Manchester University
NHS Foundation Trust

DOCUMENT CONTROL PAGE

Title:	Caesarean birth
Version:	1
Supersedes:	Caesarean section (Oxford Road Campus), Caesarean sections (Wythenshawe) Caesarean section and Enhanced Recovery Pathway for elective caesarean (North Manchester)
Application:	All Staff

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Designation:	Consultant Obstetrician and Gynaecologist
Ratified by:	Site Obstetric Quality and Safety Committee
Date of Ratification:	26th May 2023

Issue / Circulation Date:	15th June 2023
Circulated by:	Clinical Governance Team Maternity
Dissemination and Implementation:	Clinical Governance Team Maternity
Date placed on the Intranet:	15th June 2023

Planned Review Date:	31st May 2026
Responsibility of:	Clinical Governance Team Maternity

Minor Amendment (If applicable) Notified To:	
Date notified:	

EqIA Registration Number:	2023-91

1. Introduction

Caesarean birth rates continue to increase worldwide. Around 1 in 4 pregnant women in the UK has a caesarean birth (NHS England Bragg *et al* 2010) and this number is increasing.

Monitoring maternal health practices including the use of caesarean section is essential to assess progress toward health goals and to ensure evidence-based practice.

The aim of this guideline is to provide a consistent approach to the care of women who are considering a caesarean birth or who have previously had a caesarean birth across MFT MCS.

Caesarean sections must be categorised as one of the following with clear communication to the multi-disciplinary team to determine the processes and timings to be followed:

Classification	Definition	Timings
Category 1	Immediate threat to life of the woman or fetus	Within 30 minutes of making the decision
Category 2	Maternal or fetal compromise which is not immediately life threatening	Within 75 minutes of making the decision
Category 3	No maternal or fetal compromise but needs early delivery	Dependent of clinical activity, within 24 hours
Category 4	Delivery timed to suit the woman or staff	Planned date given at least 24 hours prior to delivery

2. Mode of delivery decision making

All pregnant women should be offered information which is evidence based to enable them to make informed choices about childbirth.

Discussions around mode of delivery should start early in pregnancy and include:

- Around 25% to 30% of women have a caesarean birth (NICE 2021).
- Factors that mean a woman may need a caesarean birth (increased maternal age, BMI, placental site location, previous obstetric history) (NICE 2021).
- Common indications of emergency caesarean birth include slow progression of labour or concern for fetal condition (NICE 2021).
- Planned place of birth may affect the mode of birth (NICE 2021).
- What a caesarean birth procedure involves (NICE 2021).

- How a caesarean birth may impact on the postnatal period (for example pain relief, mobility, other family members) (NICE 2021).
- Implications for future pregnancies and birth after caesarean or vaginal birth (for example, after caesarean birth the chances of caesarean birth in future pregnancy may be increased (NICE 2021).
- Maintaining a healthy diet and lifestyle to optimise fitness for surgery (NICE 2021).
- All women should be directed to the leaflets and resources available on-line at MFT website.

The risks and benefits of both vaginal and caesarean birth can be found in (*Appendix 1*)

3. Planned Caesarean Birth

3.1. Indications for Caesarean Birth

3.1.1. All caesarean sections need to be agreed by a consultant obstetrician and the patient except in life-threatening conditions.

3.1.2. Caesarean sections are indicated in:

- Malposition or malpresentation when External Cephalic Version (ECV) have failed or are contra-indicated
- Multiple pregnancies when vaginal delivery is contraindicated
- Fetal or maternal disease where a vaginal delivery is not advised
- Previous caesarean section or uterine surgery where a vaginal delivery is contra-indicated
- Infection such as HIV where viral load is high
- Grade 3 and 4 Placenta Praevia
- Adherent placenta

Further guidance and considerations regarding the management of these conditions are found in their specific guidelines

3.1.3. Management of Caesarean Birth in Special Conditions

3.1.3.1. Patients under the care of specialist clinics may have specialist care plans for delivery and postnatal care. These considerations need to be reviewed on Hive at time of booking. Advice regarding intrapartum and postnatal care needs to be reviewed by the operating team. These may involve specific considerations prior to delivery; consideration for delivery (such as blood products); considerations for research and postnatal plans. The team booking the caesarean section need to ensure these are reviewed and

highlighted when ordering a case request. The operating and anaesthetic team need to ensure that the care plan is followed, and the postnatal plan is commenced after delivery.

3.1.3.2. Babies with neonatal care plans (FMU/Rhesus disease): Babies who have been reviewed by the Neonatal team will have a care plan uploaded on Hive. Prior to delivery, the care plan needs to be reviewed and delivery needs to be discussed with the neonatal team to ensure the neonatal team are available for delivery.

3.1.3.3. Complex caesarean section and adherent placenta spectrum: Patients who fit the criteria will be reviewed in the Complex Obstetric Surgery Clinic and a plan will be available in Hive.

3.1.3.4. Management of morbidly obese patients: Body mass index (BMI) of over 50 kg/m2 alone is an indication for planned caesarean birth (NICE, 2011). Consideration regarding positioning, anaesthetic consideration, surgical plan and thromboprophylaxis needs to be reviewed prior to delivery to ensure appropriate planning at time and delivery and postnatally.

3.1.3.5. Maternal request for caesarean birth: When a woman with no medical indication for a caesarean birth requests a caesarean birth, explore, discuss and record the specific reasons for the request (NICE 2021). If a woman requests a caesarean birth because she has tokophobia or other severe anxiety about childbirth (for example, following abuse or a previous traumatic event), offer referral to a healthcare professional with expertise in providing perinatal mental health support to help with her anxiety.

- A discussion about the risks and benefits of a caesarean section must be discussed by a consultant obstetrician in clinic
- Consider referral to birth options clinic.
- Management Plan for Women Requesting an Elective Caesarean Section (CS) without medical indication proforma can be found in *appendix 2*.

3.2. Antenatal management for those planning a caesarean birth

3.2.1. Timing of planned caesarean birth

Do not routinely carry out planned caesarean birth before 39 weeks gestation as this can increase the risk of respiratory morbidity in babies (2004).

