



CLINICAL PRACTICE GUIDELINE

Caesarean birth

This document should be read in conjunction with this [Disclaimer](#)

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Pre-admission clinic for births by elective caesarean

Inclusion criteria

- All women who have been booked for an elective Caesarean section within 7 days of the Pre-Admission Clinic (PAC) date.

Exclusion criteria

- All women with a medical / obstetric reason which requires admission prior to day of surgery.
- Women who are currently inpatients.

Medical pre requisites for appointment

Antenatal Clinic Medical Officer has arranged that:

- Operating theatre is booked and the booking form has been completed.
- Caesarean section consent form (MR295) has been signed
- Pathology request forms are completed for pre-surgery investigations
- Medical admission assessment and medical records are completed
- Waitlist form is complete.

Assessment

Anaesthetic Registrar will ensure:

- anaesthetic assessment completed
- premedication ordered on MR810

Midwives will ensure:

- An antenatal assessment is performed to identify potential problems.
 - An abdominal palpation is performed by the midwife, and if unsure of position (or if the woman's only reason for elective caesarean is breech presentation and fetus is now cephalic), discuss with the PAC RMO, and the woman is sent to MFAU or scanned in clinic depending on the RMO in PAC.
- Completion of the Elective Caesarean Section Pre admission Checklist Pathway form.
- Inclusion of relevant documentation as per the PAC checklist
 - Birth plan: Midwife to arrange any necessary further discussion of extra-ordinary birth plan requests with appropriate professional.

Midwife has explained:

- fasting guidelines

- the woman is to ring Day Surgery the evening prior to the day of caesarean section to confirm the admission and fasting times
- procedure during admission and Clinical Guidelines for Caesarean section
- what to expect in theatre
- discharge planning, including: length of stay and Visiting Midwifery Service
- Enhanced recovery after surgery (ERAS) principles (e.g. encourage mobilisation, eating and drinking as soon as possible)
- rooming-in policy
- visiting hours
- physiotherapy guidelines and benefits of mobilisation
- use of Graduated Compression Stockings (TED) anti-embolism stockings
- pain relief options
- options for / importance of
 - skin-to-skin contact with newborn as soon as possible
 - early breastfeed (in PACU)
 - limited separation of mother and baby
- vitamin K administration
- Allied Health referrals if required
- blood testing required within 6 days of surgery date
- Interpreters are booked for day surgery as required.
- Email is sent to KEMH Midwifery Nurse Managers (including Hospital Clinical Managers), Language Services and DSU Clerks with a list of all women that attended, clinic, date of surgery, reason(s) for caesarean, gestation, language spoken if not English, if complex care, and including weight or BMI.

Phlebotomist has taken blood for (or woman given pathology form to have blood taken at a Path west in advance of (but within 6 days of) caesarean date):

- full blood picture
- group and hold
- antibodies (if required)
- other (as requested).

Elective caesarean

Key points

1. All women booked for an elective Caesarean section will attend the Pre-admission Clinic unless they are hospital in-patients. Refer to above section in this document: [Pre-Admission Clinic for Births by Elective Caesarean Birth](#).
2. It is recommended that elective caesarean sections are booked as close as possible to 39 weeks gestation.¹

Procedure

1. Admit the woman as per a routine antenatal admission
2. The woman is to fast as per fasting guidelines. Refer to Clinical Guideline, [Anaesthetics: Preoperative Fasting guidelines: Elective gynaecological/ oncology and caesarean birth patients](#)
3. Ensure the woman's details are correct on the identification name bands and apply one to the woman's wrist and one to her ankle.
4. Check that relevant investigations have been carried out and results recorded e.g.
 - Routine antenatal screening tests
 - Blood group and cross matching
 - Full blood count
 - Coagulation screen
5. Ensure consent forms for Caesarean section (MR295) and epidural analgesia/anaesthesia (MR295.50) are completed.
6. Use electric hair clippers to remove excess pubic hair only as required for the incision.

To minimise the risk of supine hypotension place a wedge under the woman's right side lower back and right buttock until the procedure is completed and she can change position.
7. Remove all nail varnish and jewellery including all studs in nose, tongue, naval and other body parts. Tape wedding ring in place.
8. Complete all elements of the Pre-op / Theatre Checklist (MR290)
9. The woman is to shower and dress in a hospital gown fastened at the back. Ensure all underwear is removed. Most elective C/S are booked to DSU and would come in showered. DSU staff are to clean the woman's abdomen with two Antiseptic body cleansing washcloths (2% Chlorhexidine Gluconate) prior to putting on theatre gown.

10. Measure and fit Graduated Compression Stockings (GCS) according to the manufacturer's instructions. See Clinical Guideline, O&G: Venous Thromboembolism Prevention and Management: [Thromboprophylaxis and Caesarean Birth](#)
11. Administer pre-operative medication as prescribed by the anaesthetist.
12. Accompany the woman and her support person to the theatre check in bay. See section: Transfer to Operating Theatre.
13. The FHR should be auscultated and recorded following the insertion of the regional block (epidural, spinal or combined) in the anaesthetic room. **[OCOMC recommendation Feb 2019]**

Non-elective caesarean

Key points

1. Each case shall be managed according to the clinical evidence of urgency, with every single case being considered on its merits.²
2. It is recommended that the four grade classification of urgency system for caesarean birth be used.²

Categories:

Category 1: Immediate threat to the life or the health of the woman or fetus.

