University Hospitals Sussex
NHS Foundation Trust

Caesarean Section

Maternity Protocol: MP050

Date agreed: April 2022

Guideline Reviewer:	Katie Fraser
Manager responsible:	Katie Fraser
Version:	4.2
Approval Committee:	Protocol Steering Group
First agreed:	September 2018
Updated:	April 2022
Next Review date:	April 2025

Cross reference:

C005 Policy for Consent to Examination or Treatment
MP012 Venous Thrombosis (VTE)
MP020 Multiple pregnancy
MP034 Vaginal Birth after LSCS (VBAC)
MP040 Bladder Care
MP043 Prevention of Acid Aspiration Syndrome
MP046 Breech and ECV
MP051 Recovery
MP053 Obstetric Haemorrhage

Table of Contents

Key Principles

A protocol is a set of measurable, objective standards to determine a course of action Professional judgement may be used in the application of a protocol.

Scope

This protocol applies to: Any woman / person requiring or requesting a caesarean section

Responsibilities

Midwives & Obstetricians:

- To access, read, understand and follow this guidance
- To use their professional judgement in application of this protocol

Management:

- To ensure the protocol is reviewed as required in line with Trust and National recommendations
- To ensure the protocol is accessible to all relevant staff
- To ensure the protocol is available for service users on request

1 Classification of Caesarean Section (as agreed by Maternity Service)

All categories below follow NICE 2021 - the preferred classification system

Category 1 (Emergency)		
Definition	**Decision to delivery**	**Actions**
Immediate threat to the life of the woman / person or fetus eg. suspected uterine rupture, major placental abruption, cord prolapse, fetal hypoxia or persistent fetal bradycardia	As soon as possible, and in most situations within 30 mins of making the decision	Call 2222 and declare 'CATEGORY 1 CAESAREAN SECTION'

Category 2 (Urgent)		
Definition	**Decision to delivery time**	**Actions**
Maternal or fetal compromise which was not immediately life-threatening	As soon as possible, and in most situations within 75 mins of making the decision	Call 2222 and declare 'CATEGORY 2 CAESAREAN SECTION'

Category 3 (Scheduled)		
Definition	**Decision to delivery time**	**Actions**
No maternal or fetal compromise but needs early birth	Cat 3 LSCS should be as soon as possible within a 24 hour period and depending on clinical activity.	Inform LW coordinator, Obstetric team, Anaesthetic team and theatre team

Category 4 (Elective)		
Definition	**Decision to delivery time**	**Actions**
Birth timed to suit woman / person or healthcare provider	**N/A**	Book LSCS in the online diary Assess for ERP Complete consent form Book pre-assessment clinic Organise relevant blood products

1.1 The four point classification determines the urgency of performing the caesarean.

1.2 There may be cause to downgrade or upgrade the category of caesarean once in theatre – ensure the final decision is documented clearly.

2 General Preparation and Management of Caesarean Section

2.1 Documentation

2.1.1 The classification and reason for performing any caesarean section must be documented on Badgernet by the person who makes the decision

2.1.2 The yellow part of the completed paper consent form should be given to the patient, the white copy to be filed securely in the brown folder.

2.1.3 If the maximum decision to delivery interval is exceeded, the reason should be documented clearly on Badgernet and reported on DATIX

2.1.4 Where appropriate discuss suitability of enhanced recovery with the pregnant woman / person information leaflet given.

2.1.5 Any discussions with patient regarding the procedure must be documented on Badgernet

2.1.6 WHO checklists must be completed prior to and after procedure (Section 4)

2.1.7 Theatre log book to be completed by all staff before leaving theatre

2.1.8 Procedure should be appropriately documented on Badgernet

2.1.9 The post-operative plan must be clearly documented on Badgernet.

3 Responsibilities of staff group

3.1 Attending Obstetrician:

- Communicate effectively with the pregnant woman/ person (and birthing partner), explain the reasons for the decision for caesarean, ensure adequate understanding and written informed consent. Verbal consent may be appropriate in an emergency.
- Document al discussions, the reason and decision time for LSCS on Badgernet
- Discuss with the Consultant obstetrician on call (where time permits - see below)
- Stop Oxytocin if in use
- Assist with transfer to theatre
- Communicate with the midwifery team / coordinator

- Document procedure on Badgernet

3.2 Attending Midwife / Coordinator:

- Provide advocacy and support for the pregnant woman/ person and their birth partner
- Inform the anaesthetist and ODP (& main theatres)
- Assist with transfer to theatre
- To insert the Foley catheter
- Ensure name band details are correct
- Call for neonatal assistance if required
- Complete the Badgernet notes

3.3 Attending Anaesthetist

- Pre-assess and consent for anesthesia
- Review bloods and assess if available for electronic issue (when possible)
- Effective communication with obstetric and theatre team
- Document on anesthetic charts
- Hand over to recovery team MP051 Recovery

4 Pre-Operative brief and WHO Safety Surgical Checklist

4.1 All members of the MDT expected to be present in theatre (obstetricians, anaesthetists, anaesthetic assistant ODP, theatre staff, midwives and students), should meet for a pre-theatre brief to discuss each case and highlight any key concerns and order of cases. (This may not be achievable if the clinical picture indicates immediate delivery).