There are physical, psychological and emotional indications that influence timing for caesarean birth. Neonates born between 37-38 weeks gestation are twice as likely to require admission to neonatal services when compared to caesarean births at 39-42 weeks gestation. The medical indication, along with documentation of risks and benefits should be clearly outlined with the Hive antenatal record.

An exact date for a planned caesarean birth cannot be guaranteed.

3.2.2. Antenatal corticosteroids

- For pregnancies where birth is anticipated ≥ 35 weeks but < 37 weeks – steroids should be discussed with women; the discussion should be documented, and steroids only prescribed after this discussion. Bases on the ALPS Study (2016), there are potential advantages and disadvantages to steroids (
    - Steroids are likely to reduce the need for oxygen/CPAP in the first 48 hours after birth, no difference in longer term respiratory morbidity
    - Steroids increase the risk of neonatal hypoglycaemia
    - Overall rates of admission to NICU were not significantly different in the ALPS study
    - An association between steroid exposure and modest changes in long term neurodevelopmental outcomes in babies exposed to late preterm and term steroids has been observed in large epidemiological studies
- For planned preterm birth, where possible steroids should be administered within 24-48 hours of birth. See also the guideline for *Preterm Labour Management.*
- For pregnancies where birth is planned ≥ 37 weeks, steroids should not be routinely offered.

3.3 Booking and scheduling caesarean birth

Within MFT, there are 3 hospital sites which offer caesarean birth. Patients should be advised that their caesarean birth may occur on any of the 3 hospital sites depending on availability and clinical priority. Patients should be advised that they will receive further information by the elective booking pathway coordinator.

The procedure should be discussed, and consent obtained, the enhanced recovery pathway should also be discussed and whether the patient is suitable for this pathway.

For elective caesarean birth, the procedure specific consent form on Hive should be used.

A trust interpreter should be used for consent. Any additional procedure should be consented in a different consent form.

An FBC should be taken at the time of booking and at 28 weeks. Iron stores must be optimised appropriately as per the *Iron deficiency anaemia in pregnancy and the puerperium guideline*.

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An exact date for a planned caesarean birth cannot be guaranteed and therefore should not be given to the patient

3.3.1. Booking a category 3 or elective caesarean birth

- In Hive select *Prep for hospital* tab at the top of the screen.
- From the menu of the left-hand side, under '*Prep for Hospital'* – select orders.
- Order pre-procedure and select *Obstetrics Pre-procedure*.
- Complete Case Request section.
- Ensure Obstetrics is selected under Provider.
- Add main procedure – Lower Segment Caesarean section
- Add additional procedures e.g. Sterilisation.
- Document indication for caesarean section in problem list and associated diagnosis on Hive. This helps with scheduling.
- Select the correct category – OB category 3 or OB category 4.
- Input the date range for this procedure.
    - The earliest date is the date that is safe for delivery
    - The clinical safe date is the latest date that the patient can wait
- Indicate the further sub-categorisation A, B, C or D to aide scheduling
- Add a pre-op appointment to this order.
- Ensure Omeprazole 40mg the evening before and morning of surgery is prescribed under phases of care.
- Use the e-consent – procedure specific consent of caesarean section.
- **The obstetrician should consider the requirement for cell salvage. Cell salvage should be booked through Hive. This should be noted at any point in the pregnancy and checked on admission for the caesarean.**

3.3.2. Suitable Caesarean Birth for weekend or extra lists

- BMI < 30
- Singleton pregnancy
- No more than 2 previous lower segment Caesarean section
- Well controlled gestational diabetes
- No maternal medical problems
- No placenta praevia or adherent placenta
- NICU cot not required
- No anticipated difficulty with autologous blood products
- No patients refusing blood products
- No anaesthetic concerns or anticipated difficulties

3.3.3. Scheduling the length of time a Caesarean Section is expected to take

Category A (80 mins)	Category B (100 mins)	Category C (120 min)	Category D (200 mins)
• Indications: maternal Request, previous traumatic delivery, previous perineal tear (with no medical problems or abdominal surgery) • 1 previous CS • Breech • Unstable lie • Diabetes • Cervical Suture (45 mins) • Interpreter required • General anaesthesia	• BMI @ 3rd Trimester 40-45 • 2-3 previous CS • Posterior placenta praevia • Cell salvage required • Multiple pregnancies • Tubal ligation required. • Patient with extensive mental health plan ➢ 3 or more risks to move Cat C	• BMI 45-55 • > 3 previous CS • Anterior and lateral placenta praevia • COVID positive • Fibroids in lower segment • Anticipated difficult regional anaesthesia • Anticipated difficult airway with General anaesthesia required • Discussed in Complex Maternal Medicine MDT • Complex mental health patient ➢ 3 or more criteria from B	• BMI > 55 • Abnormally invasive placenta • Needing another speciality • Needing another theatre • High risk cardiac case • Non-invasive ventilation • 3 or more criteria from C

Based on 8 hours of theatre time (460 mins) and 20 minutes for WHO checklist.
Lists with category D need medical approval.

3.3. Pre-operative Clinic

- Ensure:
  - Up-to date FBC and blood group and antibody screen available for alltheatre cases
  - A BP and urine check needs to be done in pre-op it has not been done as per antenatal pathway
  - Omeprazole prescription
  - Consented on Hive
  - Caesarean birth pathway commenced on Hive
  - MRSA screen needs to be performed for high risk patients (previous MRSA infection or working health care professionals)
  - Advise the patient to shower with non-perfumed soap on the day of surgery to reduce risk of infection.
  - The presence of the following conditions require blood cross-matching prior to their elective LSCS;
    - Haemoglobin <90g/l

- Major placenta praevia (PP) (anterior PP will require 4 units)
- Clotting disorder where specified in a care plan
- Known or suspected placenta accreta
- Known antibodies.

