update them of whereabouts and condition.

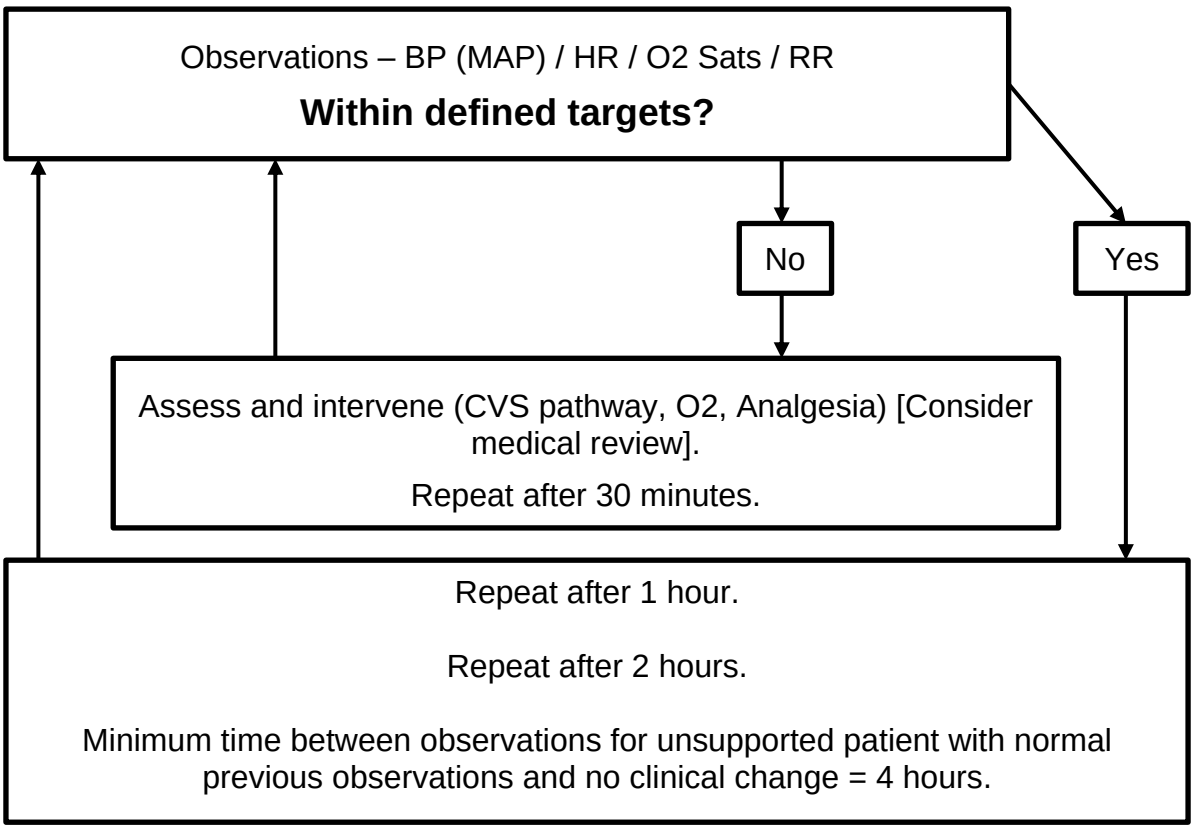
4.9.2. Ongoing Assessments and Reviews

In addition to the initial admission, CVS and renal assessments carried out on arrival, there are number of other routine nursing assessments required during admission which are listed in the following '**Summary of Documentation'** section.

The frequency of routine observations following admission will depend on the presentation, support requirements and stability of a given patient.

A comfortable, stable patient on static or decreasing vasopressor support or oxygen will start with 30 minute observations for the first hour following admission. The frequency of observations can then decrease to hourly if the clinical conditions remain the same or improve.

Following 4 hours should this continue to be the case this can be reduced further following discussion with the Band 6 nurse for EPOC. Should the clinical picture deteriorate observations can be increased to reflect the situation. Minimum time between observations is 4 hours.



Nursing staff will initiate management according to the CVS pathway, titrate oxygen therapy to target saturations and administer analgesia as prescribed.

A modest amount of metaraminol (<2.5mg/hr) does not mandate placement of an arterial line. If the CVS pathway identifies a significant increase in metaraminol requirement, this should prompt medical review. If an arterial line is not present at this point one should be inserted. Examples prompting medical review include:

- High rate of metaraminol infusion > 5mg/h
- Increasing metaraminol requirement e.g. doubling every 30mins.

If there are any concerns about response to intervention via the CVS pathway or indeed any other physiological derangement, then nursing staff should seek medical review in accordance with the section below on **'Escalation of patient management'**. Medical review should focus on the cause of increasing requirement for metaraminol, some examples of which include:

- Active bleeding.
- Sepsis.
- Myocardial ischaemia.

If the early nurse led interventions succeed in correcting physiological parameters, then weaning off support should commence after a period of ~2 hours. In the case of the CVS pathway the aim should be to wean metaraminol (or noradrenaline) down gradually whilst maintaining target observations. For metaraminol a reasonable reduction in rate is 0.25 – 0.5mg /30 mins depending on response.

Where epidural analgesia is the cause of hypotension (having excluded other causes), analgesia should not be sacrificed to achieve vasopressor weaning; however, there should be earlier use of vasopressor to counteract epidural induced (see high risk CVS pathway in appendix).