4.2 Forward planning for any unusual steps can be discussed at brief; eg. Cell salvage, uterotonic agents, blood product availability, expected anaesthetic or surgical complication, specific dressing requirements etc. (This may not be achievable if the clinical picture indicates immediate delivery).

4.3 The WHO Surgical Safety Checklist for Maternity 'SIGN IN' to be completed on arrival to theatre

4.4 The WHO Surgical Safety Checklist for Maternity 'TIME OUT' must be completed before commencing surgery with all theatre team present.

4.5 Aim to involve patient and partner unless clinical needs otherwise dictate

4.6 The WHO Surgical Safety Checklist for Maternity 'SIGN OUT' must be completed before any members of the theatre team leave the operating theatre

4.7 The WHO post-operative debrief/review should take place after the operation or elective session and involve all members of the team to discuss any potential learning points

5 Considerations for all caesarean births

5.1 Intra-operative Cell salvage (ICS)

5.1.1 Cell salvage can reduce the incidence of transfusion reactions and transfusion-related infection, compared with allogenic transfusion, and may also be useful when there are difficulties with cross-matching.

5.1.2 The use of Intra-operative Cell Salvage reduces the demand on allogeneic (donor) red cells and is a cost effective measure

5.1.3 Staff should be competent in using cell salvage and have regular exposure to equipment to ensure safe and effective use

5.1.4 Pregnant women / people should be informed of the use of cell salvage. There is a theoretical risk of amniotic fluid embolism and infusion of fetal cells, which could potentially cause haemolytic disease in future pregnancies – this has not been seen in clinical practice.

5.1.5 When obtaining consent for caesarean section, the obstetrician or anaesthetist should discuss the risks and benefits of ICS and document this.

5.1.6 For elective caesareans, all should be signposted to the ICS information sheet either at the antenatal appointment or as part of the pre-operative information.

5.1.7 Cell salvage should be considered in all cases but particularly:

- Placenta praevia, or suspected (previous LSCS with anterior placenta)
- Expected Classical incision
- Past history of uterine atony / PPH
- Maternal bleeding disorders
- Women with Hb <110 g/dl
- Women who decline blood products / Jehovah witness and who are accepting of ICS
- When there is difficulty with cross-matching due to antibodies
- Fibroid uterus
- Prolonged labour on Oxytocin / fully dilated LSCS / failed instrumental
- Pregnant women / people with Antepartum Haemorrhage / Suspected abruption
- Laparotomy following post-partum haemorrhage

- Multiple pregnancy
- Extreme prematurity / classical LSCS
- Expected complex surgery

Please refer to Trust Guideline: *Intra-Operative Cell Salvage* and MPXXX rhesus Policy for further information

5.2 Blood transfusion

5.2.1 Pregnant women / people should give verbal and/or written consent to blood transfusion as part of the consent for caesarean section

5.2.2 Blood should be cross-matched if:

- Haemoglobin <100 g/dl
- Placenta praevia / accreta (or suspected)
- Antepartum Haemorrhage / Suspected abruption
- Abnormal antibodies where there is an anticipated delay for cross-matched blood

5.3 PPI / Sodium Citrate

5.3.1 All high risk patients in labour should receive oral lanzoprazole 15-30mg , or omeproazole 20-40mg.

5.3.2 30ml of 0.3M Sodium Citrate may be given orally immediately pre-induction of general anaesthetic if necessary. If time permits, give PPI at this time if time.

5.4 Antibiotics

5.4.1 Recommend prophylactic antibiotics before skin incision for all women / people having caesarean birth to reduce the risk of endometritis (occurs in 8%), urinary tract and wound infections. Inform that there is no known effect on the baby.