The electronic blood ordering system means that cross match blood should be available on site within 20 minutes

3.4. Pre-operative fasting instructions

All patients for enhanced recovery should be advised to eat a high carbohydrate meal (such as pasta, rice, bread) the evening before their operation, and if on the afternoon list also a high carbohydrate breakfast (such as toast or cereal).

- If the caesarean birth is booked for the morning advise the women:
  - She can eat and drink normally up until 03.00am on the morning of your operation.
  - She must not chew gum, smoke or eat sweets after 03.00am.
  - Between 03.00am and 07.00am she may drink still plain water.
  - Shortly before 07.00am her pre-medications should be taken.
  - **After 07.00am she must remain nil by mouth.**

- If caesarean birth is booked for the afternoon advice women:
  - It is important to have breakfast but she must finish eating by 07.00am.
  - She can eat and drink normally up until 07.00am on the morning of your operation.
  - She must not chew gum, smoke or eat sweets after 07.00am.
  - Between 07.00am and 11.00am she may drink plain water.
  - Shortly before 11.00am she should have her pre-medications.
  - **After 11.00am she must remain nil by mouth.**

4. General Care Principles during Caesarean Birth

4.1. A Consultant Obstetrician must be present in the following situations

Caesarean birth for major placenta praevia / abnormally invasive placenta
Caesarean birth for women with a BMI > 50
Caesarean birth < 28 weeks
Twin birth < 30 weeks
Eclampsia
Where significant complications are anticipated at delivery
Caesarean birth 2L where the haemorrhage is continuing, and Massive Obstetric Haemorrhage protocol has been instigated
When asked to attend by anyone in the team

4.2. Role of birth partner

The birth partner should be given the appropriate theatre clothing and invited into theatre following the anaesthetic procedures and before commencement of surgery.

The birth partner should not be in theatre during induction for General anaesthetic caesarean birth.

The birth partner should adopt a supporting role sitting at the head of the table well away from the surgical field

4.3. Care prior to transfer to theatre

- Provide the patient with a clean hospital gown prior to entering theatre
- Ensure Safety Check 1 is performed on Hive
- Ensure Consent is done on Hive
- Every effort must be made to ensure the woman stays warm as it reduces the risk of developing infections and other complications. For example, use of a blanket or dressing gown whilst in waiting room, warming IV fluids and using an over-body conductive blanket. Ensure theatre temperatures are appropriate.

4.4. Intraoperative Management

The Maternity Surgical Safety Checklist and team brief are **mandatory** and must be completed prior to any caesarean birth. There is a specific shortened safety checklist for category one deliveries. This should be 'cock-pit' silence with all team members listening and engaging.

- Following effective anaesthesia, the woman must be catheterised prior to commencing the caesarean birth.
- The fetal heart should be auscultated following effective anaesthetic prior to commencing all category 2, 3 and 4 caesarean births for 1 minute
- Prophylactic antibiotics should be administered before skin incision. This reduces the risk of maternal infection more than prophylactic antibiotics after skin incision and that no effect on the baby has been demonstrated (NICE, 2011). During a category one caesarean birth it may not be possible to administer the prophylactic antibiotics prior to skin incision, in this circumstance administration at the earliest opportunity is appropriate.
- Principles of sterile technique should be adhered to at all times. Standard abdominal skin preparation should be applied and a skin incision should be done after the skin preparation has dried.
- Safety procedures for swab, instruments and sharps counting must be adhered to at all times. Refer to *Swab, Instrument and Needle Count Policy MFT*.
- Where women have expressed a preference, such as music in theatre, lowering the screen to see the birth of the baby or silence so the mother's

voice is the first the child hears, these should be accommodated where possible.

- Delayed cord clamping should be offered if possible.

4.5. Post operative management

The surgical safety sign out checklist should be performed by the lead surgeon at the end of the case. All team members need to be silent and engaging.

Caesarean birth documentation should be completed on Hive

Estimated blood loss must be recorded.

Post procedure orders requested.

Post operative VTE risk assessment performed

4.6. Intra-operative Bladder Awareness

In all caesarean births, if bladder dissection is more extensive than usual, after closing the uterus and gaining haemostasis, check the urine appearance in the catheter tubing and urine bag by pulling back the drapes.

Urine leakage into the surgical field is NOT inevitable with bladder damage – low urine output is common for the usual reasons, or free fluid or blood in the abdomen may disguise its recognition.

4.6.2. New or Increased Haematuria

If the blood staining has appeared during surgery or increased, then this can be an indicator of a significant (e.g. open) bladder or ureteric injury.

- Inspect the bladder more closely
- Use gentle pressure to look for urine leakage
- Consider the use of Methylene blue dye (1 ampoule in Saline bag - run 200mL through giving set attached directly into the Foley catheter)
- Further advice should be sought if required

If the new or increased haematuria is noticed after closure of the abdomen, then the following measures should be considered:

- If urine output low / blood concentration high consider flushing catheter or changing it to a larger one (size 18) to overcome & prevent blockage
- Ensure intravenous hydration on-going (unless PET etc)
- Discuss with Urologist and consider re-opening abdomen or arranging further urgent investigations.

4.6.3. Catheter care

After regional anaesthesia, removal of the urinary catheter should be carried out once a woman is mobile; longer only if stated in the surgical notes. For enhanced recovery caesarean births, removal of urinary catheter at 6 hrs post caesarean birth is advocated.

Also review *Recognition and management of postpartum urinary retention guidelines (bladder care).*

4.7. Thromboprophylaxis

Ensure low molecular weight heparin (LMWH) is prescribed if there are no contraindications at the time of the WHO 'sign out'.

Ensure all women have the appropriate post operative VTE risk assessment performed and documented within Hive. Consider 10 days LMWH prescribed as per *VTE Prophylaxis in Pregnancy and the Puerperium guideline*

LMWH must be commenced:

- 4 hours after administration of spinal anaesthesia
- 4 hours after removal of an epidural catheter or immediately after a caesarean section under general anaesthesia with no neuro-axial block.

For those women in whom LMWH is deferred because of apparent bleeding risk, pneumatic compression stockings must be prescribed until prophylaxis is commenced. The bleeding risk should then be reassessed 12-24 hours later with anaesthetic input.