Timeframe – within 30 minutes.

Category 2: Maternal or fetal compromise but not immediately life-threatening.

Timeframe – within 60 minutes.

Category 3: Needing earlier than planned delivery but without currently evident maternal or fetal compromise

Category 4: At a time acceptable to both the woman and the caesarean section team, understanding that this can be affected by a number of factors.²

Procedure

1. It is the responsibility of the obstetric doctor booking the case to ensure all of the following people have been informed:
 - a) Theatre coordinator (page 3316)
 - b) Duty anaesthetist (page 3225)
 - c) Neonatal Registrar (page 3249)
 - d) Labour & Birth Suite (LBS) midwife coordinator (page 3313), this includes if woman is going to theatre from the ward.

If a code blue caesarean has been called, all these people will automatically be informed and staff can handover face-to face in theatre.

Note: Sufficient clinical information should be provided to the neonatal staff to allow them to summon help if they are busy elsewhere. Do not wait until in theatre to inform the paediatricians who may be busy elsewhere in the hospital.

Do not start a caesarean section without the paediatric staff in theatre, unless there is an urgent maternal or fetal indication for delivery.

2. Commence documentation of the MR290 Pre Op Theatre Checklist.
NB As a minimum the following **must be recorded** on the MR 290 for **all** Code Blue and category 1 caesarean sections:
 - ID Band X2 correct
 - Identification labels correct
 - Group and Hold and date
 - Operation consent obtained
 - Allergies
3. If possible, the woman is to fast as per fasting guidelines. See Clinical Guidelines [Section E: Anaesthetics](#) (via Healthpoint intranet access)
4. Ensure intravenous access and take blood for a full blood picture and cross matching or group and hold.
5. The midwife caring for the woman notifies the LBS midwife coordinator (page 3313) who will contact:
 - Midwifery / Nursing Hospital Clinical Manager (page 3333)
 - Special Care Nursery
 - Support persons as requested by the woman/midwife
6. Ensure the woman's details are correct on the identification band and apply one to the woman's wrist and one to her ankle.
7. Ensure the consent forms for Caesarean section (MR295) and epidural analgesia/anaesthesia (MR295.50) are completed.
8. Administer pre-operative medication as ordered by the obstetric and / or anaesthetic registrar. See next section [Gastric aspiration prevention in obstetrics](#)
9. If time permits:
 - Measure and fit [Graduated Compression Stockings](#) according to the manufacturer's instructions.
 - Use electric hair clippers to remove excess pubic hair only as required for the incision just prior to surgery.^{3, 4} (Level I)
 - Insert an indwelling catheter if one is not already in situ.
 - To minimise the risk of supine hypotension place a wedge under the woman's right side lower back and right buttock until the procedure is completed and she can change position.
10. Remove all nail varnish and jewellery including all studs in nose, tongue, naval and other body parts. Tape wedding ring in place.
11. Accompany the woman and her support person to theatre. See section: Transfer to Theatre.

Gastric aspiration prevention in obstetrics

Management

For elective caesarean / surgery fasting requirements: see KEMH Clinical Guideline:

Anaesthesia: [Preoperative Fasting guidelines: Elective gynaecological/ oncology and caesarean birth patients](#).

All usual anti-reflux medications should be continued throughout the peri-operative period, including when in labour and when fasting.

Women with gastric bands should have these deflated well in advance of planned surgery.

Elective caesarean and elective surgery during pregnancy

- [Ranitidine](#) 150-300mg orally at least one hour pre-operatively on the day of surgery.

Women in labour considered at high risk of requiring operative birth

- Consider ranitidine 150mg orally 12 hourly for high risk cases **as selected by the anaesthetist** in consultation with obstetric staff.

Emergency operations

- [Ranitidine](#) 50mg IV as soon as possible after notification, if not previously on oral ranitidine.
- [Metoclopramide](#) 10mg IV as soon as possible after notification.
- 30mL of SODIUM CITRATE mixture orally (0.3 molar solution) shall be given when the woman is on the operating table and immediately prior to induction of general anaesthesia.

References ⁵⁻¹⁰

Transfer to the operating theatre

Key points

1. All women will be transferred to the theatre holding bay by a midwife and an orderly /PCA.
2. All women shall be transferred to the holding bay by a wheelchair, trolley or bed as appropriate.
3. Women walk to holding bay if appropriate and then transferred onto trolley
4. All women shall be covered with a blanket for warmth and dignity.
5. All personal belongings shall be bagged, labelled and given to the family, left in the woman's room or secured in a locker by unit nursing / midwifery staff.