5.4.2 Cefuroxime 1.5g IV should be given prior knife-to-skin

5.4.3 If penicillin allergic, give Clindamycin 600mg IV prior to KTS and Gentamicin 160mg IV post cord-clamping

5.4.4 Consider a longer course of antibiotics in

- Women with sepsis in labour
- Complicated second stage caesarean / failed instrumental
- Prolonged surgery
- Bakri balloon
- BMI >40

5.5 Surgical Techniques for Caesarean

5.5.1 Reducing Infection

- Use alcohol-based chlorhexidine skin preparation before caesarean birth to reduce the risk of wound infections. If alcohol-based chlorhexidine skin preparation is not available, alcohol-based iodine skin preparation can be used.

- Use aqueous iodine vaginal preparation before caesarean birth in those with ruptured membranes to reduce the risk of endometritis. If aqueous iodine vaginal preparation is not available or is contraindicated, aqueous chlorhexidine vaginal preparation can be used.

5.5.2 Incision / Entry Technique

- Perform caesarean birth using a transverse abdominal incision (a straight skin incision, 3 cm above the symphysis pubis) - reduced post-operative pain

- Subsequent tissue layers are opened bluntly and, if necessary, extended with scissors and not a knife - allows for shorter operating times and reduces postoperative febrile morbidity
- Do not use separate surgical knives to incise the skin and the deeper tissues in caesarean birth, as it does not decrease wound infection

- When there is a well formed lower uterine segment, use blunt rather than sharp extension of the uterine incision to reduce blood loss, incidences of postpartum haemorrhage and the need for transfusion during caesarean birth.

- Remove the placenta in caesarean birth using controlled cord traction (in preference to manual removal) to reduce the risk of endometritis.

- Perform intra-peritoneal repair of the uterus for caesarean birth. Routine exteriorisation of the uterus is not recommended because it is associated with more pain and does not improve operative outcomes such as haemorrhage and infection. (It may be necessary for complex uterine extension / repairs, raised BMI)

- Use single layer or double layer uterine closure in caesarean birth, depending on the clinical circumstances. Note that single layer closure does not increase the risk of postoperative bleeding or uterine rupture in a subsequent pregnancy.

- Do not routinely suture the visceral or the parietal peritoneum in caesarean birth to reduce operating time and the need for postoperative analgesia, and improve maternal satisfaction.

- Do not routinely close the subcutaneous tissue space in caesarean unless the subcutaneous fat >2cm.

- Close the skin with sutures rather than staples to reduce the risk of superficial wound dehiscence.
- Do not routinely use superficial wound drains in caesarean birth as they do not decrease the incidence of wound infection or wound haematoma
- Consider negative pressure wound therapy after caesarean birth for those with a BMI of 35 kg/m^2 or more to reduce the risk of wound infections (NB this is NICE but is not our current PICO guidance)

5.6 Forceps use at Caesarean Section

Only use forceps in caesarean birth if there is difficulty delivering the baby's head. The effect on neonatal morbidity of the routine use of forceps at caesarean birth remains uncertain.

5.7 Cord clamping

5.7.1 Delayed cord clamping (at least 1 minute from delivery) should be considered routine for deliveries by caesarean

5.7.2 Do not delay cord clamping in cases of emergency or where there are concerns for fetal wellbeing (heart rate <60bpm) or significant concerns for maternal haemorrhage

5.7.3 Cord milking is beneficial in cases where delayed clamping is not appropriate. Perform milking four times for those babies whom delayed cord clamping is deemed not feasible.

5.8 Cord Blood Sampling

5.8.1 Cord blood samples should be taken in any Category 1 or 2 LSCS

5.8.2 Cord blood samples are required where the pregnant woman / person has known abnormal antibodies, or Rh-ve

5.8.3 Cord blood sampling is not routine in elective surgery unless there is considerable delay in delivery during surgery, the baby has lower APGARS than expected, there is maternal compromise at LSCS or GA

5.9 Oxytocin

5.9.1 Oxytocin 5 units should be given as a slow intravenous injection after the cord is clamped

5.9.2 Oxytocin 40 units infusion should **not** be routinely used

5.9.3 Oxytocin 40units infusion should be considered prophylactically for patients who are at risk of PPH:

- APH / abruption
- Placenta praevia
- Multiple pregnancy
- Prolonged labour / use of Oxytocin
- Fibroid uterus

See M*aternity Protocol MP053 Obstetric Haemorrhage*

5.10 Care of the baby born by caesarean birth

5.10.1 An appropriately trained practitioner skilled in the resuscitation of newborn babies is present for caesarean birth performed under general anaesthesia, or if there is evidence of fetal compromise.

5.10.2 Offer and facilitate early skin-to-skin contact between the woman / person and their baby where possible

5.10.3 Support women / people who have had a caesarean birth and who wish to breast / chest feed to start as soon as possible after the birth of their baby.