The time of admission will determine the timing of the senior medical review by the EPOC consultant. If possible this review should occur soon after admission. It should be documented in the **EPOC Review** as part of the patient's EPOC stay. Where admission is in the afternoon / evening handover between anaesthetising consultant and EPOC fellow is regarded as senior review.

Part of the Senior Review should include a review of paper notes for relevant clinical entries as this is where pharmacy, allied health professional and potentially other clinical teams may be found.

The aim is to discharge EPOC patients back to a surgical wards within 24 to 48 hours, where this is evident it is unlikely to occur the EPOC consultant should discuss the case with the critical care consultant with a view to transfer and ongoing care.

Such scenarios include ongoing vasopressor requirements, significant oxygen requirements beyond the scope of the ward, EPOC medical concerns and surgical consultant concerns over patient's condition.

If during their EPOC stay patients require a return trip to theatre then further post-operative care should ideally be undertaken by critical care rather than readmission to EPOC.

4.10. Discharge Criteria and Processes

Early anticipation of readiness for discharge will be communicated to the bed manager for allocation of inpatient surgical ward bed. Following EPOC Senior review a decision will be made regarding fitness for discharge. Expected criteria for discharge include:

- Alert.
- Pain under control.
- $Sp0_2$ within target range.
- Target Sp02 with $Fi0_2$ <40%.
- MAP > 65mmHg (Or BP targets within range) without vasopressor support.
- u/o >0.3ml/kg/hr.

The **EPOC Discharge Assessment** will then be completed by the medical staff on EPOC and verbal handover will be undertaken with the parent surgical team. Concurrently a nursing handover will occur on transfer of the patient and be documented.

All patient property will be transferred including any medical ancillary equipment (e.g. CPAP machine) if appropriate. To optimise patient safety, discharge from EPOC should occur between 08:00 and 21:00. A patient cannot be discharged to the ward and then readmitted to EPOC following emergency surgery / deterioration; this care should be undertaken by critical care.

4.11. Escalation of Patient Management

Should a patient exceed the provisions of care available on the unit this will require escalation, initially via the EPOC nurse in charge, and EPOC fellow during the day. Following this, if further escalation is required, the process depends on the time of day. See table below.

Part of normal EPOC care is to plan for likely deteriorations during daytime reviews or handovers between fellow and consultant anaesthetist. A provisional treatment plan can be made at this point to guide interventions either during the afternoon or for surgical team overnight.

<table>
<tr><th></th><th></th><th>Monday</th><th>Tuesday</th><th>Wednesday</th><th>Thursday</th><th>Friday</th><th>Saturday</th></tr>
<tr><td rowspan="3">am</td><td>Non-Urgent General Mx Questions</td><td rowspan="3"></td><td rowspan="3">EPOC consultant (CC)</td><td rowspan="3">EPOC consultant (CC)</td><td rowspan="3">EPOC consultant (Anaes)</td><td rowspan="3">EPOC consultant (Anaes)</td><td>Surgical team Pre-11am WR / SAT / CC cons</td></tr>
<tr><td>Logistic Bed Mx Qs (Admx and Dischx)</td><td>SAT / CC cons. Needs surgical team r/v .</td></tr>
<tr><td>Acute deterioration</td><td>SAT /CCOT -> CC (ITU admissions) or Anaesthetic / CEPOD cons [Theatre returns]. Needs urgent surgical r/v prior to escalation.</td></tr>
<tr><td rowspan="3">pm</td><td>Non-Urgent General Mx Questions</td><td rowspan="3">EPOC consultant (Anaes)</td><td colspan="3">EFA/ +- Relevant Anaesthetic cons / Surgical team / EPOC leads</td><td rowspan="3">EPOC consultant (Anaes)</td><td rowspan="3"></td></tr>
<tr><td>Logistic Bed Mx Qs (Admx and Dischx)</td><td colspan="3">EFA / EPOC leads</td></tr>
<tr><td>Acute deterioration</td><td colspan="3">EFA / CC (CC admissions) or Anaesthetic / CEPOD cons [Theatre returns]</td></tr>
<tr><td rowspan="3">eve</td><td>Non-Urgent General Mx Questions</td><td colspan="5">Surgical team / CC cons</td><td rowspan="3"></td></tr>
<tr><td>Logistic Bed Mx Qs (Admx and Dischx)</td><td colspan="5">Emergency admissions not applicable / Only planned admissions and discharges to proceed</td></tr>
<tr><td>Acute deterioration</td><td colspan="5">CCOT -> CC (ITU admissions) or Anaesthetic / CEPOD cons [Theatre returns]</td></tr>
<tr><td rowspan="3">night</td><td>Non-Urgent General Mx Questions</td><td colspan="5">Surgical team / SAT</td><td rowspan="3"></td></tr>
<tr><td>Logistic Bed Mx Qs (Admx and Dischx)</td><td colspan="5">N/A</td></tr>
<tr><td>Acute deterioration</td><td colspan="5">SAT / CCOT -> CC (ITU admissions) or Anaesthetic / CEPOD cons [Theatre returns]</td></tr>
</table>

EFA: emergency floor anaesthetist, CC : critical care, CEPOD: emergency theatres anaesthetist, SAT: senior anaesthetic trainee, CCOT: critical care outreach

Escalation scenarios requiring senior input have been grouped into 3 types of query. These correlate to the table above.

