Government of Western Australia
North Metropolitan Health Service
Women and Newborn Health Service

OBSTETRICS AND GYNAECOLOGY
CLINICAL PRACTICE GUIDELINE

Enhanced Recovery After Surgery (ERAS):

Laparotomy Pathway for Gynaecologic Oncology Patients [NEW]

Scope (Staff):	WNHS Obstetrics and Gynaecology Directorate staff
Scope (Area):	Obstetrics and Gynaecology Directorate clinical areas at KEMH

This document should be read in conjunction with this Disclaimer

Contents

Purpose

This document defines the Enhanced Recovery After Surgery (ERAS) care pathway aimed to standardise the perioperative care of patients undergoing a laparotomy with the Gynaecolgic Oncology team. This includes patients having a laparotomy for all indications, including benign, borderline, and malignant disease, and applies to procedures including, but not limited to, simple and radical hysterectomy, adnexectomy, omentectomy, lymph node dissection, appendicectomy, pelvic and diaphragmatic peritonectomy, bowel resection, stoma formation, and splenectomy.

By standardising care, this pathway reduces care variabilities and provides a evidence-based approach that supports improved patient outcomes, enhances recovery, and increases patient engagement and satisfaction.

Scope

This procedure applies to all parties involved in the care of Gynaecologic Oncology major laparotomy patients, including Anaesthetists, Anaesthetic technicians, Surgeons, Physicians, Nursing, Pharmacy, Physiotherapy, Dietiticans, Occupational Therapy, Social Work, Hospital Administration, the patient and patients' support systems.

Procedure for ERAS

ERAS: Major open surgery

ERAS is a multimodal perioperative care pathway designed to achieve early recovery for patients undergoing major surgery.

The use of ERAS pathways, with a high degree of compliance, have been shown to reduce complications, readmissions, and reoperations.

This document will focus on elements of the care pathway for the preadmission, pre-operative, intra-operative, and post-operative periods.

Pre-admission components

Patient selection

- All patients undergoing laparotomy at King Edward Memorial Hospital will be placed on the ERAS pathway
- Patients undergoing planned surgery at peripheral sites (Fiona Stanley Hospital, Sir Charles Gairdner Hospital, Royal Perth Hospital) are excluded.

Patient information, education and counselling

- The ERAS Clinical Nurse provides patient and/or caregiver education ideally 2-4 weeks pre-operatively and again on the day/s prior to surgery, delivered via phone or video conference call.

- Education includes the principles of ERAS, surgical optimisation (e.g., smoking cessation/NRT, alcohol cessation, nutrition and exercise), and expectation-setting regarding surgery, length of stay, and recovery
- Mixed-format educational material will be provided including verbal, written, and visual information
- The ERAS nurse and physiotherapist will provide advice on:
    - aCOUGH
        - **a**ctive **C**ycle of Breathing Techique (aCBT)
        - **O**ral hygiene
        - **U**nderstanding the concepts
        - **G**etting out of bed
        - **H**ead Elevation
    - Inspiratory muscles training (IMT) device use and education (if applicable).There is also a surgery school video and information leaflet on this.
    - Lymphodema education (if applicable)
    - Safe movement after surgery
- Patients will be contacted by pharmacy via phone and/or seen in pre-admission clinic (PAC) particularly those taking ≥5 medications, or those on diabetic, antiplatelet and anticoagulant medications.
- Enoxaparin education and injection technique (if applicable) will be provided with the ERAS nurse provided and available online via 'Surgery School'. Patient information leaflets on preventing and treating blood clots will also be provided.
- Stomal nurse review and education will be provided (if applicable)
- The following patient Information booklets will be provided to Gynaeoncology patients
    - ERAS Gynaecologic Oncology
    - Major Gynaecologic Oncology Surgery: ERAS
    - Physiotherapy post-operative advice
- Online 'Surgery School' access will be provided to all patients,available in English, Greek, Mandarin, Vietnamese, Cantonese, and Arabic.Patients will receive QR codes and URL for access.