6 Category 1: Emergency Caesarean Section

6.1 A 2222 call stating '*Category 1 Caesarean Section'* should be made as soon as the decision is made. The operator will send out an emergency bleep stating '*Category 1 caesarean section'* to the following people: on call anaesthetists, on call ODP, on call obstetric consultant (bleep), registrar and SHO, on call neonatologist (or ANNP), labour ward coordinator.

6.2 Out of hours, the consultant will need to be informed via direct telephone call from the obstetric registrar, or other member o fthe team if the obstetric registrar is unable.

6.3 Written consent should be taken where possible, verbal may be necessary depending on the cause of the emergency.

6.4 There should be maximum decision to delivery time of 30 minutes, however decision to delivery time for category 1 caesarean sections should be as short as possible

6.5 The senior obstetrician on site and the senior anaesthetist should communicate about the reason for LSCS, categorization, urgency and agree on the anaesthesia to be used - depending on the time this will take and the urgency of delivery or if maternal/fetal condition stabilises.

6.6 It may be necessary to revert to GA if achieving adequate regional block is taking too long. The decision should be made with the senior obstetrician after discussion with the attending anaesthetist taking in to consideration the whole clinical picture.

7 Category 2: Urgent Caesarean Section

7.1 The aim should be to perform the caesarean as quickly as possible, and with a maximum decision-to-delivery interval of 75 minutes

7.2 A 2222 call stating '*Category 2 Caesarean Section'* should be made. The operator will send out a bleep stating '*Category 2 caesarean section'* to the following people: on call anaesthetists, on call ODP, on call obstetric consultant (bleep), registrar and SHO, on call neonatologist (or ANNP), labour ward coordinator.

7.3 Out of hours, the consultant will need to be informed via direct telephone call from the obstetric registrar, or another member of the team if the obstetric registrar is unable.

7.4 Category 2 caesarean is usually achievable under regional block (unless contraindicated)

8 Category 3/4: Caesarean Section

8.1 Indication

8.1.1 For indications for elective caesarean please see **APPENDIX A**

8.1.2 Ensure all details are filled in on the LSCS online diary including indications, risk factors and any specific requirements (eg. Crossmatch, cell saver anaesthetic concerns, antenatal issues, mental health considerations, social concerns)

8.2 Timing

8.2.1 Planned caesarean should not routinely be carried out before 39 weeks unless there is a recognised and documented clinical indication

8.2.2 The risk of respiratory morbidity is increased in babies born by caesarean before labour, but this risk decreases significantly after 39 weeks

8.2.3 For multiple pregnancies (see Protocol MP020)

8.2.4 Other indications for delivering prior to 39 weeks are likely due to fetal or maternal compromise and decision for elective delivery should be made by the consultant / MDT.

8.3 Antenatal Steroids

8.3.1 Antenatal corticosteroids should be given to all those for whom an elective caesarean section is planned prior to 38+6 weeks of gestation

8.3.2 Antenatal corticosteroids should be offered to all pregnant women/people for whom an elective caesarean section is planned prior to 39 weeks of gestation

8.3.3 For those undergoing planned caesarean birth between 37^{+0} and 38^{+6} weeks an informed discussion should take place about the potential risks and benefits of a course of antenatal corticosteroids. Although antenatal corticosteroids may reduce admission to the neonatal unit (NNU) for respiratory morbidity, it is uncertain if there is any reduction in RDS, transient tachypnoea of the newborn (TTN) or NNU admission overall, and antenatal corticosteroids may result in harm to the neonate which includes hypoglycaemia and potential developmental delay.

8.3.4 Two doses of dexamethasone phosphate 12mg IM, minimum of 12 hours apart

8.3.5 Optimal timing of steroids should be at least 24 hours between the 2nd dose and within 7-days of planned caesarean

Before planned caesarean birth at term 37–39 weeks	**May** decrease: • admission to NNU with respiratory morbidity (reduction from 51 per 1000 to 23 per 1000 RR 0.45 [0.22 to 0.90]).[13] ***NNT 35.7 (95% CI 25.1–196.1)***	**May** reduce educational attainment at school age (increase in the proportion of children ranked by teachers as being in lower quartile of academic ability from 9 to 18%; and reduction in proportion of children obtaining English proficiency from 13 to 7%).[18]	There is uncertainty as to whether there is any reduction in RDS, TTN or NNU admission overall. Risk of bias in the single centre study means there is low certainty around estimates. Short term complications such as hypoglycaemia have not been rigorously studied, but are likely to also apply at these gestational ages[16] as well as at late preterm gestations. Benefits seem unlikely if birth is more than 7 days after starting treatment, but this has not been studied in women at this gestation. While no long term harms have been proven, large scale observational studies necessary for pharmacovigilance are lacking

8.4 Consent

8.4.1 All pregnant women / people should be given the opportunity to ask questions and discuss their options regarding their mode of delivery with a consultant obstetrician when requested.