Procedure

1. The anaesthetic nurse / technician will inform DSU / Ward staff when theatre is ready to receive the woman.
2. Escort the woman and her support person to theatre 'holding bay'. Support person must be wearing appropriate foot attire.
3. Ensure that these all go to theatre with the woman:
 - the woman's medical records,
 - a labelled blue "Patient's Belongings" bag and
 - a pillow and blanket
4. Hand over the care of the woman to theatre staff. The woman is then escorted into the anaesthetic room by theatre staff before being assisted onto a trolley. A wedge is placed for left tilted or the woman is sitting upright in the trolley.
5. **Transfer of care to Theatre staff**
 - 5.1 Transfer of care will occur at "holding bay". Hand over to the receiving nurse and / or technician. See Perioperative guideline: [Admission to Theatre](#) (Healthpoint).
 - 5.2 Check the woman's identification with receiving nurse or technician.

Uterine tone at caesarean- pharmacological management

Quick reference guide

Oxytocin (Syntocinon®)

- **Bolus Doses**
 - Elective caesarean birth: 2 units bolus followed by infusion
 - Non elective caesarean birth: 3 units bolus followed by infusion
 - Women considered at higher risk of uterine atony: 3 units bolus followed by infusion
- **Standard Intravenous Infusion**
40 units of oxytocin diluted into 500 mL of normal 0.9% sodium chloride
 - Normal starting rate: 125 mL/h (10 units/h)
 - High starting rate: 250 mL/h (20 units/h)
- **Low volume Intravenous infusion**
Dilute 40 units of oxytocin into a total volume of 50 mL with normal 0.9% sodium chloride. This requires administration via a dedicated syringe driver.
 - Normal starting rate: 12.5 mL/h (10 units/h)
 - High starting rate: 25 mL/h (20 units/h)

Carbetocin

- A single intravenous dose of 100 mcg administered slowly post-birth.
- In women who do not respond to a single dose of Carbetocin, further bolus dosing is not recommended and alternative uterotonic agents should be utilised.

Ergometrine

- 200 to 500 mcg IM or 250 mcg IV

Prostaglandin f2 alpha (Carboprost)

- First dose may be given outside of the operating theatre; The requirement for additional doses is an indication for a Category 1 transfer to the operating theatre.
- The dose is 250 mcg intra-muscularly. This may be repeated every 15 minutes up to a maximum of 2 mg (8 doses).

Glyceryl Trinitrate (Uterine relaxant)

- 1 – 2 sprays (400 - 800 micrograms) administered as spray droplets beneath the tongue (do not inhale). Repeat after 5 minutes if hypertonus sustained
- Intravenous; **The standard IV preparation of GTN requires careful dilution in preparation for administration.**
 - **Dilution:** Inject 1mL of a 50mg ampoule (5mg) into 100mL Sodium Chloride 0.9% (concentration is 50microg/mL) and withdraw 20mL. A standard dose would be 1-2mL (50-100microg).

Oxytocin¹¹

Indications

An oxytocin infusion should be considered routine in all women undergoing a caesarean birth at KEMH, unless Carbetocin is used as the primary agent. The main caveat is that in women undergoing a planned caesarean hysterectomy for placental abnormalities in which the placenta will be left in situ, the obstetrician may not want a uterotonic administered to avoid placental separation.

Precautions and Contraindications

- As even small amounts of oxytocin may cause significant uterine contraction, the bolus dose of oxytocin should not be drawn up until after the birth of the neonate(s). Infusions must not be connected until after the birth of the neonate (or the final neonate in the case of multiple gestations).
- Oxytocin, particularly when administered as a bolus, may cause significant peripheral vasodilatation and tachycardia. This may not be well tolerated in women with significant cardiac disease/fixed cardiac output lesions.

Side effects

- Hypotension
- Tachycardia and myocardial ischemia
- Arrhythmias
- Nausea and vomiting
- Headache and flushing.
- Hyponatraemia
- Seizures and coma.

Infusion preparation

- **Standard intravenous Infusion**

40 units of oxytocin diluted into 500 mL of 0.9% sodium chloride

- Normal starting rate: 125 mL/h (10 units/h)
- High starting rate: 250 mL/h (20 units/h)

- **Low volume intravenous infusion**

When excessive fluid administration is of concern (e.g. pre-eclampsia) consideration may be given to diluting 40 units of oxytocin into a total volume of 50 mL with 0.9% sodium chloride. This requires administration via a dedicated syringe driver.

- Normal starting rate: 12.5 mL/h (10 units/h)

- High starting rate: 25 mL/h (20 units/h)

Suggested dosing

It is recommended that the oxytocin bolus solution is not prepared prior to birth of the neonate, to avoid accidental administration prior to birth.

Oxytocin bolus doses should be given slowly intravenous (IV) (preferably over 1 minute). If there is an inadequate response to the initial dose this may be repeated after 3-5 minutes.

- Elective caesarean birth: 2 units bolus followed by infusion
- Non elective caesarean birth: 3 units bolus followed by infusion
- Women considered at higher risk of uterine atony (see page 3): 3 units bolus followed by infusion
- Omission of bolus doses should be considered in women at increased risk of cardiovascular compromise- e.g. severe ongoing haemorrhage or underlying cardiac disease
- Management of Oxytocin infusion is to be discussed with the Obstetric Surgeon at the sign out step at the end of surgery.