1. **Acute deterioration**

    - Escalation through nurse in charge and EPOC fellow, then via either EPOC consultant (when present) or EFA / SAT at other times. Depending on the cause of the deterioration this would subsequently be escalated to the CC consultant for possible CC admission or the CEPOD / oncall surgical / anaesthetic consultants for possible return to theatre. The use of EFA and SAT in this scenario falls within the current role and responsibility of these clinicians.

    - Urgent surgical review of these patients is required as part of the escalation process.

2. **Logistical issues - Bed management / Admission and Discharge issues**

    - Admissions will continue to be reviewed by EPOC leads in advance, with daily reviews of the bed status coordinated by the EPOC consultant in the mornings. Issues requiring special consideration are:

        - **Ad hoc last-minute referrals for admission** when EPOC consultants are not present e.g. afternoons Tuesday-Thursday. These need EFA/EPOC lead **AND** EPOC charge nurse approval.

    - The process of **week day EPOC discharges** / discharge criteria.

        - Discharges for a given day (Tuesday-Friday) should be planned by the morning EPOC consultant and paperwork prepared by fellows.

    - The process of **Saturday morning reviews and EPOC discharges**

        - EPOC consultants present all day (08:00-18:00) on Fridays enable greater senior input into current EPOC patients and Friday admissions to prepare for Saturday closure. The 'Friday afternoon EPOC state of affairs' should be communicated to the Saturday CC consultant via Friday CC consultants to highlight any possible requirement for Saturday morning CC involvement regarding an EPOC patient. **This should not involve CC consultant review of all EPOC patients on a Saturday morning** – only review of previously highlighted Friday EPOC patients who have clearly not met Saturday discharge criteria and may require escalation to CC as per original SOP.

3. **Non-urgent general clinical management questions**

    - The majority of routine clinical decisions and plans will be made on the morning ward round for existing EPOC patients as they are in all other areas of the hospital. Surgical teams will have to review their EPOC patients by 11am / prior to discharge to the ward on a Saturday.

        - Clinical questions arising Tues-Thurs afternoons not anticipated on the morning ward round for existing EPOC patients:

- Options for support in this scenario are:

  a) To contact morning EPOC consultant if available / practical.

  b) **EFA.**

  c) **Surgical team.**

- Clinical questions arising in the evenings (18:00-20:00) Monday-Friday - not anticipated on the morning ward round for existing EPOC patients or questions regarding new admissions not covered during hand over from theatres:

  - Options for support in this scenario are:

    a) Contact anaesthetising consultant if still present in theatres.

    b) CC consultant with nominated EPOC top cover responsibility.

    c) CEPOD consultant.

- Clinical questions on Saturday mornings when suitability for ward discharge based on discharge criteria is uncertain:

  a) Initial option for support in this scenario is: Surgical teams / registrar / consultant.

  b) SAT / CC consultant with nominated EPOC top cover responsibility.

4.12. Patient Responsibility

During daytime hours responsibility will be shared between the EPOC clinical team, headed by the EPOC consultant when present, and the named surgical consultant.

Senior Review to be undertaken daily by EPOC Consultant and ward round to be undertaken by surgical/parent team daily during admission.

From 20:00 – 08:00 EPOC reverts to a normal surgical ward with respect to responsibility. As such should medical review be required then this will be through the on-call surgical team. They will be assisted by the on-call anaesthetic team through the senior anaesthetic trainee initially and also the critical care team as clinically.

4.13. Summary of Staff Roles and Responsibilities

4.13.1. EPOC Consultant

- Tuesday – Thursday, be responsible and contactable for EPOC 08:00-13:00 and critical care consultant 18:00 – 20:00. On Mondays, 13:00-18:00, Fridays 08:00-18:00 and not present at weekends. This role must be covered by a consultant/speciality doctor/senior trainee and not left vacant.

- Can assist in theatres in emergency circumstances only, but only for short duration to enable time for another senior colleague to take over care.
- Review of patients to be admitted to EPOC that day whose operations to go ahead 'at risk'. Following this engagement in clinical review of patients.
- Review of admitted patients with clinical fellow, resolution of medical issues, review of progress and confirmation regarding suitability for discharge.
- Liaison with parent surgical teams.
- Multi-disciplinary liaison to ensure on-going optimal care.
- Liaison with critical care if appropriate regarding escalation of any patients.
- Review of medical notes as required for patients pending admission in the next 24-48 hours.
- Involvement in teaching and quality improvement.

4.13.2. **EPOC Clinical Fellow**

Clinical fellow presence on EPOC is shown in the table:

Week	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Week A		8:00-14:00	8:00-14:00	8:00-14:00	8:00-14:00	8:00 – 13:30	
Week B	13:00-21:00	13:00-21:00	13:00-21:00	13:00-21:00	13:00-21:00		
Week C	QI	QI	QI	QI	QI		

During week C fellows are expected to undertake formal QI work to support both professional interests but also the interests of EPOC. We would encourage fellows to undertake annual leave where possible during week C however recognise this is not always possible. Where a fellow is on leave during week A or B, then the fellow on week C will be expected to cover their colleague's absence.