8.4.2 Maternal informed consent for caesarean section should be gained and the consent form signed in ANC when the decision regarding mode of delivery is agreed between the obstetrician and pregnant woman / person.

8.4.3 The patient demographic sticker should be used on the Consent Form

8.4.4 A caesarean section consent 'sticker' should be fixed to the consent form and the yellow copy given to the woman / person .

8.4.5 Where there is a language barrier, request the presence of a professional interpreter. Family members should not be used for interpreting.

8.4.6 Any extra particular risks individual to a particular clinical situation should be handwritten on the consent form

8.4.7 A summary of all discussions should be documented on Badgernet.

8.4.8 Please refer to policy MP053 Obstectric Haemorrhage for those who decline blood products

8.5 Enhanced Recovery

The Enhanced Recovery in Obstetrics is devised to reduce hospital stay, improve patient experience and return to normality.

8.5.1 All non-complex obstetric / surgical patients should be considered for Enhanced Recovery when booking an elective caesarean

8.5.2 Those not suitable for enhanced recovery include those with other medical co-morbidities and those with a predicted longer postnatal care (eg. hypertensive patients)

8.6 Pre-operative testing assessment clinic and preparation for caesarean birth

8.6.1 All pregnant women / people having planned caesarean birth should have pre-op booked at the DAU / MAU in the preceding 24-48-hours

8.6.2 Carry out a full blood count to identify anaemia, antibody screening, and blood grouping with saving of serum

8.6.3 Do not routinely carry out the following tests before caesarean birth:
- cross-matching of blood
- a clotting screen
- preoperative ultrasound for localisation of the placenta.

8.6.4 COVID PCR swab should be organised in the preceding 48-hours.
If the result is positive, elective birth should be delayed, where clinically possible, until Day 10.
Where delivery cannot be delayed, a plan must be made with the team regarding admission location, anaesthesia and recovery.
(See COVID guidance on timing of swabs, lateral flows for birthing partner / positive testing partners)

8.6.5 Any woman / person who does not qualify as low risk should be discussed with the on call obstetric anaesthetist, if not already previously referred to high risk clinic antenatally.

8.6.6 Obstetric Anaesthetic Review Clinic - ARC
Please refer to Appendix D for indications for referral to the anaesthetic team.

8.6.1 Antacid regime:

Omeprazole 20mg (preferred) or lansoprazole 30mg if no omeprazole available at 22:00hrs (evening before surgery) and 06:00hrs (morning of surgery)

(TTO packs should be used to supply this medicine as per MM0026 Policy for the Safe and Secure Handling of Medicines appendix 4)

8.6.2 Metoclopramide 10mg PO at 06:00hrs (morning of surgery) to be prescribed in pre-op clerking clinic

(TTO packs should be used to supply this medicine as per MM0026 Policy for the Safe and Secure Handling of Medicines appendix 4)

8.6.3 Surgical consent should have been completed in clinic by the obstetrician booking surgery

8.6.4 Ensure pregnant women / people receive information leaflets including
- LSCS leaflet: https://www.bsuh.nhs.uk/wp-content/uploads/sites/5/2016/09/Information-for-women-having-an-elective-planned-caesarean.pdf
  Or, can 'push' this leaflet on Badgernet
- Anaesthesia for birth by caesarean section leaflet
- ERP leaflet: https://www.bsuh.nhs.uk/wp-content/uploads/sites/5/2016/09/Enhanced-recovery-programme-for-patients-requiring-elective-caesarean-section.pdf

8.7 Day of Elective Caesarean Section:

- No food from 02.00hrs
- Pre-op 500mls Lucozade Sport until 07.00hrs (not if diabetic)
- Can have fluids as per the enhanced recovery plan protocol, until 2 hours prior to admission time or clear non-particulate fluid if diabetic.
- Admit to labour ward on day of C/S
- For elective LSCS for breech presentation all pregnant women / people should have a presentaiton scan on admission to confirm if caesarean is still indicated.
  If the baby is found to be cephalic the LSCS, women / people should be encouraged to aim for vaginal birth.
  See maternity protocol MP046 Breech and ECV
- Alert the neonatal team if they need to be present in theatre for delivery

8.8 Spontaneous Labour before Elective section date

8.8.1 The obstetric team should review any pregnant woman / person presenting in spontaneous labour before the elective LSCS date to ascertain whether the indication for elective CS still applies.