Preoperative optimisation: alcohol, smoking, anaemia, diabetes, Obstructive Sleep Apnoea, nutrition

- **Alcohol**
    - Patients will be screened for alcohol use and offered alcohol cessation interventions and counselling at least 4 weeks pre-operatively
- **Smoking and vaping**

- Patients will receive counselling and behavioural support on the importance of smoking and vaping cessation
- A 4 week quit pack/NRT will be provided at least 4 weeks pre-operatively

- **Anaemia**
  - Patients will undergo anaemia screening and optimisation (iron studies +/- Vit B12, folate)
  - Referral for iron infusion if Hb <120 g/L and criteria are met for absolute (ferritin <30 µg/L, TSAT <20%) or functional iron deficiency (ferritin <150 µg/L, TSAT <20%).

- **Diabetes screening and management**
  - Patients with diabetes risk factors will have HbA1C screening. Risk factors include:
    - Age >40 years
    - Age >18 years if Aboriginal or Torres Strait Islander
    - BMI >35
    - Random BGL >5.6 mmol/L
    - AUSDRISK score >6
  - Referral to physicians if HbA1C ≥6.5% (diagnostic of new diabetes)
  - Patients with known diabetes should have HbA1C measured within the last 3 months, but preferably 4-6 weeks prior to surgery
  - Referral to gynaecology physician for optimisation and/or surgical delay is required if
    - HbA1C ≥8.5%
    - Glycaemic control is highly variable with frequent hypo- or hyperglycaemia requiring intervention or hospitalisation
    - there is suspected hypoglycaemic unawareness, indicated by a history of asymptomatic hypoglycaemia (blood glucose level <4.0 mmol/L) without typical symptoms such as tremor, sweating, or cognitive changes
    - Complex diabetes with significant comorbidities (e.g. heart disease, renal disease, stroke, morbid obesity, peripheral neuropathy)

- **Obstructive Sleep Apnoea**
  - Screening using STOP-BANG tool
  - Encourage CPAP use 4 weeks pre-operatively and post-operatively if prescribed. Educate patients to avoid lying flat, especially when apnoea risk is greatest and to avoid opioids post-operatively where feasible.

- **Nutrition**
    - Nutritional screening using the Modified Malnutrition Screening Tool (MMST) in clinic +/- Subjective Global Assessment (SGA)
    - Referral to a dietitian if indicated for:
        - Nutritional and protein supplementation in cases of severe malnutrition
        - Oral immunonutrition (e.g. Impact Recover)
        - Weight loss interventions (e.g. Optifast)
    - Three(3) Online Surgery School Videos (external website) are available on 'General Nutrition', 'Cancer Nutrition' and 'Nutrition and Surgical Optimisation for Patients with Obesity'

- **Prehabilitation**
    - Multimodal program to optimise the patient's physical and psychological condition prior to major surgery, focusing on nutrition, exercise and psychological preparation.It also ncludes inspiratory muscle training (IMT).
    - Consider enrolment in a prehabilitation clinical trial or referral to private exercise physiology services until a formal program is available through KEMH. Medicare funding for exercise physiology may be available for patients with Type 2 diabetes or a GP-initiated Chronic Disease Management Plan.

Pre-operative components

Prior to admission

Skin Preparation

- Patients will be provided with chlorhexidine pre-op body wash 4% and instructed to shower with this both the night prior to surgery and the morning of surgery.

Fasting Instructions

- Patients can have solid food up to six (6) hours prior to surgery
- Patients can have clear fluids until two (2) hours prior to surgery, then'Sip til send' 50mL/hr of approved clear fluids is allowed in the day surgery unit or on the ward, and should be documented on the Fluid balance chart (MR729)
- If planned for bowel surgery, patients may have an early breakfast the day before surgery, followed by clear fluids for 24 hours until 2 hours pre-operatively (see separate written patient instructions).
- Patients taking GLP1 agonists/co-agonists will be given written patient information from ANZCA in the PAC titled 'Preparing for your medical procedure when taking some diabetes and/or weight loss medications'. They

will be instructed to have clear fluids only on the day before surgery (24 hours pre-operatively), followed by a standard 6-hour fasting.