5. Care following caesarean birth

5.1. After general anaesthesia

After caesarean birth under a general anaesthetic, a healthcare professional with airway skills should carry out continuous, one-to-one observation of the woman until

- she has regained airway control, and
- is haemodynamically stable, and
- is able to communicate (NICE, 2021)

When a woman has regained airway control, is haemodynamically stable, and is able to communicate after caesarean birth under a general anaesthetic:

- Continue observations (oxygen saturation, respiratory rate, heart rate, blood pressure, temperature, pain and sedation) every half hour for 2 hours
- After 2 hours, if these observations are stable, carry out routine observations in accordance with local protocols
- If these observations are not stable, or the woman has other risk factors or complications (for example, severe hypertension, or signs of infection or sepsis), carry out a medical review and increase the duration and frequency of observations (NICE, 2021)

5.2. After spinal or epidural anaesthesia

After caesarean birth under a spinal or epidural anaesthetic, a healthcare professional should carry out continuous one-to-one observation of the woman until she is haemodynamically stable (for example when pulse and blood pressure have returned to baseline values) (NICE, 2021).

Provide a woman who has had spinal or epidural diamorphine for caesarean birth, and who is at an increased risk of respiratory depression (for example, a significantly raised BMI, or diagnosed obstructive sleep apnoea syndrome), with:

- Continuous pulse oximetry monitoring, and
- hourly monitoring of
    - respiratory rate
    - heart rate
    - blood pressure
    - temperature
    - pain
    - sedation

Monitor the woman for at least 12 hours, continue until they are stable enough to be discharged from anaesthetic care, and then carry out routine observations in accordance with local protocols (NICE, 2021).

For a woman who has had spinal or epidural diamorphine for caesarean birth, but is not at an increased risk of respiratory depression, carry out routine observations in accordance with local protocols (NICE, 2021).

When deciding on the location and frequency of monitoring for respiratory depression in women who have had spinal or epidural diamorphine for caesarean birth, take into account other factors that could affect monitoring needs (for example, a complicated birth, or unstable observations in first 2 hours after birth) (NICE, 2021).

Ensure women who have patient-controlled analgesia with opioids after caesarean birth have routine hourly monitoring of respiratory rate, sedation and pain scores throughout treatment, and for at least 2 hours after discontinuation of treatment (NICE, 2004, amended 2021).

5.3. High-dependency unit/intensive therapy unit admission

Be aware that, although it is rare for women to need intensive care after childbirth, this may occur after caesarean birth (NICE, 2021).

5.4. Debriefing woman after Caesarean Section

Ensure that the woman is debriefed about the caesarean section as soon as possible following surgery. Where appropriate (category 1, 2 and 3) the indication for

surgery should be explained again and all questions answered - this may include reassurance that a trial of labour may be possible in any subsequent pregnancy.

5.5. Mobilisation

Following regional anaesthetic, women can mobilise as soon as the effects of the anaesthetic have worn off. This normally takes up to 6 hours. Women must be accompanied by a member of staff when they first mobilise.

5.6. Breastfeeding

Early skin to skin contact must be encouraged and facilitated; this may start in theatre or recovery. Women must be offered additional help with breastfeeding as soon as possible following delivery.

6. Considerations for additional procedures at time of caesarean section

All additional procedures need to be discussed prior to the procedure.

The benefits and risks should be documented. A separate consent form needs to be used separate to the caesarean section consent.

Additional procedures should only be performed by a competent operator or supervised by a competent operator. Patients should be informed that additional procedures may not be done in an emergency. If a procedure is not performed at time of caesarean section, then a clear follow-up plan needs to be documented in the notes and information needs to be sent to patient and GP.

6.1. Management of ovarian cysts at caesarean birth

A significant proportion of adnexal masses will be discovered as an incidental finding in pregnancy through routine ultrasound scanning.

Adnexal masses found during pregnancy should be accurately assessed in order to decide the most appropriate treatment option. Masses persisting beyond 16 weeks gestation, with septa, solid component, papillae or nodules should have further imaging. MR imaging is safe from the second trimester.

The incidence of malignant adnexal masses in pregnancy has been report between 4-8 per 100,000 (Amant *et al* 2010). Concerns about adnexal masses in pregnancy can be discussed with the gynae-oncology leads.

The presence of an ovarian cyst does not necessitate a caesarean birth.

The decision to remove an adnexal mass at caesarean birth should be planned in advance and performed by a surgeon competent to perform this procedure.

6.2. Long-term contraceptive options at caesarean birth

6.2.1. Intrauterine device insertion at caesarean birth

FSRH recommend that maternity service providers should ensure that all women after pregnancy have access to the full range of contraceptives, including the most effective LARC methods, to start immediately after birth (FSRH 2017 updated 2020).

IUC can be safely inserted immediately after birth (within 10 minutes of delivery of placenta) or within 48 hours after uncomplicated caesarean birth. After 48 hours, insertion should be delayed until 28 days after childbirth (FSRH 2017)

Both copper intrauterine device (Cu-IUD) and levonorgestrel-releasing intrauterine system (LNG-IUS) should be offered. Both are UKMEC category 1 in breastfeeding and non-breastfeeding women post caesarean birth.

Cochrane review contraindications prolonged rupture of membranes, post-partum haemorrhage and sepsis. (Grimes 2010)

See *appendix 3*.

6.2.2. Sterilisation at caesarean birth

Women who request a sterilisation to be performed at the time of delivery should be advised of the increased regret rate. The discussion needs to be documented in the notes. Women need to be advised that part or all of the Fallopian tube will be removed and so the procedure is irreversible. Women should be informed that a sterilisation will not be performed in an emergency delivery, unless the risks of a future pregnancy outweighs the benefits of having the procedure at a later date.

FSRH recommend that clinicians should ensure that written consent to be sterilised at caesarean birth is obtained and documented at least 2 weeks in advance of a planned elective caesarean birth.

Sterilisation techniques used at caesarean sections include Modified Pomeroy or salpingectomy.