8.8.2 If indicated, then the CS should be carried out as soon as possible.

8.8.3 If the indication is no longer relevant or there are new factors to consider, this should be discussed carefully with the woman / person (involve Consultant/LW coordinator where necessary) and vaginal delivery encouraged.
Pregnant women / people should be counselled about this possibility at the time of decision for elective LSCS is made

8.8.4 Despite counselling of risks and benefits, if the pregnant woman / person still wishes for LSCS, this should be accepted by the team.

8.9 Thromboprophylaxis

8.9.1 All pregnant women / people should have VTE risk assessment and have be assessed and thromboprophylaxis prescribed appropriately

8.9.2 For those already on LMWH in pregnancy, refer to *Maternity Protocol* *MP012: Venous Thrombosis (VTE)*

9 Post -Operative care

9.1 Recovery care

9.1.1 Women / people should be observed on a one-to-one basis by an appropriately trained member of staff until they have regained airway control and cardiorespiratory stability and are able to communicate (for GA CS) and until they have regained movement in their lower limbs (post spinal CS)

See *Maternity Protocol MP051: Recovery* for details on care in the first 24 hours

9.2 Pain Management

9.2.1 Regular post-operative analgesia is prescribed for all those having caesarean sections and should be given. This keeps pain scores lower and improves patient satisfaction.

9.2.2 Providing there is no contraindication, non-steroidal anti-inflammatory drugs should be offered post-CS as an adjunct to other analgesics, because they reduce the need for opioids.

9.2.3 See Appendix D : Guideline for Post-operative Analgesia in Obstetrics

9.3 Removal of Urinary Catheter

9.3.1 Removal of the urinary bladder catheter should be carried out once a woman / person is mobile after a regional anaesthetic and not sooner than six hours after the last epidural ‘top up’ dose.

9.3.2 The obstetrician should document any reason for delayed removal of catheter in the post-op plan

9.3.3 Follow the ERP as appropriate

9.4 Urinary Symptoms

9.4.1 When caring for post-natal women / people who have had a caesarean birth who have urinary symptoms, consider possible diagnoses of:

- urinary tract infection
- stress incontinence (4%)
- urinary tract injury (1/1,000)
- urinary retention

9.5 Wound Care

9.5.1 Consider negative pressure wound therapy after caesarean birth for those with a BMI of 35 kg/m^2 or more to reduce the risk of wound infections. These should remain on for 7-days.

9.5.2 When using standard (not negative pressure) wound dressings after caesarean birth take into account that no type of wound dressing has been shown to be better than another at reducing the risk of wound infections

9.5.3 For a non-negative pressure dressing, removing standard dressings 6 to 24 hours after the caesarean birth

9.5.4 Assess the wound for signs of infection (such as increasing pain, redness or discharge), separation or dehiscence

9.5.5 Encourage loose, comfortable clothes and cotton underwear

9.5.6 Advise gentle daily cleaning and drying of the wound

9.5.7 Ensure plan put in place for the removal of sutures or clips if required.

9.6 Post-partum bleeding

9.6.1 When caring for women / people who have had a caesarean birth who have heavy and/or irregular vaginal bleeding, consider whether this is more likely to be because of endometritis than retained products of conception, and manage accordingly.

9.6.2 Escalate to senior obstetric team to review where bleeding does not settle, or where passing clots despite antibiotic treatment

9.7 Thrombo-embolic Disease

9.7.1 All women / people should have VTE risk assessment and have be assessed and thromboprophylaxis prescribed appropriately

9.7.2 Be alert to increased risk of VTE and pay particular attention to women / people whohave respiratory symptoms (such as cough or shortness of breath) or leg symptoms (such as painful swollen calf).

9.8 Debriefing

9.8.1 All mothers / parents should have a discussion about the implications for future pregnancies before they are discharged including suitability for VBAC

9.8.2 All mothers / parents should have the opportunity to discuss with an Obstetric Registrar (or Consultant) the reason fortheir LSCS, any complications during surgery and the implications of having a LSCS on their future pregnancies before discharge home

9.8.3 This discussion must be documented on Badgernet.

9.8.4 Mothers / parents who have had non-elective LSCS should be provided with information about the Birth Stories service and this should be documented in the maternal postnatal notes.

9.8.5 Some mothers / parents may warrant referral to see a consultant for a debrief in clinic. Please discuss this with the consultant beforehand.

9.8.6 Discuss with women / people who have had a caesarean birth that there is not at increased risk of depression, post-traumatic stress symptoms, pain on sexual intercourse, faecal incontinence or difficulties with breastfeeding.

9.9 Discharge

9.9.1 Ensure that the discharge summary is complete with relevant information about category of caesarean, any complications.