- Admit receiving patients and takes handover from clinical teams in theatre suite.
- Review and prescribe appropriate admission medications.
- Receive handover from nursing staff regarding any significant medical issues.
- Undertake clinical review of EPOC patients and clinical intervention as

appropriate.

- Present patients for senior review and complete discharge paperwork as necessary and subsequent verbal handover to parent surgical team.
- Undertake QI.
- Attend teaching, including Thursday critical care junior doctor teaching.
- Handover to nursing staff and surgical teams with clear plan for overnight care.

4.13.3. **Consultant Anaesthetist in Theatre with EPOC bound patient**

- Completion of Nerve Centre **EPOC Anaesthetic Assessment** especially post-op plan.
- Prescribing post-operative analgesia, anti-emetics and fluids including JAC **EPOC Admission** bundle. Ensure pre-operative medication is continued as appropriate.
- Completion of paper care pathways for peripheral cannulae, arterial lines, CVC, and urinary catheters as appropriate.
- Continued care until ready for admission to EPOC.
- Direct liaison with EPOC clinical team for handover and formulation of post-op plan.

4.13.4. **EPOC Band 6 / Nurse in charge**

- Business ward round at 08:00 with EPOC Senior to identify actual or potential discharges from EPOC.
- Completion of discharge dashboard to enable visibility of bed requirements.
- Leads nursing handover.
- Ensure ward checklist is up to date (Controlled Drug CD count, intubation and difficult airway trolley, fire evacuation checks, safety briefing, hawkeye, and dashboard and swiftplus up to date).
- Communication with bed managers regarding patients requiring surgical beds.
- Appropriate coordination of patient care requirements with all staff members on EPOC and ensure these are carried out.
- Escalation of patients care as appropriate.

- Liaison with recovery team leader to ensure speedy admission to patients to EPOC.
- Responsible for ensuring any actions concerning equipment and repair are appropriately escalated.
- Responsible for the appropriate skills and behaviour of EPOC nursing team.

4.13.5. **EPOC Nursing staff**

- Attendance at nursing handover.
- Undertaking **EPOC nursing assessment** at start of shift and continuous throughout shift.
- Active review of patients as per CVS and renal pathways.
- Undertaking other relevant EPOC assessments listed in documents section.
- When ready for discharge handover to ward staff – to be documented.
- Ensure transfer of patient property including medical equipment e.g. CPAP machine.
- To enter time of admission of patient on EPOC dashboard if ward clerk not present.

4.13.6. **Ward clerk**

- To support clinical staff in process of patient care.
- To enter time of admission of patient onto **EPOC dashboard** at the time of admission.
- To field queries with patient relatives as first point of call.

4.13.7. **Consultant Surgeon**

- Named consultant responsible for patient care during EPOC stay may be delegated but must be communicated and documented appropriately.
- Responsible for daily senior surgical ward round and communication with EPOC clinical team. Any concerns discussed with EPOC consultant.
- Responsible for ensuring any surgical actions are undertaken by the surgical team appropriately.

4.13.8. EPOC Staff Sickness

Staff Group	Procedure
Nurses	• Sickness reported to band 6 nurse in charge as usual. • Band 6 to make adjustments to ensure cover.
EPOC consultant (Anaesthetics / Critical Care)	• Sickness reported to anaesthetic office as per usual practice. • Short notice cover supplied by secretaries as per usual practice.
POM Fellow	• Sickness to be reported to both EPOC ward and anaesthetic office as early as possible. • First line cover from available fellow. • Second line cover from anaesthetic trainee – to be cleared with college tutor.

4.13.9. Summary of Documentation

EPOC is working towards a fully electronic record using Nerve Centre (NC). Currently medical documentation is on NC, however nursing, pharmacy and allied health professional documentation will be a hybrid of electronic and paper. The following NC documentation / pathways are available, and screenshots are in the Appendix.

Category	Information
EPOC Anaesthetic Record	To be completed by anaesthetist caring for patient intra-operatively. Sets target goals and forms written handover.
EPOC Admission	To be completed by admitting medical doctor.
EPOC Nursing Assessment	To be completed every shift by nurse caring for patient. ‘save’ function enables contemporaneous documentation.
CVS Pathway	To be undertaken by nurse on admission and repeated every nursing shift as a minimum. Standard or higher risk assessment dependent on patient status. Higher risk assessment should be completed more frequently – a minimum of every 6 hours.
Renal Pathway	To be undertaken following admission blood results, and the following further bloods. Should be done every nursing shift and otherwise triggered by urine output assessment.

Category	Information
EPOC Review	To be completed ideally following admission (time of day permitting), and once daily as a minimum thereafter.
Ward Round:	Surgical team to complete on review.
EPOC Discharge Document	To be completed once decision for discharge made.
Other	**relevant NC pathways:**
Alcohol Screening:	Within 4 hours of admission, no repeat.
Bedrails Risk:	Within 4 hours of admission, to be repeated every 7 days or as/when patient condition changes.
Combined Holistic:	Within 4 hours of admission, to be repeated every 7 days or as/when patient condition changes.
Diabetic Foot Check:	For all Diabetic Inpatients.
Initial Discharge:	Within 24 hours of admission for patients staying more than one day.
Lying and Standing BP:	To be completed within 4 hours of admission, for all patients over 65 years old, no repeat.
Mouthcare:	Daily for all Inpatients.
MUST (RCHT):	Within 4 hours of admission, to be repeated every 7 days or as/when patient condition changes.
Height and weight	Ensure up to date values submitted on JAC.