Carbohydrate Loading

- Carbohydrate (CHO) drink Nutricia preOp® 25 g x 6 will be provided to patients
    - On the day prior to surgery, patients will be instructed to drink 2 bottles (400 mL total) at 4pm and 8pm
    - If surgery planned for the morning: patients will be instructed to drink 2 bottles (400 mL total) between 5-6am on the day of surgery
    - If surgery planned for the afternoon: patients will be instructed to drink 2 bottles (400 mL total) between 9-10am on the day of surgery
    - *Of note, the single morning dose of CHO loading given within 2 hours of surgery is the key dose in shortening time to return to bowel function and improved patient comfort*

Contraindications and Cautions:

- Patients should avoid CHO drinks if they have diabetes (type 1 and 2 regardless of BSL control/HbA1C), are on dialysis, or have renal impairment (CKD>3, eGFR<60)
    - Available data, however, shows no major differences in gastric emptying, glycaemic varaibility or aspiration risk in well-controlled type 2 diabetics vs non-diabetics
- Patients on GLP-1 agonists without diabetes and patients who have had bariatric surgery within the last 2-3 years can take Nutricia® at 4 pm and 8 pm on the day prior to surgery, but omit on the day of surgery

Bowel Preparation and Oral Antibiotcs (Day Prior to Surgery)

- Mechanical Bowel Preparation (MBP)
    - Routine use of MBP alone is not recommended for colonic surgery
    - MBP may be considered for planned:
        - Colorectal surgery
        - Procedures involving diverting stomas
- Combined use with oral antibiotics
    - If MBP is administered, it must be combined with oral antibiotic bowel decontamination approximately 19 hours prior to surgery.
    - Combined MBP and orlal antibiotics are recommended to reduce:
        - Surgical site infection (SSI)
        - Anastomotic leak
        - Postoperative complications

- MBP regimen
    - Administer PICO Prep:
        - First dose at 11 am on the day prior to surgery
        - Second dose at 3 pm on the day prior to surgery
- Oral antibiotic Regimen

  Patients are instrusted to take the following:
    - At 1 pm: Neomycin 1g orally AND Metronidazole 400 mg orally
    - At 2 pm: Metronidazole 400 mg orally
    - At 10 pm: Metronidazole 400 mg orally

Day of Surgery on Admission

Day of Surgery Observations

The following standard DSU assessments must be completed and documented on arrival:

- Weight
- Vital signs recorded as per MR285.02
- BSL for patients with diabetes:
    - Hypoglycaemia (BSL < 4 mmol/L) or hyperglycaemia (BSL > 12 mmol/L) requires prompt medical review and appropriate management
- Baseline post-void residual (PVR) measurement for patients scheduled for radical hysterectomy for cervical cancer

Pre-operative analgesia

- On arrival to DSU, patients to be given:
    - Oral paracetamol 1 g (regardless of weight)
    - Addition of Celecoxib up to discretion of anaesthetist. 200 mg Celecoxib (or 100 mg celecoxib if >65 years old, renal impairment (eGFR 40-60 – CKD class 3), weight <50kg, patients on frusemide <40 mg daily). Do not use celecoxib if renal impairment (eGFR <40, single kidney), hypertension controlled with two or more agents, hypersensitivity or active peptic ulcer disease
- Patients to avoid anxiolytics (e.g., lorazepam, temazapam) unless severe pre-operative anxiety is present

Thromboprophylaxis

- Ensure well-fitted TEDS in DSU

Normothermia maintenance

- Use of active warming, via warmed linen blanket or space blanket in DSU prior to theatre even if the patient is normothermic on arrival
- Pre-warming with forced-air warming for ≥45 minutes pre-op best practice if available

Intra-operative components

- **Thromboprophylaxis**
  - Pharmacological prophylaxis with Heparin 5000 units subcutaneous injection immediately after induction. If <50 kg, consider 2500 units.
  - If spinal or epidural (neuraxial) anaesthesia is used, administer heparin 5,000 units subcutaneously 1–2 hours after the neuraxial block
  - Mechanical prophylaxis with TEDS and Flotrons/sequential compression devices in theatre
- **Normothermia maintenance**
  - Prevent heat loss after induction and at the end of procedure by avoiding unnecessary patient exposure (e.g., during surgical scrubbing) and considering the use of heated blankets
  - Maintain theatre temperature at least 21 degrees
  - Use active warming to maintain patient temperature >36 degrees throughout the procedure
    - Hourly temperature monitoring/continuous core temperature monitoring and documentation on anaesthetic chart
    - Use forced-air warming devices, such as fullbody Bair Hugger surgical access warming blanket
    - Consider heated underbody mat e.g. Hot Dog
    - Consider warmed IVFs
    - Consider warmed fluids for intraoperative wash
- **IV access**
  - Consider insertion of a forearm intravenous cannula (IVC) if Peripheral Parenteral Nutrition (PPN) is anticipated post-operatively (e.g. in cases involving prolonged adhesiolysis or bowel resection)
  - Insert an arterial line if clinically indicated. Remove as early as possible to reduce the risk of surgical site infection (SSI), thrombosis, and to facilitate early mobilisation
  - Insert a central venous catheter (CVC) if clinically indicated. Remove as early as possible for the same reasons outlined above
- **Fluid management**
  - Both perioperative fluid overload and dehydration are associated with adverse outcomes, including SSI, respiratory complications, and acute kidney injury