There is epidemiological evidence that bilateral salpingectomy may protect against high grade serous ovarian cancers. After careful counselling, and assurance that a women's family is complete, bilateral salpingectomy should be considered. The lifetime risk of developing epithelial ovarian cancers (EOC) is 1 in 70 (1.4%) by the age of 75, with the main risk factor being advancing age and family history (RCOG 2014).

Specimens of fallopian tube should be sent to histology for confirmation.

Overall failure rate of female sterilisation is 1 in 200. This could be higher at the time of caesarean birth. There is an increased risk of ectopic pregnancy in future pregnancy following failure of sterilisation.

7. Category 1 or Category 2 Caesarean sections

7.1. Consultants need to be informed of all Category 1 and 2 caesarean sections

7.2. All caesarean sections need to have an open Case Request

- The patient needs to be selected on the White Board
- To Launch a Case Request, the C-section button must be selected to launch the case request
- Select the Category and Indication to start the case request. This informs theatre staff of the case and Category
- Written consent should be obtained as much as possible. If verbal consent is only obtained, this should be documented clearly on Hive.
- An interpreter should be sought for any time of consent
- WHO Safety checklist should be done ensuring all swabs from the room are accounted for.

8. Management of impacted head at caesarean section

Impacted fetal head is an increasingly recognised, technically challenging complication of intrapartum caesarean birth. Impacted fetal head is not restricted to caesarean birth at full dilatation. The consultant on-call needs to be informed if a caesarean section is performed at fully dilated.

Risk factors include the following:

- Primiparity
- Macrosomia
- Full dilatation
- Malposition
- Mid to low cavity station
- Syntocinon augmentation
- Epidural
- Failed operative birth

8.1. Complications from impacted fetal head

Mother	**Baby**
Damage to the uterus	Skull fracture
Damage to the urinary tract	Intracranial Bleed
Uterine bleeding and PPH	Nerve injury
Longer hospital stay	Hypoxic brain injury

Hysterectomy	Neonatal death
Sepsis	
Admission to HDU/ICU	

8.2 Manoeuvres used in impacted fetal head

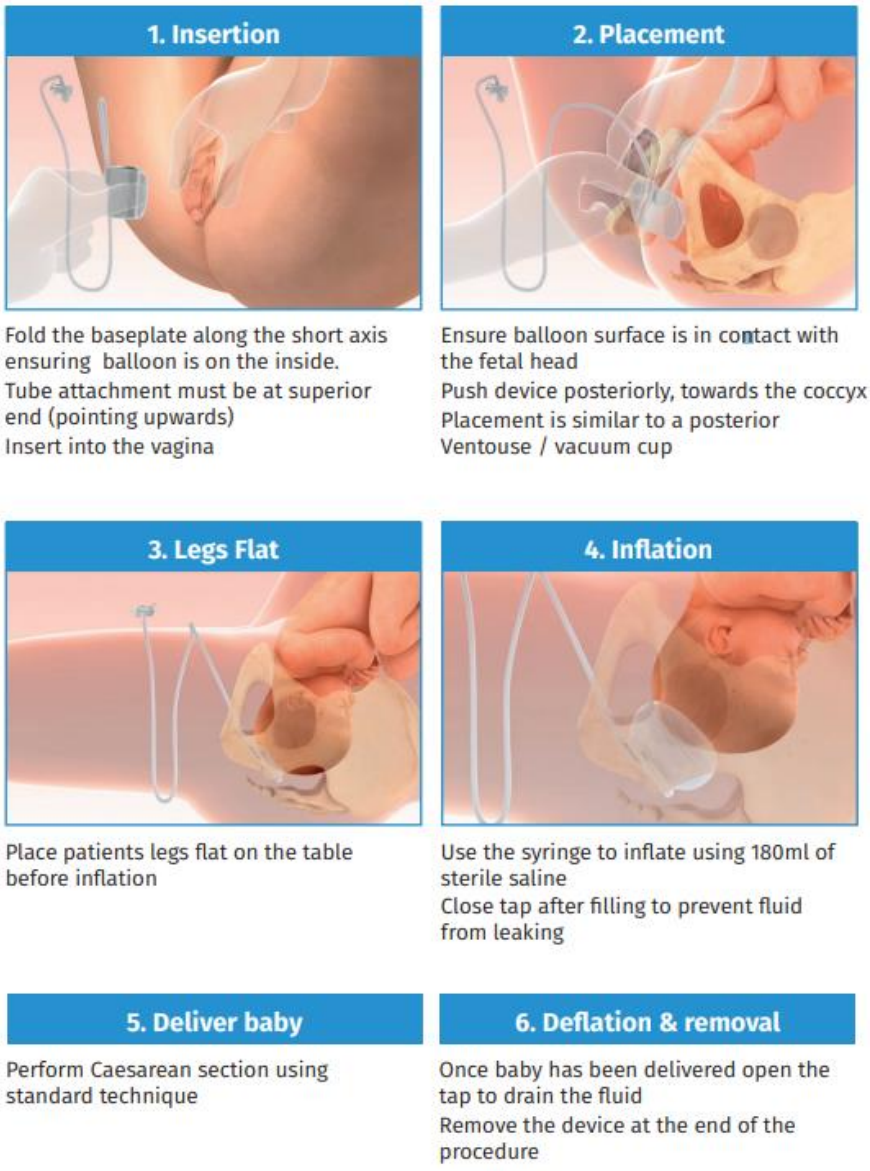
8.2.1. Fetal Pillow

This should be inserted prior to commencing any potentially difficult caesarean birth. Fetal pillow is a disposable soft silicon balloon device which is inserted into the vagina and placed beneath the fetal head and then inflated to help elevate the head and dislodge it from the pelvis before commencing the caesarean birth. Fetal pillow makes the delivery of the head easier and reduces the risk of complications for the mother and baby that occur when a caesarean birth is carried out at full dilation.