4.14. Selection of Relevant Clinical Guidelines

- Treatment Escalation Plan and Resuscitation Decision Record
- Thrombosis Prevention, Investigation and Management of anticoagulation
- Perioperative Blood Transfusions in Adults
- Management of Diabetes Mellitus during Surgery / elective procedures
- Management of Hypoglycaemia in Adults
- Use of intravenous Sliding Scale Regimen for Adults
- Parkinson's Disease - Management of Inpatients clinical guideline

- Acute Kidney Injury Guideline
- Postoperative Adult Analgesic - Epidural Neuraxial Block
- Management of Leg Weakness with Epidural Analgesia
- Postoperative Adult Analgesic - Patient Controlled Analgesia
- Local Anaesthetic Infusions for Post-operative Pain Relief in Adults
- Management of Post-operative Atrial Fibrillation
- Perioperative Management of Adults with OSA

4.15. Post-EPOC Episode

QI and Outcome Measurement

This will focus on the following:

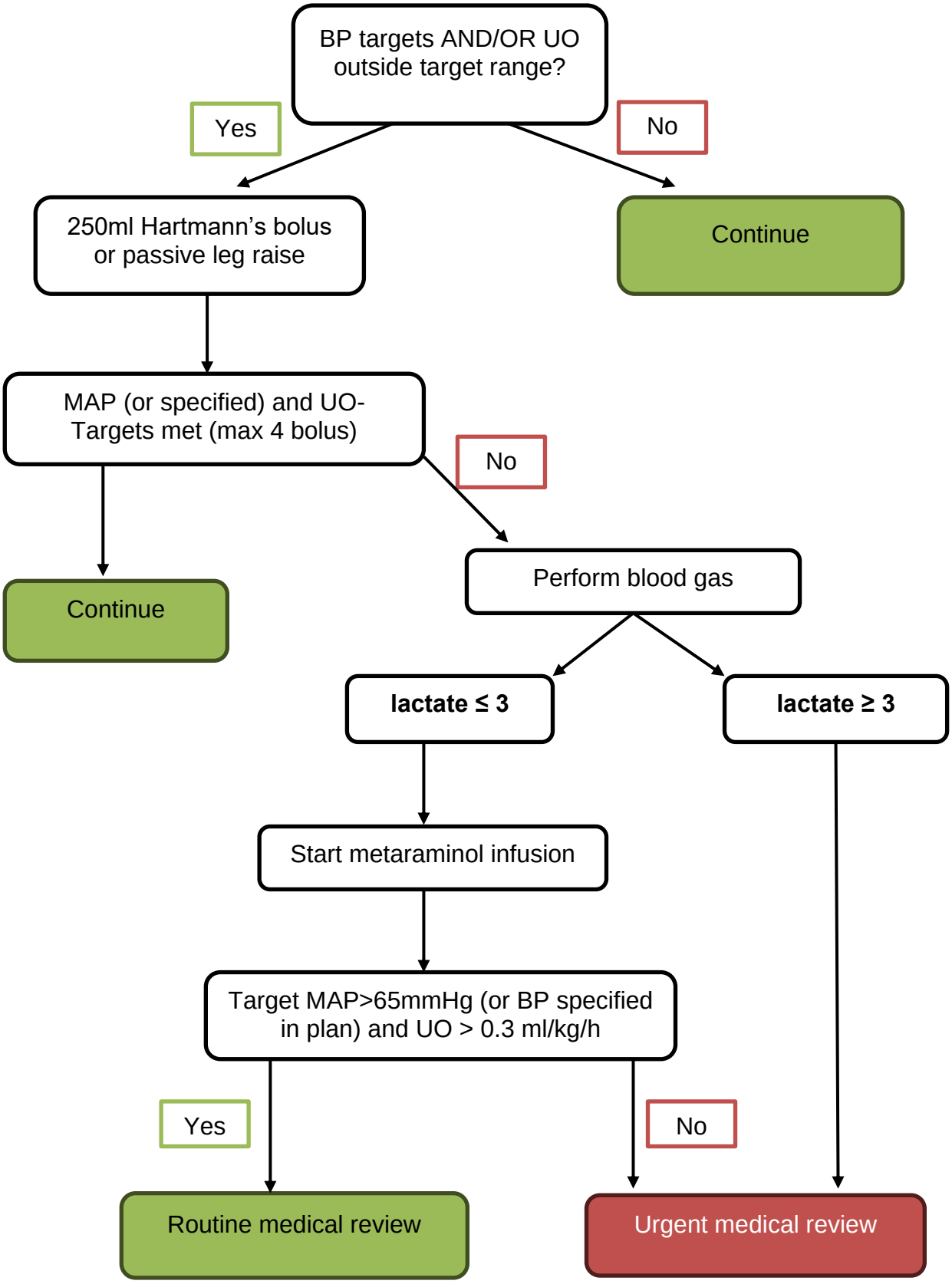
- Integration of multiple procedure specific full patient pathways with POA – EPOC process.
- Liaison with surgical specialities to develop this.
- Development of formal and automated patient follow up process to include long term patient reported outcomes.
- Ongoing development of perioperative RADAR Cube for POM clinical outcomes data analysis.
- Development of bespoke POM teaching package in accordance with RCoA curriculum to deliver to fellows and anaesthetic trainees passing though EPOC.