- Use minimally invasive cardiac output monitoring to guide goal-directed fluid therapy (GDFT) and the use of vasopressors and inotropes to avoid under- or over-resuscitation. Aim for adequate urine output of >1ml/kg/hour.
- Aim for a slightly positive fluid balance on the day of surgery, avoiding excessive weight gain (>2.5 kg)
- Use balanced crystalloids (e.g., compound sodium lactate) or colloids (e.g., albumin) as indicated
- Avoid sodium- and chloride-rich solutions, except in specific clinical circumstances (e.g., hypochloraemia or metabolic alkalosis)

- **Transfusion and management of coagulopathy**
  - In patients with haemoglobin 7–8 g/dL and no evidence of ongoing blood loss, adopt a restrictive transfusion strategy, particularly if the patient is asymptomatic and has no underlying cardiac disease
  - Consider haematinic replacement (e.g., intravenous iron infusion)
  - Consider perioperative tranexamic acid to reduce the risk of bleeding

- **Initiation of multimodal opioid sparing analgesia**
  - Consideration of neuraxial anaesthesia e.g. single shot spinal
  - Reserve thoracic epidural analgesia for selected cases, as it may impede mobilisation, contribute to hypotension, and delay urinary catheter removal
  - Total intravenous anaesthesia (TIVA) preferred to a volatile based technique with some evidence supporting the use of TIVA for improved long term outcomes in cancer surgeries
  - Consider TIVA particularly in elderly patients, as it may reduce postoperative cognitive dysfunction and delirium, decrease postoperative nausea and vomiting (PONV), reduce opioid requirements, and improve recovery outcomes
  - Multi-modal opioid sparing analgesia includes ≥3 non-opioid drugs (e.g ketamine, magnesium, lignocaine (minimum 4mg/kg total dose), clonidine (at least 1mcg/kg) and dexmedetomidine)
  - Consider the following:
    - NSAIDs if not given pre-operatively
      - Exercise caution when prescribing NSAIDs in elderly patients, patients on multiple antihypertensive medications, and patients with renal impairment
    - IV ketamine
      - 0.25 mg/kg bolus then 0.1-0.2 mg/kg/hour
    - IV magnesium

        - Option of bolus only (50 mg/kg) or bolus and infusion (30-50 mg/kg followed by 10-15 mg/kg/hr till the end of surgery) dose mg/kg/hour
    - IV opioid
        - Preference for short-acting agents and limitation of dose, if administered
    - IV lidocaine
        - 1.5 mg/kg then 1-1.5 mg/kg/hr
    - Avoidance of benzodiazepines
    - TAP blocks (surgeon placed or ultrasound guided) if mini laparotomy is performed for specimen retrieval

- **Postoperative nausea and vomiting prophylaxis and treatment**
    - Calculate Apfel score to assess the risk of PONV
    - Most gynaecology patients will have an Apfel score of 2 or 3, giving a 39-61% of PONV in first 24 hours of surgery
    - Administer at least two prophylactic IV antiemetics with different mechanisms of action for patients
        - Examples:
            - Glucocorticoid

              Dexamethasone 8 mg IV or 4 mg IV if age >80 years or weight <50 kg before skin incision

              Do not give to type 1 diabetics
            - $5HT_3$ antagonist

              Ondansetron 4 mg IV or granisetron 1 mg IV before skin closure
    - Consider adding another antiemetic for patients with ≥3 risk factors (>50% risk of PONV) such as a D2 receptor antagonist (e.g., metoclopramide 10 mg IV)
    - TIVA can be considered a form of antiemetic prophlylaxis