Weaning of oxytocin infusions

- Weaning should be as per Clinical Guideline Therapeutic and Prophylactic Oxytocin Infusion regimes

Prescribing of additional bags of oxytocin

Some women may require additional bags of oxytocin to be prescribed. These women are generally women who have a PPH or are at increased risk of PPH.

The requirement for an additional bag to be charted should serve as a prompt for clinical obstetric review. The anaesthetic team are not to take responsibility for charting additional bags of oxytocin.

Carbetocin (Duratocin™) ¹²

Onset and duration of action

Carbetocin is a synthetic octapeptide analogue of oxytocin. Compared with oxytocin it has a prolonged duration of action. It has an onset time of less than 2 minutes after intravenous administration with a total duration of action of approximately 1 hour.

Precautions and contraindications

Carbetocin should be used with extreme caution in women with a history of coronary artery disease.

Side effects

The side effect profile is similar to oxytocin and includes: tachycardia, hypotension, nausea, vomiting, flushing, pruritus, abdominal pain, headache, tremor, hyponatraemia, water intoxication.

Suggested administration

A single intravenous dose of 100 mcg administered slowly after birth.

In women who do not respond to a single dose of carbetocin, further bolus dosing is not recommended and alternative uterotonic agents should be utilised.

Ergometrine

Precautions and contraindications

Ergometrine can produce intense vasoconstriction which can cause an elevated blood pressure and central venous pressure. It is relatively contra-indicated in pre-eclampsia as exaggerated hypertensive effects may be seen. In addition, it is also relatively contra-indicated in women with hypertension, sepsis and in women with peripheral vascular disease. It has been associated with clinical exacerbations of porphyria.

Some women may not respond to Ergometrine if they are hypocalcaemic. Cautious IV calcium replacement may be required for optimal efficacy.

Side effects

There are a large number of potential side effects and adverse effects with Ergometrine. These include:

- Hypertension
- Nausea, vomiting and diarrhoea
- Headache
- Abdominal pain
- Coronary artery and peripheral vasospasm with chest pain and palpitations
- Dyspnoea

Suggested administration

- Prophylaxis for PPH:
 - 200 to 500 mcg intramuscular (IM) after complete birth of the placenta
- Emergency management of PPH:
 - 250 mcg may be given slowly IV over at least 1 minute (note this route is more likely to cause hypertension and nausea and vomiting)

Prostaglandin F2alpha (Carboprost)

Refer to the KEMH Pharmacy Guideline: [Carboprost](#) for administration information.

Background

It is important to note that there are two major formulations of PGF2a available throughout the world, Dinoprost and Carboprost. Carboprost has replaced Dinoprost for use at King Edward Memorial Hospital. Carboprost is given via the intra-muscular (IM) route (Dinoprost is administered directly into the myometrium).

PGF2a is an established second line agent in the management of postpartum haemorrhage. It is a potent contractor of smooth muscle which is metabolised in the lungs. Large bolus administration may cause systemic effects if the metabolic pathways in the lungs are overloaded.

Indication

- Second line agent in the management of PPH.

Precautions and contraindications

The first dose of PGF2a may be administered outside of the operating theatre, however if a second dose is required this is an indication for a Category 1 transfer to theatre. This ensures a controlled environment with intravenous access, resuscitation equipment and respiratory and cardiac monitoring in place.

Side effects

- Bronchospasm, pulmonary oedema and hypoxia – use with caution in asthmatics
- Acute hypertension, arrhythmias
- Abdominal cramps, diarrhoea and vomiting
- Flushing, shivering and headache

Suggested administration

The recommended dose is 250 mcg given IM.

This can be repeated every 15 minutes up to a maximum dose of 2 mg (i.e. 8 doses).

Glyceryl Trinitrate (GTN)¹³

Background

The principal pharmacological action of glyceryl trinitrate is relaxation of smooth muscle. It causes relaxation of the uterus (tocolysis) as well as producing a vasodilator effect on both peripheral arteries and veins, with more prominent effects on the latter. GTN may

be administered by the intravenous or sublingual route. The systematic availability of sublingual GTN is approximately 39%. Therapeutic effect is seen within 1-2 minutes of administration independent of the route and the therapeutic effect lasts 3 to 5 minutes.

Indications

Situations when uterine relaxation may be necessary during caesarean birth include:

- Fetal malpresentation
- inadvertent oxytocics overdose prior to birth
- uterine constriction ring

Precautions and contraindications

GTN may cause hypotension and tachycardia and should be avoided in the following situations:

- Acute circulatory failure (shock, circulatory collapse)
- Cardiac disease
- Pronounced hypotension (systolic BP < 90 mm Hg)

Side effects such as hypotension can be managed by the administration of vasoactive medications such as ephedrine, metaraminol or phenylephrine by the anaesthetist.

Side effects

Due to the vasodilating effects of GTN the following side effects may occur: Headache, hypotension, reflex tachycardia or bradycardia, and rarely nausea, vomiting, flushing.