4.16. References

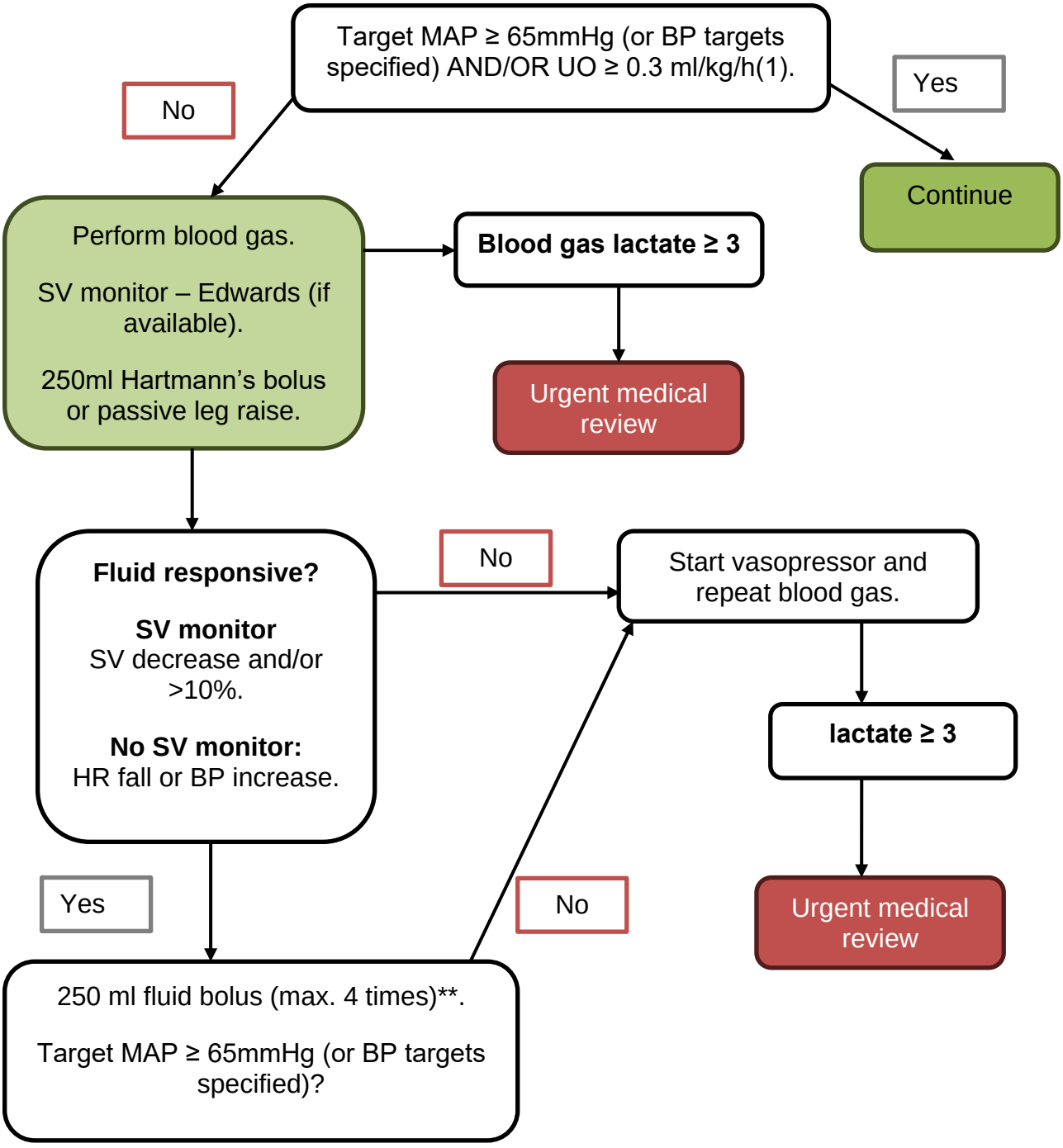
1. https://www.ficm.ac.uk/sites/default/files/gpics-v2.pdf
2. https://www.ics.ac.uk/ICS/ICS/GuidelinesAndStandards/GPICS_2nd_Edition.aspx
3. https://cpoc.org.uk/sites/cpoc/files/documents/2020-10/Enhanced%20Perioperative%20Care%20Guidance%20v1.0.pdf

4.17. **Clinical Pathways**

EPOC CVS Assessment



4.18. **EPOC CVS assessment for higher risk patient***



*Examples of higher risk EPOC patients include those with epidural analgesia, open colorectal resections, gynae-oncology debulking.