- **Lung protective ventilation strategies**
    - Aim for low tidal volumes 6-8 mL/kg of ideal body weight
    - Optimise PEEP to minimise driving pressure
    - Perform alveolar recruitment manoeuvres prior to PEEP and at the end of the procedure

- **Anaesthetic depth optimisation– aim for BIS/entropy 40-55**

- **Neuromuscular block reversal – ensure documented reversal to a train-of-four ratio of 90% prior to extubation**

- **Management of patients at risk of alcohol withdrawal**
    - If there is concern regarding alcohol withdrawal, commence the Alcohol Withdrawal Chart (AWC) (MR223.01) post-operatively and administer benzodiazepines as required (e.g., diazepam 10–20 mg PO/IV PRN)
    - In patients at risk of acute alcohol withdrawal and Wernicke's encephalopathy, administer thiamine as follows:
        - Thiamine 300 mg IV or IM daily for 3 days, then
        - Thiamine 100 mg orally three times daily until abstinent for 1 month, then
        - Thiamine 100 mg orally daily thereafter
        - Refer to Thiamine Treatment for Alcohol Dependent Patients for supporting information
- **Surgical Site Infection reduction**
    - Antibiotics prophylaxis
        - Cefazolin: 2 g IV or 3g if ≥120 kg with GFR more than 40 mL/min (if GFR ≤40mL/min, give 2 g), within the 60 minutes before skin incision to achieve the peak drug serum levels at incision. Prioritise administration shortly after IVC insertion to faciliate this.
        - Redose cefazolin 4 hours from intraoperative dose administration (not from surgery start time) or if blood loss >1500 mL

          PLUS
        - Metronidazole: 500 mg IV for hysterectomy and/or appendicectomy (redosing not required unless case >12 hours)
        - ß-lactam alternatives: Use only for those with history of IgE-mediated penicillin hypersensitivity reaction, including urticaria (not just rash), angioedema and anaphylaxis. NB: SSI risk is higher with ß-lactam alternatives.
        - **Penicillin allergy**
            - Clindamycin: 600 mg IV within the 120 minutes before surgical incision. Redose at 6 hours if required.

              PLUS
            - Gentamicin 3 mg/kg IV (maximum 280mg) over 3-5 minutes within 60 minutes before surgical incision if CrCL ≥20 mL/min for surgical procedure duration <4 hours; 5 mg/kg (up to 480 mg) for surgery 4-6 hours duration and CrCl >40mL/min. If surgery 6-11 hours, give 5mg/kg up to 48 0mg plus a subsequent dose after 6 hours (if CrCl >60mL/min). Refer to eTG for further information on dosing if renal impairment.
        - **MRSA colonisation or infection**

        - Glycopeptides (e.g vancomycin) should be added to the prophylactic regimen (ie. In addition to cefazolin and metronidazole)
        - Use actual body weight to calculate vancomycin doses, even in patients with obesity. Vancomycin:15 mg/kg IV (maximum 2 g), requires slow infusion at a rate not exceeding 10 mg/minute, but it should not be less than 60 minutes for a 1 g dose, 90 minutes for a 1.5 g dose or 120 minutes for a 2g dose. Start infusion within 120 minutes before skin incision. It is the consensus view of the Therapeutic Guidelines Antibiotic Expert Group that the infusion should be started at least 15 minutes before incision to ensure adequate blood and tissue concentrations at the time of incision and allow potential infusion-related toxicity to be recognised before induction of anaesthesia. The infusion can be completed after surgical incision.Vancomycin provides adequate tissue concentration for up to 12 hours so redosing unlikely required.
    - **MRSA with penicillin allergy**
        - Vancomycin 15 mg/kg IV (maximum 2 g) 120 minutes prior to skin incison

        AND
        - Gentamicin 3mg/kg IV (maximum 280mg) over 3-5 minutes within 60 minutes before surgical incision if CrCL ≥20mL/min.
        - **Gentamicin – contraindications**
        - Contraindicated in patients with pre-existing vestibular or auditory impairment, severe aminoglycoside hypersensitivity, or chronically impaired renal function (eGFR <40) or rapidly deteriorating renal function.
        - A single dose can be used with caution in the frail or elderly (e.g >80 years).