Suggested administration

- **Sublingual via metered pump spray:**
 - **Nitro-lingual Pump spray should be primed before using it for the first time by pressing the nozzle five times.**
 - 1 – 2 sprays (400 - 800 micrograms) administered as spray droplets beneath the tongue (do not inhale).
 - Repeat after 5 minutes if hyper tonus is sustained.
- **Intravenous:**
 - **The standard IV preparation of GTN requires careful dilution in preparation for administration.**
 - **Dilution:** Inject 1mL of a 50mg ampoule (5mg) into 100mL Sodium Chloride 0.9% (concentration is 50microg/mL) and withdraw 20mL. A standard dose would be 1-2mL (50-100microg).

See also KEMH Obstetrics & Gynaecology (Restricted Area Guideline): Postpartum Complications: [Postpartum Haemorrhage Primary](#) (Healthpoint access required)

Transfer from the operating theatre

Key points

1. Two persons, one of whom is a Midwife / Student Midwife, shall accompany the woman from the Post Anaesthetic Care Unit (PACU) to the ward. When possible two orderlies shall facilitate the bed move.
2. Equipment for resuscitation shall be available during all transfers, at a minimum, oxygen and suction.
3. The baby may be transferred with the mother on the bed in the mother's arms to PACU and the ward.
4. If the nurse/ midwife is transferring the baby alone, the baby shall be transported in a transport cot
5. The receiving midwife shall ensure the woman and her baby can adequately maintain their airway and adequate ventilation, be physiologically stable, comfortable, normothermic and assessed as unlikely to develop immediate complications as per the PACU discharge criteria. See KEMH Perioperative guideline: [PACU: Discharge Criteria](#) (access via Healthpoint intranet)
6. The woman and her baby shall be continuously observed during transfer.

Procedure

1. Prior to collecting the woman from PACU, the midwife shall ensure all bedside equipment has been checked and is working.
2. The receiving midwife shall obtain a verbal handover from the PACU staff member.
3. A minimum handover shall include:
 - The woman's name
 - The procedure performed- including any adverse events.
 - Relevant medical, surgical and psychosocial history (past and present) including allergies.
 - Post procedure instructions / parameters.
 - Observations.
 - All medications administered.
 - Pain management plan.
 - Wound status.
 - Invasive access devices.
 - Fluids and medications infusing.
4. The receiving midwife shall visually check:

- All wound sites and drains for type, patency and drainage volumes and ensure dressings are intact
 - All IV infusions (fluids and volumetric pumps delivering the infusions) shall be checked to ensure that they correspond to the written medical prescription with the PACU room nurse / midwife.
5. The receiving midwife shall:
- Introduce themselves to the woman
 - Ascertain the woman is able to respond to verbal stimuli.
 - Ensure that pain is adequately managed.
 - Ensure any post procedure nausea and vomiting is addressed and anti-emetics are prescribed.
 - Be satisfied that the woman is suitable for transfer to the clinical area as they have met the Recovery Area / PACU discharge criteria and are in a stable condition.
 - If the receiving midwife determines that the woman may not be suitable for transfer to the clinical area and concerns are not able to be addressed by the PACU nurse / midwife they shall:
 - Contact the ward shift co-ordinator and request review by the clinical area Clinical Midwifery / Nurse Manager or experienced Clinical / Registered Nurse / Midwife and / or the Anaesthetist on duty.

See also Perioperative Services guideline: [Post Anaesthetic Care Unit \(PACU\): Criteria for Discharge to the Ward](#)

Postoperative care

Preparation for admission of the post-operative woman

Equipment

- Contenance sheet
- Intravenous stand
- Jug of water / glass / straw
- Urine measuring jug
- Baby cot with:
 - Baby linen
 - Baby bath lotion and cream
 - Child Health Record (purple book)

Room preparation

Check oxygen and suction

Procedure

1.	Admitting the woman to her ward room
1.1	Check the call bell is accessible, working, and demonstrate to the woman how to summon assistance.
1.2	Advise the woman to request assistance for position changes and breastfeeding as required.
1.3	Ensure minimum standards for Falls Prevention are in place (refer to poster in the room). <ul style="list-style-type: none"> • Refer to KEMH Clinical Guideline, Obstetrics & Gynaecology (O&G), Falls: Risks, Assessment and Management of Patient Falls.
1.4	Refer women to their " Pregnancy, Birth and your Baby " information book (also available online) to section with "Your Caesarean Birth and Recovery" and provide "When can I go home" checklist. The "when can I go home" checklist is a criteria lead discharge checklist for women to complete, once all boxes are ticked they are able to see they're cleared for going home. This is one of the Enhanced Recovery after Surgery (ERAS) principles.
2	Observations – vital signs
2.1	Observations to be checked include: <ul style="list-style-type: none"> • Respiratory rate, oxygen saturations pulse and blood pressure, temperature