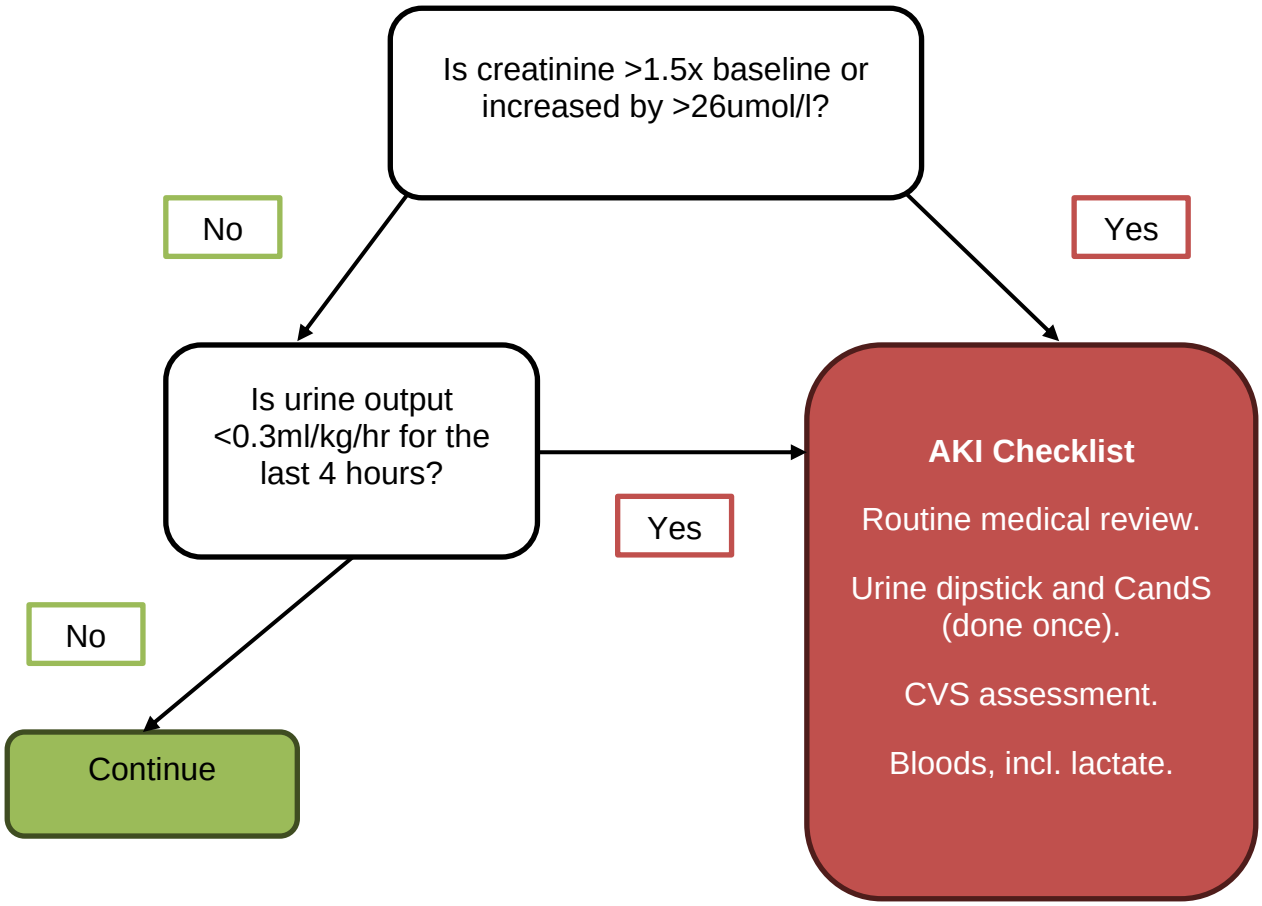
**In a patient with an epidural, review fluid balance including intra-operative amounts and cardiac function - consider starting vasopressor after 2 boluses.

NB: in vascular patients lactate may be elevated in cases of limb re-perfusion. Important to monitor trends.

(1) ERAS Guidelines for Perioperative Care in Elective Colorectal Surgery: Enhanced Recovery After Surgery (ERAS) Society Recommendations: 2018.

Oliguria in the adult is usually defined as urine output <0.5 ml/kg/h, or <500 ml in 24 h, in an adult**. However, urine output and oliguria alone are not reliable indicators of hypovolaemia in the first 48 h after surgery as the postoperative metabolic response to stress leads to renal vasoconstriction and physiological salt and water retention** [302]. Oliguria should be assessed carefully (fluid balance chart), and a thorough clinical examination performed before commencing intravenous fluid resuscitation for dehydration or hypovolaemia, as excess fluid administration has been associated with acute kidney injury.

4.19. **EPOC Renal assessment**



5. Dissemination and Implementation

5.1. This document will be disseminated to all EPOC / Anaesthetic / Critical Care / Theatres and Surgical staff via clinical and nursing leads. It will be stored on the trust intranet site.

5.2. Supervision will be provided by both senior nursing and medical staff as appropriate. Training will be given as appropriate either by education team or clinical representatives as appropriate.

6. Monitoring compliance and effectiveness

Information Category	Detail of process and methodology for monitoring compliance
Element to be monitored	All aspects of this will require monitoring.
Lead	Clinical and Nursing leads for EPOC.
Tool	Adherence will be monitored as part of the audit process within the department on a template specific to the topic.
Frequency	Formally monitored every 2 years.
Reporting arrangements	Reported to ACCT directorate structure and ACCT governance leads.
Acting on recommendations and Lead(s)	Clinical leads will act on directorate/governance recommendations.
Change in practice and lessons to be shared	Shared via ACCT and Critical Care governance sessions as appropriate.

7. Updating and Review

7.1. This document will be reviewed every 3 years from its approval.

7.2. A review is acceptable within a shorter time period should significant changes occur.

8. Equality and Diversity

8.1. This document complies with the Royal Cornwall Hospitals NHS Trust service Equality and Diversity statement which can be found in the 'Equality, Inclusion and Human Rights Policy' or the Equality and Diversity website.