- **Skin preparation**
    - Use chlorhexidine-alcohol for abdominal skin preparation unless allergy
    - Use povidone-iodine or cetrimide for vaginal preparation unless allergy
    - Allow skin preparation solution to dry completely before draping

- **BSL management**
    - Measure BSL hourly in patients with diabetes via finger or ear prick
    - Maintain blood glucose within 5-10 mmol/L in patients with diabetes

        - Follow ADS-ANZCA peri-operative diabetes and hyperglycaemia guidelines
        - Consider treating hyperglycaemia when BSL >10 mmol with correction dose of insulin delivered subcutaneously or recheck in 1 hour
        - For T2DM and other types of diabetes:
            - Administer Subcutaneous rapid-acting insulin for BSL >12 mmol/L with dosing based on body weight:
                - >100 kg:6 units every 3 hours until BSL <10 mmol/L
                - 55-100 kg:4 units every 3 hours until BSL <10 mmol/L
                - <55 kg: 2 units every 4 hours until BSL <10 mmol/L
            - Use variable rate insulin infusion if BSL >15 mmol/L or rising rapidly. Perform blood gas and fingerprick ketones to check for ketoacidosis.
    - Prevent hypothermia (as above)

- **Urinary catheter**
    - Insert IDC at start of procedure
    - Aim to remove IDC day 1 post-op for laparotomy, including radical hysterectomy, unless clear contraindications exist
    - Maintain urinary catheters for at least 7 days after elective or traumatic cystotomy/partial cystectomy, with longer (2-4 weeks) drainage in irradiated patients or those with complex bladder/ureteric reconstruction and obatin cystogram prior to removal

Surgical techniques

- Avoid routine prophylactic nasogastric tube (NGT) insertion, as it is ineffective in relieving gastric distension or preventing vomiting and is associated with increased pulmonary complications and patient discomfort.
- Avoid the use of surgical drains where possible
- Ensure appropriate senior surgical input to optimise operative efficiency and reduce operative time
- Change gloves and use new instruments prior to fascial closure, and following bowel surgery (including appendicectomy), to reduce the risk of surgical site infection
- Consider antiseptic wound irrigation (e.g povidone-iodine) as part of the closure bundle

Post-operative components

Recovery / Post Anaesthetic Care Unit (PACU)

- Provide warming with blanket or space blanket
- Aim for temperature ≥36ºC
- Encourage aCOUGH
- Pain protocol
    - Fentanyl IV as per PACU protocol
    - Tramadol 50 mg IV 2 hourly (maximum of 400 mg in 24 hours)
    - Buprenorphine 200 microg sublingual 2 hourly (maximum of 1600 microg in 24 hours)
    - Tapentadol IR 50 mg every 4 to 6 hourly if Tramadol is contraindicated or not tolerated due to sensitivity.Refer to Formulary One (external website) and follow direction of Pain Service or Anaesthetist only

- Antiemetics (as per PONV chart) MR810.02
    - 1st line - Ondansetron 4 mg 6 hourly PO/IV prn (maximum of 20 mg in 24 hours)
    - 2nd line - Metoclopramide 10 mg 8 hourly prn PO/IV (maximum of 30 mg in 24 hours)
    - 3rd line - Droperidol 500 microg 6 hourly IV prn (maximum of 2000 microg in 24 hours)
    - 4th line- Cyclizine 25-50 mg 8 hourly IV prn (maximum of 150 mg in 24 hours)

- Administer IV fluids at 1 mL/kg/hour post-operatively. Typical duration: 6-8 hours
- Consider a small fluid blous of 250 – 500 mL if urine output is <0.25 mL/kg/hour
- Transfer patient to ASCU or ward 6 when meets criteria

Recovery on Ward 6/ASCU - Day 0

- **Functional recovery and engagement**
    - Encourage use of the daily goal chart for GynaeOncology patients
    - Aim to sit out of bed on day of surgery and during all meals

- **Diet and fluid**
    - Offer normal diet and oral fluids if there are no surgical contraindications
- Continue IV fluids overnight as prescribed if required - 1 mL/kg/hour maximum post-operatively.