9.9.2 Inform the GP if follow-up investigations are needed after discharge from hospital (for example, a repeat full blood count if there has been a large amount of blood loss), and include details of the plan or course of action if the results are abnormal.

9.9.3 Inform women / people who have had a caesarean birth that they can resume activities such as driving a vehicle, carrying heavy items, formal exercise and sexual intercourse when they feel they have fully recovered from the caesarean birth (including any physical restrictions or pain).

10 References

NICE NG192, 2021: Recommendations | Caesarean birth | Guidance | NICE

RCOG Caesarean Section (Consent Advice No. 7) | RCOG

RCOG Green Top Guideline 27: Placenta Praevia and Placenta Accreta: Diagnosis and Management (Green-top Guideline No. 27a) | RCOG

RCOG Green Top Guideline 74: Antenatal corticosteroids to reduce neonatal morbidity and mortality (wiley.com)

NICE IPG 144: Intraoperative blood cell salvage in obstetrics, https://www.nice.org.uk/guidance/ipg144/chapter/2-The-procedure

RCOG / BASHH Management of Herpes in Pregnancy, 2014: https://www.rcog.org.uk/globalassets/documents/guidelines/management-genital-herpes.pdf

RCOG Green Top Guideline 31: Small-for-Gestational-Age Fetus, Investigation and Management (Green-top Guideline No. 31) | RCOG

Appendix A - Indications for Elective CS

The following guidance is provided by NICE

Breech presentation

Pregnant women / people with a singleton breech presentation at term, for whom external cephalic version is contraindicated or has been unsuccessful, can be offered an elective LSCS.
Pregnant women / people should also be given information about their options for mode of delivery and supported to make an informed choice.
(*See Maternity Protocol MP046: Breech and ECV*).

Multiple pregnancy

Discussion of timing and mode of delivery in multiple pregnancies should have been discussed throughout the pregnancy in antenatal clinic.
In twin pregnancies where the first twin is not cephalic, offer a planned CS.
In otherwise uncomplicated twin pregnancies at term where the presentation of the first twin is cephalic, perinatal morbidity and mortality is increased for the second twin, however the effect of planned CS in improving outcome for the second twin remains uncertain and therefore CS should not routinely be offered.

See *MP020 Multiple pregnancy* for further information regarding timing, mode of delivery and preparation for delivery.

Placenta praevia

- Offer elective caesarean section for all pregnant women/people where the placental edge is less than 2 cm from the internal os, or is covering the os, at 36-weeks scan
- Delivery timing should be tailored according to antenatal symptoms and, for those presenting with uncomplicated placenta praevia, delivery should be considered between 36^{+0} and 37^{+0} weeks of gestation.
- Consultant obstetrician either to perform or directly supervise / assist registrar at delivery
- Consultant anaesthetist present and directly supervising anaesthetic at delivery
- Blood (at least 3 units RBC) and blood products should be available – and transfusion aware of case
- Multidisciplinary involvement in pre-op planning : if multiple risk factors, or accreta then should plan for delivery at RSCH and suitable handover from PRH to organise this
- Discussion with woman / person and consent includes possible interventions (such as hysterectomy, leaving the placenta in place, cell salvage, Bakri balloon and intervention radiology)
- local availability of a level 2 critical care bed is considered good practice

Morbidly adherent placenta

For pregnant women / people who have had a previous caesarean birth with a low-lying placenta at the anomaly scan, advise MRI scan:

- discuss with the woman / person how MRI in addition to ultrasound can help diagnose morbidly adherent placenta and clarify the degree of invasion, particularly with a posterior placenta
- explain what to expect during an MRI procedure
- inform the woman / person that current experience suggests that MRI is safe, but that there is a lack of evidence about any long-term risks to the baby.

Where morbidly adherent placenta is diagnosed:

Ensure MDT (obstetrics, LW lead midwife, anaesthetist, interventional radiology where required, main theatres) informed

Refer to the Complex Care Meeting if required.

Involve the MDT and pregnant woman / person in discussions about birth options (for example, timing of birth, operative interventions including possibility of hysterectomy, need for blood transfusion).

When performing a caesarean birth for a woman / person suspected to have a morbidly adherent placenta, the MDT should agree which other healthcare professionals need to be consulted or present, and the responsibilities of each team member. Ensure that:

- a consultant obstetrician and a consultant anaesthetist are present in the operating theatre
- a paediatric registrar, consultant, or equivalent, is present
- a haematology registrar, consultant, or equivalent, is available for advice
- a critical care bed is available
- sufficient cross-matched blood and blood products are readily available.