Indications for use

Caesarean Section:

- After a failed instrumental delivery
- Second stage caesarean birth
- Emergency caesarean birth for absent progress at 8-10 cm with deeply engaged head/ deflexed head/ Brow presentation/excessive caput or moulding



8.2.2. Surgeon flex and lift the fetal head

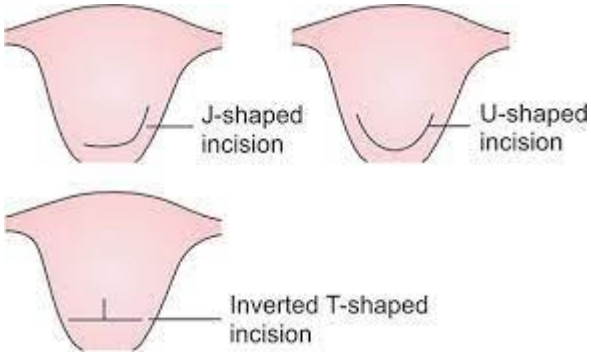
Attempt to dis-impact should be done only after flexing the head especially if it is in OP position. Traction should be applied along the longitudinal axis of the mother. Wait till the suction is released, before attempting to deliver the fetal head.

8.2.3. Tocolysis – Terbutaline

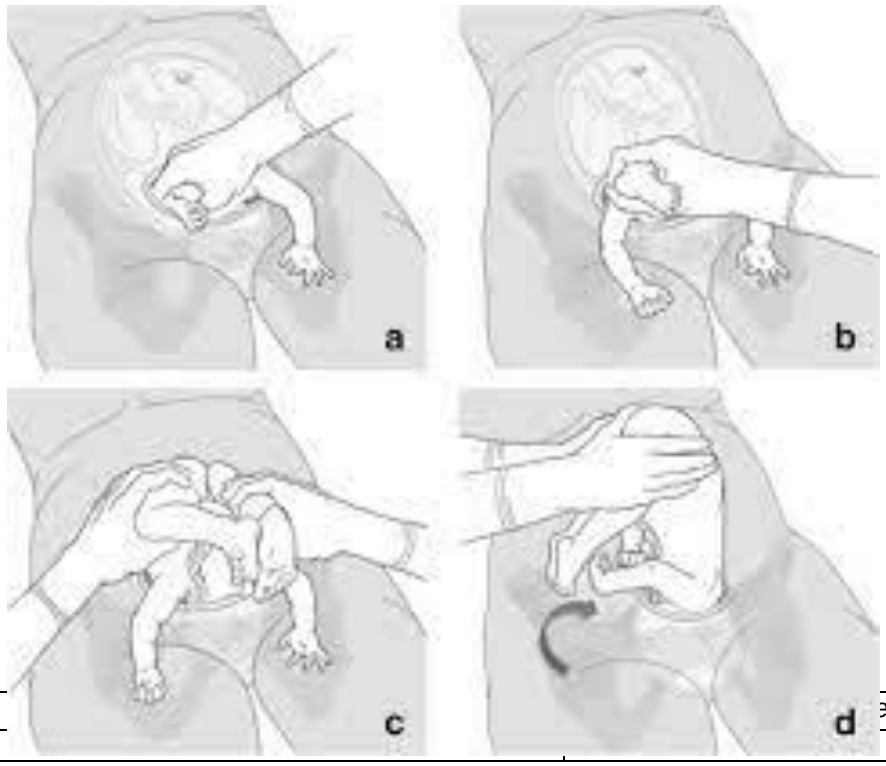
250mcg Terbutaline should be given subcutaneously to help relax the uterus.

8.2.4. Reverse breech extraction

8.2.5. T or J uterine incision



8.2.6. Pathwardhans manoeurve



9. Communication and Documentation

All women with learning disabilities, visual or hearing impairments or those whose first language is not English must be offered assistance with interpretation where applicable, and where appropriate a telephone interpreter must be used. It is paramount that clear channels of communication are maintained at all times between all staff, the women and their families. Once any decisions have been made / agreed, comprehensive and clear details must be given to the woman thereby confirming the wishes of the women and their families.

The contents of any leaflet issued must be explained in full at the time it is issued. All communication difficulties (including learning difficulties) and language barriers must be addressed as outlined in the previous paragraph at the time the leaflet is issued.

Staff should aim to foster a culturally sensitive care approach in accordance with the religious and cultural beliefs of the parents and families in our care.

All details surrounding discussion of the risks and benefits together with explicit details of proposed management must be documented contemporaneously in the maternal records.

10. Equality, Diversity and Human Rights Impact Assessment

This document has been equality impact assessed using the Trust's Equality Impact Assessment (EqIA) framework. The EqIA score fell into low priority; no significant issues in relation to equality, diversity, gender, colour, race or religion are identified as raising a concern.

11. Consultation, Approval and Ratification Process

During development this guideline has been reviewed by senior obstetricians, anaesthetists and midwives from across Saint Mary's MCS.

It will be formally reviewed 3 years following its ratification or sooner if there are significant changes in evidence-based practice.

12. Monitoring Compliance

This guideline will be audited in accordance with the Obstetric Directorate audit plan. The findings of the audit report will be presented to staff via the Site Obstetric Quality and Safety Committee and where appropriate an action plan will be developed and monitored

13. Bibliography and References

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14. Appendices

Appendix 1 - Risks and benefits of vaginal and caesarean birth Risks and benefits of vaginal and caesarean birth

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Appendix 1 - Risks and benefits of vaginal and caesarean birth