- **Analgesia and pain management**
    - Administer regular oral analgesia – paracetamol and NSAID

- If NSAID is contraindicated, consider oral clonidine (APS Team guided) to encourge opioid sparing
- PRN opioid options:
  - Tramadol 50-100 mg 4 hourly (maximum of 400 mg in 24 ours)
  - Buprenorphine 200-400 microg 4 hourly (maximum of 1600 microg in 24 hours)
  - Alternative is Oxycodone 5-10 mg 4 hourly (maximum of 30 mg in 24 hours)
- Use of rectus sheath catheters as per APS guidance
- Myles QoR-15 Patient Survey to be completed within the first 24 hours post -operatively (as per patient preference with either ERAS nurse on ward or via email link)

- **Observation and monitoring**
  - Record vital signs on Adult Observation and Response Chart (MR258.02)
    - Escalate care as necessary if vital signs are outside the recommended parameters (refer to MR258.02)
  - Urinary output ≥ 0.25 mL/kg/hour acceptable after major surgery as long as other causes such as active bleeding or active kidney injury have been excluded

- **Diabetes management**
  - Notify the surgical team to consider initiating basal bolus insulin in diabetic patients if daytime or pre-dinner BSLs are >10 mmol/L on 2 occasions OR if IV insulin is required intra-operatively
  - Surgical team to contact gynaecology physician on call (ideally prior to dinner) to facilitate post-dinner administration of long-acting insulin, providing the following information:
    - Patient history
    - BMI and eGFR
    - Pre-admission diabetic medications
    - Assessment of post-operative complications such as PONV, ileus and ketones

- **Respiratory and oral care**
  - Implement aCOUGH/IMT as tolerated
  - Keep the head of bed elevated at 30-45 degrees when patient is resting in bed
  - Ensure oral care and hygiene twice daily (teeth brushing/mouth wash) are maintained at night

- **Other interventions**

- Anti-emetics prescription as per PONV pathway
- Check minimal PV bleeding if patient had hysterectomy
- Provide NRT if prescribed
- Managed alcohol withdrawal if indicated:
    - Document on Alcohol Withdrawal Chart ((MR223.01))
    - Consider using Diazepam PRN
        - (e.g., diazepam 1020 mg PO PRN)
    - Consider IV/PO thiamine
        - 300 mg IV or IM daily for 3 days, then
        - 100 mg orally three times daily until abstinent for 1 month, then
        - 100 mg orally daily thereafter long term
- Manage surgical drains and/or NGT as per surgical team instructions

Recovery on ward/ASCU - Day 1 onwards

- **Functional recovery and engagement**
    - For Gynaeoncology patients continue to use the daily Goal Chart
    - Encourage the patient to sit out of bed for all meals
    - Aim for patient mobilisation at least 3 times daily, ideally up to 8 times

- **Diet and fluid**
    - Cease IV fluids once the patient tolerates 500-600 mL of oral intake
    - Offer an oral diet and fluids as tolerated
    - Encourage chewing gum and black coffee
- **Analgesia and pain management**
    - Review the multimodal opioid sparing analgesia plan and adjust dosing as needed
    - Continue rectus sheath catheters as per APS guidance

- **Respiratory and oral care**
    - Implement aBCT/IMT as tolerated
    - Keep the head of bed elevated at 30-45 degrees when patient is resting in bed
    - Promote oral care and hygiene twice daily

- **Gastroninestinal Care**
    - Administer aperients as charted – Docusate, Macrogol, Lactulose
    - Continue PONV prophylaxis as charted

- **Wound and drain management**
  - Provide wound care as per protocol
  - Manage surgical drains and/or NGT as directed by surgical team

- **VTE prophylaxis**
  - Ensure patient wears TEDS stockings
  - Continue using sequential compression devices when the patient is resting in bed until they are able to mobilise for more than 6 hours per day
  - Commence chemoprophylaxis as charted, 8 hours after intraoperative heparin dose

- **Other inventions**
  - Administer NRT if required
  - Manage alcohol withdrawal if indicated
  - Record daily weight on Adult Observation and Response Chart (MR258.02)

Criteria lead Discharge

Patient may be discharged if the following criteria is met:

- Pain controlled
- Eating and drinking
- Able to void (1 void of >150 mL with <150 mL PVR)
- Able to pass flatus and/or have bowel movement
- Mobilise independently
- Vital signs within normal ranges as per Adult Observation and Response Chart (MR258.02)