8.2. Equality Impact Assessment

The Initial Equality Impact Assessment Screening Form is at Appendix 2.

Appendix 1. Governance Information

Information Category	Detailed Information
Document Title:	Enhanced Perioperative Care Unit Standard Operating Protocol V1.0
This document replaces (exact title of previous version):	New Document.
Date Issued/Approved:	1 November 2023
Date Valid From:	March 2024
Date Valid To:	March 2027
Directorate / Department responsible (author/owner):	Dr Robert Hartley and Dr Densham, Consultant Anaesthetists. Joint Lead Enhanced Perioperative Care Unit.
Contact details:	01872 258197
Brief summary of contents:	Standard Operation Procedure for EPOC patients.
Suggested Keywords:	High-risk, elective, enhanced
Target Audience:	**RCHT:** Yes **CFT:** No **CIOS ICB:** No
Executive Director responsible for Policy:	Chief Medical Officer
Approval route for consultation and ratification:	Anaesthetics, Critical Care and Theatres Care Group Governance
General Manager confirming approval processes:	Doug Riley
Name of Governance Lead confirming approval by specialty and care group management meetings:	James Masters
Links to key external standards:	None required.
Related Documents:	None required.
Training Need Identified?	Yes - document will be disseminated to all ACCT staff

Information Category	Detailed Information
Publication Location (refer to Policy on Policies – Approvals and Ratification):	Internet and Intranet
Document Library Folder/Sub Folder:	Clinical / Anaesthetics

Version Control Table

Date	Version Number	Summary of Changes	Changes Made by
February 2024	V1.0	Initial issue	Dr Robert Hartley, EPOC Clinical Lead

All or part of this document can be released under the Freedom of Information Act 2000.

All Policies, Strategies and Operating Procedures, including Business Plans, are to be kept for the lifetime of the organisation plus 6 years.

This document is only valid on the day of printing.

Controlled Document.

This document has been created following the Royal Cornwall Hospitals NHS Trust The Policy on Policies (Development and Management of Knowledge Procedural and Web Documents Policy). It should not be altered in any way without the express permission of the author or their Line Manager.

Appendix 2. Equality Impact Assessment

Section 1: Equality Impact Assessment (EIA) Form

The EIA process allows the Trust to identify where a policy or service may have a negative impact on an individual or particular group of people.

For guidance please refer to the Equality Impact Assessment Policy (available from the document library) or contact the Equality, Diversity and Inclusion Team rcht.inclusion@nhs.net

Information Category	Detailed Information
Name of the strategy / policy / proposal / service function to be assessed:	Enhanced Perioperative Care Unit Standard Operating Procedure V1.0
Directorate and service area:	ACCT
Is this a new or existing Policy?	New
Name of individual completing EIA (Should be completed by an individual with a good understanding of the Service/Policy):	Dr Robert Hartley, EPOC Clinical Lead
Contact details:	01872 258197

Information Category	Detailed Information
1. Policy Aim - Who is the Policy aimed at? (The Policy is the Strategy, Policy, Proposal or Service Change to be assessed)	All users of EPOC.
2. Policy Objectives	Outline ethos and running of service.
3. Policy Intended Outcomes	High quality patient care.
4. How will you measure each outcome?	Patient length of stay, critical care escalation, review of adverse incidents.
5. Who is intended to benefit from the policy?	Staff and patients.

Information Category	Detailed Information
6a. Who did you consult with? (Please select Yes or No for each category)	• Workforce: Yes • Patients/ visitors: No • Local groups/ system partners: No • External organisations: No • Other: No
6b. Please list the individuals/groups who have been consulted about this policy.	**Please record specific names of individuals/ groups:** Clinical leads for EPOC. Nursing leads for EPOC, critical care colleagues.
6c. What was the outcome of the consultation?	Positive – approved.
6d. Have you used any of the following to assist your assessment?	**National or local statistics, audits, activity reports, process maps, complaints, staff, or patient surveys:** Activity reports and patient surveys.

7. The Impact

Following consultation with key groups, has a negative impact been identified for any protected characteristic? Please note that a rationale is required for each one.

Where a negative impact is identified without rationale, the key groups will need to be consulted again.

Protected Characteristic	(Yes or No)	Rationale
Age	No	
Sex (male or female)	No	
Gender reassignment (Transgender, non-binary, gender fluid etc.)	No	
Race	No	
Disability (e.g. physical or cognitive impairment, mental health, long term conditions etc.)	No	
Religion or belief	No	

Protected Characteristic	(Yes or No)	Rationale
Marriage and civil partnership	No	
Pregnancy and maternity	No	
Sexual orientation (e.g. gay, straight, bisexual, lesbian etc.)	No	

A robust rationale must be in place for all protected characteristics. If a negative impact has been identified, please complete section 2. If no negative impact has been identified and if this is not a major service change, you can end the assessment here.

I am confident that section 2 of this EIA does not need completing as there are no highlighted risks of negative impact occurring because of this policy.

Name of person confirming result of initial impact assessment: Dr Robert Hartley, EPOC Clinical Lead.

If a negative impact has been identified above OR this is a major service change, you will need to complete section 2 of the EIA form available here:
Section 2. Full Equality Analysis