	<p>and level of consciousness.</p> <p>Escalate all abnormal observations as determined by the Observation and Response Chart.</p> <ul style="list-style-type: none"> • Wound / wound dressing. Wound drainage if any • Vaginal loss • Urinary output • Intravenous therapy • Pain score • Epidural site (if in situ) and dermatomes • Check for risk of pressure injuries, and implement strategies to prevent pressure injuries. See WNHS Pressure Injury Policy • PIVAS- monitor IV sites. Monitor PIVAS on all IV sites for their duration (max 72 hours) and for 48 hours post removal
2.2	<p>Frequency of post-caesarean observations:</p> <ul style="list-style-type: none"> • ½ hourly for 2 hours • 1 hourly for 2 hours • 2 hourly for 2 hours • 4 hourly for 24 hours • Note: If the woman has been in ASCU, four hourly observations must continue for the initial 24 hours following transfer to the postnatal ward. • Three times daily unless maternal condition indicates more frequent observations are appropriate • If these observations are not stable, more frequent observations and medical review are recommended¹⁴ as per MR 285.01 and as per KEMH clinical guideline Recognising and Responding to Clinical Deterioration • Other observations as per all births (e.g. breasts, legs, emotional wellbeing), see clinical pathway
3	Maternal comfort and assistance
3.1	<ul style="list-style-type: none"> • Assist the woman to position herself comfortably and assist with breastfeeding as required. <p>Refer to OSH webpage for positions with assisting with Breastfeeding</p>
3.2	If the observations are within normal parameters after 2 hours, sponge the woman and assist her to change into her own attire.
4	Nutrition and Fluids
4.1	Fluids
	Encourage oral fluids as required unless contraindicated by medical condition.

	<ul style="list-style-type: none"> Maternal hydration is a strategy to assist prevention of venous thromboembolism¹⁴.
	<p>If the woman returns to the ward area with IVT, consider removing the IVT when the woman is able to tolerate oral fluids and diet.</p> <p>Note the amount of IV fluids the woman has already had and beware of fluid overload.</p> <p>For management of Oxytocin infusion see Clinical Guideline, Obstetrics & Midwifery (O&M), Postnatal Complications: PPH:</p> <p>Oxytocin Infusion Regimens: Prophylactic & Therapeutic and section in this document: Uterine Tone at Caesarean Birth- Pharmacological Management</p> <p>Additional information:</p> <ul style="list-style-type: none"> The IV cannula shall be left in situ when using epidural analgesia. Oxytocin is an anti-diuretic and urinary output will improve once this has been ceased. Increasing intravenous fluid intake based on concentrated urine output alone, can cause fluid over load and eventually pulmonary oedema.
4.2	Diet
	<p>A full diet may commence as soon as the woman wishes unless contradicted by medical condition.</p> <ul style="list-style-type: none"> Early diet and fluids post Caesarean section does not cause complications, and some evidence suggests that it may speed bowel recovery.
5	Pain Management
5.1	<p>Monitor the woman's pain score post-operatively by regular assessment.</p> <ul style="list-style-type: none"> A woman in pain will be less mobile, less likely to do deep breathing and leg exercises, which increases the risk of venous thromboembolism. The pain may inhibit her mother-crafting ability¹⁵.
5.2	<p>Notify the Pain Team if the woman has inadequate analgesic cover or any sign of complications developing.</p>
6	Wound Care
6.1	Observation of the wound
	<p>CS wound care should include:</p> <ul style="list-style-type: none"> removing the dressing 48 hours after the CS specific monitoring for fever¹⁴ assessing the wound for signs of infection (such as increasing pain, redness or discharge), separation or dehiscence¹⁴. Encourage the woman to look at her own wound¹⁵.

	<ul style="list-style-type: none"> encouraging the woman to wear loose, comfortable clothes and cotton underwear¹⁴ the woman gently cleaning and drying the wound daily¹⁴ if needed, planning the removal of sutures or clips¹⁴ <p>Assess the wound for:</p> <ul style="list-style-type: none"> Bleeding / discharge Signs of infection e.g. increasing pain, redness or discharge Observe for signs of wound separation or dehiscence¹⁴.
6.2	Removal of the dressing
	<p>Wound care to be carried out using Aseptic Technique¹⁶</p> <p>All women will have dressings which are water proof. Hydrocolloid dressings are preferred by some surgeons and are to be used only on subcuticular sutures (not over staples) and are to remain in situ for 3-5 days (according to manufacturer's instructions).</p> <p>Non-adhesive pad dressings are to remain in situ for at least 48 hours and should to be removed on day 3, unless otherwise ordered by medical staff.</p> <p>Wound dressing shall be removed post shower, using aseptic technique. An absorbent non- adhesive dressing pad shall be placed over the wound for ongoing protection and comfort for the woman.</p> <p>Topical Negative Pressure Wound Therapy dressings- see Wound Care guideline</p>
6.3	Removal of sutures/staples/drains
	<p>As per medical staff instructions.</p> <p>See Clinical Guideline, O&G, Wound Care</p>
7	Bladder management
	See Bladder Management Clinical Guideline
8	Education and prevention of complications
	As per page 11 of Caesarean Birth Clinical pathway MR 249.61
8.1	Prevention of thromboembolic disease
	<p>Refer to Clinical Guidelines, O&G, Caesarean Section: Thromboprophylaxis after Caesarean Birth and check legs.</p> <p>Refer to these guidelines before removing an epidural for woman on low molecular weight heparin.</p>
8.2	Mobilisation
	Encourage early mobilisation (within six hours of returning to the ward) or when the woman's sensation/movement returns by:

	<ul style="list-style-type: none"> • Sitting the woman out of bed as soon as maternal condition allows • Advise the women to have a midwife present when she first decides to ambulate • Check the woman's pressure areas on return to the ward to ensure there has been no compromise of skin integrity. <p>The midwife should ensure adequate sensation is present if the woman has an epidural in situ, and be available should the woman feel faint or unsteady.</p>
8.3	Deep breathing exercises
	<p>Encourage deep breathing exercises.</p> <ul style="list-style-type: none"> • A woman in pain is more likely to take shallow breaths, so adequate analgesia is required and support of the abdomen with a pillow is helpful¹⁵.
8.4	Graduated Compression Stockings
	<ul style="list-style-type: none"> • Encourage the woman to wear stockings until fully mobile • Check to ensure the stockings are correctly fitted and applied. The inability to achieve a correct fit is a contraindication to wearing them and the medical staff must be informed. • See Clinical Guideline, O&G: VTE: Graduated Compression Stockings
8.5	Flowtrons
	<p>Consider using the Flowtron device if a woman is resting in bed and not mobilising after surgery.</p>
9	Documentation
9.1	<p>Complete Caesarean Birth Clinical Pathway MR 249.61 including appropriate care plan for 0-6 hours post birth and thereafter. Complete the information on the top of page 10 (booking BP, last observations, wound/dressing information)</p> <p>Additional information: Discharge planning commences on admission and aids in timely discharge from hospital.</p>
9.2	<p>Complete VTE assessment (blue VTE stickers). If woman is at risk of developing VTE, ensure sticker for TED stockings is placed in the medication chart MR 810.</p>
10	Discharge Planning
	<p>Discussion by medical and midwifery staff shall include:</p> <ul style="list-style-type: none"> • Routine postnatal care as provided to all postnatal women • Ensuring the woman has a clear understanding of the reason for the caesarean. • The impact of caesarean section surgery for future pregnancies • Resumption of normal activities e.g. driving, lifting, sexual relations • Signs of infections or complications after discharge from hospital.

	<ul style="list-style-type: none"> • Medical follow-up with the GP • Exercise and prevention of venous thromboembolism. • Pressure areas are to be checked prior to discharge and their condition noted in the woman's medical notes. • Commence on admission, page 2 of the Caesarean Birth Clinical pathway MR 249.61. This section is to be completed by the midwife discharging the woman from hospital. <p>Additional information:</p> <ul style="list-style-type: none"> • Women who have had a emergency caesarean are less likely to know the reason for this than those who have had an elective caesarean.¹⁵ • Avoid activities that include heavy lifting or carrying for up to 6 weeks after surgery; the progesterone effect is diminished after this time.¹⁵ It is traditionally advised to avoid driving for 4-6 weeks, but women may find their pain is no longer an impediment earlier than this and may contact their insurance company for individual advice.^{15, 17} • Discharge planning commences on admission and aids in timely discharge from hospital.
11	Timing of discharge
	<p>In keeping with the ERAS principles, women can be discharged as early as 24hours post Caesarean Section (if medically cleared).</p> <p>A woman may be transferred home after 24 hours post caesarean section, if she is afebrile, has no post-surgery complications and feels competent to care for the baby.¹⁴</p> <p>Additional information:</p> <ul style="list-style-type: none"> • This should be explained to the woman at the time of admission. • A reason for variation from normal length of stay is to be documented on page 1 and 3. Variances box is to be ticked and the variance code is to be entered.
12	Care of the woman in the home after a caesarean birth by Visiting Midwifery Service (VMS)
12.1	<p>Observations – vital signs- as per section 2.1 and as per VMS pages (10-12), on the MR 249.61 Caesarean Birth Clinical Pathway, including checking:</p> <ul style="list-style-type: none"> • Epidural site • Peripheral IV sites. Monitor PIVAS for 48 hours post removal.
12.2	Maternal comfort and assistance- Assist with breastfeeding as required
12.3	Nutrition and Fluids

	<p>Fluids- Encourage oral fluids as required.</p> <p>Diet</p> <p>A full diet is recommended unless contradicted by medical condition.</p> <ul style="list-style-type: none"> • Maintaining a healthy diet high in vitamins and minerals is paramount in wound healing.
12.4	Pain Management
	Assess pain score, ensure adequate analgesia available and encourage the use of analgesia as prescribed/required. Utilise pain score scale 0-10
12.5	Wound Care
	<p>Observation of the wound- as per point 6 above and see top of page 10 in the MR 249.61 Caesarean Birth Clinical Pathway</p> <p>If there are abnormal signs of bleeding, discharge or signs of infection, refer to KEMH Emergency Centre or the GP.</p> <p>Removal of dressing/sutures/staples/drains as per point 6.2-6.3 and page 10 of MR 249.61</p> <p>Note: If instructions not documented on MR 249.61, check Stork print out 'Visiting Midwifery Summary'. If not documented, contact the discharging ward.</p>
12.6	Bladder management
	<p>If the woman has bladder function problems following removal of the IDC, notify the Emergency Centre at KEMH as she may require a referral to the Urology clinic at KEMH or her GP</p> <p>Additional information:</p> <ul style="list-style-type: none"> • Women are advised to notify the midwifery staff if they experiences any pain or difficulties voiding. • Women with urinary symptoms should be assessed for urinary tract infections, stress incontinence and urinary tract injury.
12.7	Education and prevention of complications
	<p>Prevention of thromboembolic disease</p> <p>Refer to guideline, O&G: VTE: Thromboprophylaxis after Caesarean Birth.</p> <p>Check legs as per routine birth observations.</p>
	Graduated Compression Stockings as per section 8.4
	<p>Postnatal education - as per section 10 above.</p> <ul style="list-style-type: none"> • As stipulated in the CS Birth Pathway MR 249.61 page 3 • Pressure areas if noted on discharge are to be checked and their condition noted in the woman's medical notes.
	Clinical care- as per pages 10-12 in the MR 249.61 Caesarean Birth Pathway