Risks and benefits of vaginal and caesarean birth

Outcomes for women that may be more likely with caesarean birth

Outcomes	Estimated risk with vaginal birth	Calculated risk with caesarean birth	Risk difference
Peripartum hysterectomy	About 80 women per 100,000 would be expected to have a peripartum hysterectomy (so 99,920 would not)	About 150 women per 100,000 would be expected to have a peripartum hysterectomy (so 99,850 would not)	About 70 more women per 100,000 who had a caesarean birth would be expected to have a peripartum hysterectomy; so for about 99,930 women per 100,000 the outcome was the same irrespective of the method of birth.
Maternal death	About 4 women per 100,000 would be expected to die (so 99,996 would not)	About 24 women per 100,000 would be expected to die (so 99,976 would not)	About 20 more women per 100,000 who had a caesarean birth would be expected to die; so for about 99,980 women per 100,000 the outcome was the same irrespective of the method of birth.
Length of hospital stay	About 2 and a half days on average	About 4 days on average	About 1 to 2 days longer on average with caesarean birth. [2011]
Placenta accreta in future pregnancy	About 40 women per 100,000 would be expected to have a placenta accreta in a future pregnancy (so 99,960 would not)	About 100 women per 100,000 would be expected to have a placenta accrete in a future pregnancy (so 99,900 would not)	About 60 more women per 100,000 who had a caesarean birth would be expected to have a placenta accreta in a future pregnancy; so for about 99,940 women per 100,000 the outcome was the same irrespective of the method of birth.
Uterine rupture in future pregnancy or birth	About 40 women per 100,000 would be expected to have a uterine rupture in a future pregnancy (so 99,960 would not)	About 1,020 women per 100,000 would be expected to have a uterine rupture in a future pregnancy (so 98,980 would not)	About 980 more women per 100,000 who had a caesarean birth would be expected to have a uterine rupture in a future pregnancy; so for about 99,020 women per 100,000 the outcome was the same irrespective of the method of birth.

Outcomes for babies that may be more likely with caesarean birth

Outcomes	Estimated risk with vaginal birth	Calculated risk with caesarean birth	Risk difference
Neonatal mortality	About 30 babies per 100,000 would be expected to die (so 99,970 would not)	About 50 babies per 100,000 would be expected to die (so 99,950 would not)	About 20 more babies per 100,000 whose mothers had a caesarean birth would be expected to die; so for about 99,980 babies per 100,000 the outcome was the same irrespective of the method of birth.
Asthma	About 1,500 per 100,000 children would be expected to have asthma (so 98,500 would not)	About 1,810 per 100,000 children would be expected to have asthma (so 98,190 would not)	About 310 more children per 100,000 whose mothers had a caesarean birth would be expected to have asthma; so for about 99,690 babies or children per 100,000 the outcome was the same irrespective of the method of birth
Childhood obesity	About 4,050 per 100,000 children would be expected to be obese (so 95,950 would not)	About 4,560 per 100,000 children would be expected to be obese (so 95,440 would not)	About 510 more children per 100,000 whose mothers had a caesarean birth would be expected to be obese; so for about 99,490 children per 100,000 the outcome was the same irrespective of the method of birth.

Outcomes for women that may be less likely with caesarean birth

Outcomes	Estimated risk with vaginal birth	Calculated risk with caesarean birth	Risk difference
Urinary incontinence occurring more than 1 year after birth	About 48,700 per 100,000 women would be expected to have urinary incontinence (so 51,300 would not)	About 27,520 per 100,000 women would be expected to have urinary incontinence (so 72,480 would not)	About 21,180 fewer women per 100,000 who had a caesarean birth would be expected to have urinary incontinence, so for about 78,820 women per 100,000 the outcome was the same irrespective of the method of birth.
Faecal incontinence occurring more than 1 year after birth; compared to assisted vaginal birth	About 15,100 per 100,000 women would be expected to have faecal incontinence after assisted vaginal birth	About 7,410 per 100,000 women would be expected to have faecal incontinence (so 92,590 would not)	About 7,690 fewer women per 100,000 who had a caesarean birth would be expected to have faecal incontinence; so for about 92,310 women per 100,000 the outcome was the same irrespective of the method of birth
Vaginal tear: third- and fourth-degree tears	About 560 per 100,000 women would be expected to have a third- or fourth-degree vaginal tear (so 99,440 would not)	About 0 per 100,000 women would be expected to have a third- or fourth-degree vaginal tear (so 100,000 would not)	About 560 fewer women per 100,000 who had a caesarean birth would be expected to have third- or fourth-degree vaginal tear; so for about 99,440 women per 100,000 the outcome was the same irrespective of the method of birth. [2011]
Perineal/abdominal pain during birth and 3 days after birth	Median pain scores of 7.3 (during birth) and 5.2 (3 days after birth) (1 is no	Median pain scores of 1.0 (during birth) and 4.5 (3 days after birth)	Reduction in pain score with caesarean birth compared to

	pain, 10 is most severe pain)		vaginal birth of 6.3 (during birth) and 0.7 (3 days after birth) (1 is no pain, 10 is most severe pain) [2011]

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Appendix 2

Management Plan for Women Requesting an Elective Caesarean Section (CS) without medical indication

Antenatal Discussion about mode of birth

Parity: ..... Gestation at Discussion: .....

Previous history
Reason for request:
Previous Traumatic Birth Yes ☐ If yes refer to Birthtalk clinic (ORC and Wythenshawe) or senior midwife (NMGH) for debrief and personalised care plan Date of debrief:……
Tokophobia or severe anxiety Yes ☐ If yes, refer to perinatal mental health support

CONSIDERATIONS	Vaginal Birth	Elective (planned) Caesarean Section	INITIAL WHEN DISCUSSED
Recovery	Varies but quickest with straightforward VB	4-6 weeks for full recovery	
Hospital stay	6hrs-24hrs if no complications	24-48 hours if no complications	
Planned procedure	Spontaneous labour unpredictable but could consider Induction of labour	Date given (although 10% of women labour before planned date)	
Skin to skin	Supported	Supported	
Delayed cord clamping	Conducted as routine	Conducted as routine	
Birth place location	Normally your preferred maternity unit where you have booked for care	You may be asked to have your planned CS at a different maternity unit than the one you booked at. There is also a small chance your CS will not be performed on the day that it is provisionally booked for.	