Discharge orders

- Recommended analgesic medication on hospital prescription upon discharge
  - Paracetamol 1 g PO every 6 hours (maximum dose 4 g in 24 hours) for 7 days [50 tablets]
  - Non-steroidal anti-inflammatory for 5 days:
    - Ibuprofen 400 mg PO every 8 hours [12 tablets] OR
    - Celecoxib 100 to 200 mg PO every 12 hours [10 capsules] at the discretion of the prescriber considering age, weight, renal function. Refer to Day of Surgery on Admission - Pre-operative Analgesia
  - Stronger pain relief when required (PRN)
    - Tramadol 50-100 mg every 6 hours PRN (maximum dose 400 mg in 24 hours) [10 capsules] OR

        - Buprenorphine sublingual tablet 200 microg every 4 hours (maximum dose 1200 microg in 24 hours) [10 sublingual tablet] *Schedule 8 - prescribe on a separate prescription

          OR

        - Tapentadol IR 50 mg every 4 to 6 hours (if tramadol contraindicated or unable to take due to sensitivity under the direction of a Pain Service or Anaesthetist only (Formulary One, external website)) [10 tablets] *Schedule 8 prescribe on a separate prescription
    - WNHS 'Your Pain Relief at Home' leaflet

- Constipation management
    - Macrogol 1 sachet twice daily for 7 days [10 sachets] AND
    - Docusate 120 mg twice daily for 7 days [20 tablets]
    - WNHS 'Medicines to Manage Constipation' leaflet

- Antiemetic - Ondansetron 4 mg every 6 hours PRN [4 wafers]

- Thromboprophylaxis management:
    - TEDS until mobilising to normal levels
    - Enoxaparin 40 mg subcut daily for 28 days for all cancer patients (to start 8 hours post intra-operative injection). No enoxaparin or shorter duration guided by Caprini VTE score. Dose adjustment may be required in patients with renal impairment and extremes of weight (Consider 20 mg if <50 kg; 60mg if >120 kg).
    - Consumer leaflet on 'Preventing and Treating Blood Clots'
    - NMHS: KEMH Gynae Oncology- English: Online Surgery School Video (external website) on enoxaparin administration and safe needle disposal (see 'Clexane Pre-Filled Syringe with Safety Lock' and other relevant videos)
    - See also WNHS VTE guideline
- 'Discharge Checklist' envelope which includes:
- Discharge summary (completed by RMO)
- For Gynaeoncology patients, provide Gynaecologic Oncology Surgery booklet (if not already given). See KEMH website Patient Fact Sheets
- Wound Care Leaflet - with instructions on when to remove wound dressing
- Follow up appointment (if not available advise the patient it will be posted)

Follow-up

- Telehealth appointment with ERAS nurse 24-72 hours post-operatively

- Australian Hospital Patient Experience Question Set to be completed after discharge (via email)ERAS nurse mobile provided for any concerns between 7am – 3pm Monday to Wednesday and Friday and 8am -4pm on Thursday.
- Advised to attend local Emergency Department or KEMH Emergency Centre for any after hours concerns/emergencies.
- For Gynaeoncology patients, phone call from Tumour Conference Clinical Nurse Consultant with pathology results and follow-up plan 2 weeks post-operatively
- Telehealth nurse appointment 30 days post-operatively
- PROMIS 30 days post-op questionnaire (sent via email)
- Gynae Oncology Clinic (Tuesday PM) or GP appointment if country patient for post-operative wound check at 6 weeks

Clinical documentation

Clinical documentation will be recorded in the patient's Digital Medical Record (DMR) and must be accurate, timely, and reflect the entirety of patient care provided. The Redcap ERAS database will be used for the purpose of compliance and audit, covering the four components of the ERAS pathway (preadmission, pre-operative, intra-operative and post-operative), as well as auditing the patient experience and outcomes.

References and resources

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Surgical prophylaxis for gynaecological procedures. In: Therapeutic Guidelines. Therapeutic Guidelines Limited; December 2025. Accessed May 11, 2026. https://login.kelibresources.health.wa.gov.au/login?url=https://app.tg.org.au/

Related WNHS policies, guidelines and procedures

WNHS VTE guideline

Useful resources and related forms

Patient Information brochures/booklets- see titles within guideline

Forms

- Formulary One (external website)

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Version history

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1	June 2026	First version

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