Caesarean related guidelines

Roles of staff attending caesarean birth

See guideline Perioperative: [Caesarean Section: roles of staff attending](#) (available to WA Health staff via HealthPoint)

Thromboprophylaxis after caesarean birth

See guideline, O&G: Venous Thromboembolism: [Caesarean: Thromboprophylaxis After](#)

Wound care

See guideline, O&G: [Wound Care](#)

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Related legislation, policies and guidelines

Department of Health:

- OD 0657/16: [WA Health Consent to Treatment Policy](#) (2016)
- OD0579/14: [Falls risk assessment and management plan \(FRAMP\)](#)
- MP0095 - [Clinical Handover Policy](#) (pdf 253KB) (2019)
- [WA Pressure Injury Prevention and Management Clinical Guideline](#) (PDF 1.59MB)

[NMHS Consent to Treatment Policy](#)

Related WNHS policies, procedures and guidelines

WNHS Policies (available to WA Health staff via HealthPoint):

- [Clinical Deterioration](#)
- [Discharge Policy](#)
- [Falls Prevention and Falls Management](#)
- [Pressure Injury and Prevention Management](#)

[Anaesthetics](#) (available to WA Health staff via HealthPoint):

- [Preoperative Fasting guidelines: Elective gynaecological/ oncology and caesarean birth patients](#)

[Infection Prevention and Management](#) manual (available to WA Health staff via HealthPoint):

- [Aseptic Technique](#)

Obstetrics & Gynaecology:

- [Clinical Deterioration: Recognising and Responding to](#)
- [Falls: Risk Assessment and Management of Patient Falls](#)
- Infection: [Antibiotic Prophylaxis for Caesarean Section](#)
- [Primary Postpartum Haemorrhage](#) (access via Healthpoint: Restricted Area Guidelines)
- Venous Thromboembolism: [Graduated Compression Stockings; Thromboprophylaxis and Caesarean Birth](#)
- [Wound Care](#)









Perioperative Services (available to WA Health staff via HealthPoint):

- [Admission to Theatre](#)
- PACU Criteria for [Discharge to the Ward](#)
- [Caesarean Section: roles of staff attending](#)

Useful resources and related forms

Forms:

- MR 249.61 Caesarean Birth Clinical pathway
- MR 285.01 Maternal Observation and Response Chart
- MR 290 Pre-op / Theatre Checklist
- MR 295 Caesarean section consent form
- MR 295.50 Epidural analgesia/anaesthesia consent form
- MR 810 Medication Chart

Keywords:	pre-admission, PAC, ELUSCS, caesarean, elective caesarean, booked caesarean, pre-operative, admission, NELUSCS, caesarean birth, caesarean category, pre-caesarean checklist, non-elective caesarean, emergency caesarean, operating theatre, OT, transfer to holding bay, recovery room discharge, transfer to the ward, collecting a patient after surgery, PACU, recovery handover, PACU handover, post-operative, observations, wound, wound dressing, pain management, bladder management, mobilisation, discharge planning, VMS, flowtron, thromboprophylaxis, postnatal education, dressing removal, staple removal, caesarean birth clinical pathway, ERAS, gastric reflux, metoclopramide, ranitidine, sodium citrate, fasting, gastric aspiration, general anaesthesia, elective surgery, emergency operation, prevention of regurgitation, peri-operative, postpartum haemorrhage, PPH, oxytocin, carbetocin, ergometrine, misoprostol, carboprost, GTN		
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Supersedes:	<p>Supersedes: Version 1.0 dated Feb 2019</p> <p>History: In February 2019, eight caesarean section guidelines from Obstetrics (dated from Sept 2001) were amalgamated into one document.</p> <ol style="list-style-type: none"> 1. Pre admission clinic for birth by elective Caesarean Section (dated Feb 2018) 2. Elective Caesarean Section (dated Sept 2013) 3. Non-elective Caesarean Section (date amended Feb 2015) 4. Transfer to theatre (date amended Dec 2015) 5. Transfer from theatre (dated Oct 2014) 6. Caesarean Section Postoperative Care (dated Feb 2018) 7. Uterine Tone at Caesarean Birth (dated July 2018) 8. Prevention of gastric aspiration (date endorsed Nov 2017) 		
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NSQHS Standards (v2) applicable:	1  Governance, 4  Medication Safety, 5  Comprehensive Care (incl  ) , 6  Communicating (incl ) , 8  Recognising & Responding to Acute Deterioration		
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