Risk Factors - mother	Vaginal Birth	Planned Caesarean Section	INITIAL WHEN DISCUSSED
Emergency hysterectomy	1 in 1250	1 in 670	
Maternal Mortality 1 in 25 000	4 in 100,000	1 in 4200	
Placenta acreta in future pregnancy	1 in 2500	1 in 1000	
Uterine rupture in a future pregnancy (usually only happens in labour)	1 in 2500	1 in 98 (both planned an unplanned CS)	
Urinary tract injury	0 per 1000	1 in 1000 (both planned and unplanned CS)	
3rd and 4th degree tears	1 in 179	0 in 100	
Transient Neonatal Respiratory Morbidity	2-3 in 100	4-6 in 100	
Urinary incontinence	1 in 2	1 in 4	
Other pertinent risks	Slight increased risk of urinary and faecal incontinence	Slight increase in asthma and childhood obesity. Fetal laceration (1-3 in 100)	

Risk Factors Similar to Vaginal Birth	INITIAL WHEN DISCUSSED
Excessive bleeding after birth	
Blood clots in legs and lungs	
Postnatal depression	

Risk Factors - baby	Vaginal Birth	Planned Caesarean Section	INITIAL WHEN DISCUSSED
Antepartum Stillbirth beyond 39 whilst awaiting labour	1 in 1000) at 39 weeks & very small risk increases with gestation (the same as women having their first baby)	Not applicable if CS booked for 39 weeks. Very small risk of stillbirth increases with gestation	
Childhood obesity	1 in 25	1 in 22	
Asthma	1 in 67	1 in 55	
Dying within 28 days of birth	1 in 3300	1 in 2000	

Management Plan – whilst the below decisions will require an individual assessment if the woman attends in labour e.g. cervical dilatation, below is a guide to prior discussed scenarios			
Preferred choice for mode of birth	Vaginal Birth ☐	Elective Caesarean Section ☐	
If preterm labour occurs <37 wks	Vaginal Delivery ☐	Emergency Caesarean Section ☐	
Spontaneous labour before CS date	Vaginal Delivery ☐	Unsure – depends on clinical circumstances ☐	Non-elective Caesarean Section. Please note that CS risks in labour are different from planned CS risks ☐

Share the following information with the woman:

- Risk of cancellation or change of date of the procedure
- On the day of the surgery if there is a delay with the flow of the list due to the complexity of a case there is a chance of cancellation on that day. This will mean that their caesarean section will be re-scheduled by the obstetrician depending on the workload.
- Explain that if a caesarean section slot is needed for medical reason for another woman and there is no other available slot then there will be a chance of change of date. This may mean that the woman may experience labour. At this point she may want to transfer her care to another hospital.

If the obstetrician is not willing to support the woman's request then this should be discussed with another consultant colleague. If appropriate she can be given the choice to transfer her care to another hospital.

Appendix 3 - SOP: Insertion of Postpartum Intrauterine Contraception (PPIUC) at the time of Caesarean Section (Version 1.0)

1. Introduction

This Standard Operating Procedure (SOP) provides guidance on the insertion of postpartum intrauterine contraception (PPIUC) at the time of caesarean section. An intrauterine device (Copper IUD or LNG-IUS/Mirena®/Kyleena®) can be safely inserted immediately after birth, at the time of caesarean section. PPIUC at the time of caesarean section can be very effective particularly as women already have analgesia in place and it avoids a further visit to a service provider for insertion.

2. Procedure

Actions
After delivery of the baby, remove the placenta and massage the uterus to aid contraction
Apply Green-Armitage clamps to the uterine angles
Ensure the uterine cavity is empty
Remove the IUD/IUS from the standard inserter and grasp it using forceps
Place the IUD/IUS inside the uterus so it is positioned centrally at the fundus in the horizontal plane
After placing the device, apply pressure to the fundus externally with the non-dominant hand
Once the device is in place, gently guide the untrimmed threads towards and through the internal cervical os using an instrument if necessary eg. curved Mayo or Spencer-Wells forceps
Do not attempt to push the threads down the entire length of the cervical canal
Close the uterus in the usual way, taking care not to suture the IUD/IUS threads
Following completion of the caesarean section, document clearly the type of device inserted; when replacement is required, and provide the woman with the card enclosed with the device outlining these details

3. Post Insertion Follow-up

Following PPIUC, all patients should have a pelvic ultrasound scan performed post insertion to clarify whether the IUD has remained correctly sited.

ORC Site

An ultrasound scan should be arranged 4 weeks post insertion and a follow-up appointment should be requested at the Hathersage Centre at six weeks postpartum to trim the threads.

To arrange follow-up, please request the ultrasound scan on hive and email the patient details to Barbara Millward (Barbara.millward@mft.nhs.uk) who will make an appointment with Dr.

Asha Kasliwal, Consultant in Community Gynaecology and Reproductive Health Care at the Hathersage Centre.

Wythenshawe Site

Follow up will be arranged at six weeks with a scan and clinic appointment (maternity scan and clinic). To arrange, this please book a scan on Hive and a postnatal appointment on HIVE. A postnatal appointment will be booked for an available antenatal clinic at Wythenshawe.

Women should be informed that until the scan has been performed and confirms correct placement, they should not rely on the PPIUC for contraception.

4. Cautions and Contraindications

It is important that all women are counselled appropriately prior to insertion of PPIUC and understand the following:

Small failure rate (less than 1 pregnancy per 100 women per year)
2/1000 risk of uterine perforation at time of insertion
1/20 chance of expulsion of IUD
1/100 risk of infection during first few weeks following insertion
The risk of ectopic pregnancy is reduced overall with use of an IUD compared to no contraception, however if pregnancy does occur there is an increased risk of ectopic pregnancy up to 50%

PPIUC is contraindicated in the following circumstances (UKMEC Category 3 or 4):

Uterine fibroids with distortion of the uterine cavity
Any congenital or acquired anatomical abnormality distorting the uterine cavity eg. bicornuate uterus
Sepsis
Current PID or current infection with chlamydia or gonorrhoea
Known long QT syndrome
HIV with CD4 count <200
Pelvic TB
Complicated organ transplant e.g.. graft failure, rejection or cardiac allograft vasculopathy
Hepatocellular adenoma/carcinoma and decompensated liver cirrhosis (LNG-IUS contraindicated only)