Small for gestational age / Intra-uterine growth restriction

- In the SGA fetus with umbilical artery AREDV delivery by caesarean section is recommended.
- In the SGA fetus with normal umbilical artery Doppler or with abnormal umbilical artery PI but end–diastolic velocities present, induction of labour can be offered but rates of emergency caesarean section are increased and continuous fetal heart rate monitoring is recommended

from the onset of uterine contractions. Caesarean section can be offered in these cases. (RCOG SGA)

Mother / parent -to-child transmission of maternal infections

HIV

- Follow the detailed birth plan on Badgernet from the relevant specialists
- Contact the HIV Registrar or consultant on call if required
- Refer to protocol MP004 infectious diseases HIV
- BHIVA guidelines on the management of HIV in pregnancy and postpartum 2018 (2019 interim update) https://www.bhiva.org/pregnancy-guidelinesfor further information

Hepatitis B

- Follow detailed birth plan on Badgernet from specialist team
- Contact Lead Anti-microbial Pharmacist if any question re: treatment
- Refer to protocol MP006 Infectious diseases Hepatitis B

Herpes Simplex virus

- Pregnant women / people with primary genital herpes simplex virus (HSV) infection occurring in the third trimester of pregnancy should be offered planned CS because it decreases the risk of neonatal HSV infection.
- In pregnant women / people with recurrent HSV, low risk of transmission risk is, should not be offered a CS. Can offer prophylactic acyclovir from 36/40 (4)

Previous Caesarean

- All pregnant women / people who are suitable for VBAC should be referred to the birth options clinic.
- For information on VBAC advice *see Maternity Protocol MP034 Vaginal Birth after LSCS (VBAC).*
- Caesarean section should be planned in pregnant women / people with previous uterine rupture or classical caesarean scar and in those who have other absolute contraindications to vaginal birth that apply irrespective of the presence or absence of a scar (e.g. major placenta praevia, breech).
- In pregnant women / people with complicated uterine scars, caution should be exercised and decisions should be made on a case-by-case basis by a senior obstetrician with access to the details of previous surgery.
- Caesarean section should be offered to pregnant women / people who have had two or more prior lower segment caesarean deliveries.

Maternal request for caesarean birth

- When a woman / person with no medical indication for a caesarean birth requests a caesarean birth, explore, discuss and record the specific reasons for the request.
- If a woman / person requests a caesarean birth, discuss the overall benefits and risks of caesarean birth compared with vaginal birth (see the section on planning mode of birth) and record that this discussion has taken place
- If a woman / person requests a caesarean birth, offer discussions with the consultant midwife team or LW lead midwives and/or obstetrician and other members of the team if necessary, for example an anaesthetist, to explore the reasons for the request, and ensure the woman / person has accurate information.
- If a woman / person requests a caesarean birth because she has tocophobia 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.
- If a vaginal birth is still not an acceptable option after discussion of the benefits and risks and offer of support (including perinatal mental health support if appropriate; see recommendation), offer a planned caesarean birth for pregnant women / people requesting a caesarean birth.
- An individual obstetrician has the right to decline a request for LSCS in the absence of an identifiable reason. However the woman / person 's decision should be respected and if a woman / person requests a caesarean birth but their current healthcare team are unwilling to offer this, refer the woman / person to an obstetrician willing to perform a caesarean birth.

Intrauterine Death

- Consultant to be present for all LSCS in the case of intra-uterine death. Where waiting for a consultant may delay an emergency or life threatening situation for the mother / parent , the registrar should start the case but the consultant should be called in to attend as soon as safely possible.

Appendix B. Discussions Regarding Birth Options

Discuss the benefits and risks of both caesarean and vaginal birth with pregnant women / people, taking into account their circumstances, concerns, priorities and plans for future pregnancies.

The below figures are quoted in the NICE guidance and may be offered to help aid discussion with pregnant women / people who are undecided about their mode of delivery.

Explain that

- there are benefits and risks associated with both vaginal and caesarean birth, some of which are very small absolute risks and some are greater absolute risks, and they will need to decide which risks are more (or less) acceptable to them
- there are other risks not included in these tables that might be relevant to their individual circumstances (for example placental adherence problems from multiple caesarean births, fetal lacerations in caesarean birth, term birth injuries with vaginal birth or caesarean birth)

Risks which should be discussed for caesarean section (as per the RCOG guidance for consent, and as per the consent sticker):

Serious risks:

- Emergency hysterectomy, 7-8/1000 (uncommon)
- Need for further surgery at a later date, including curettage, 5/1000 (uncommon)
- Admission to intensive care unit, 9/1000 (uncommon)
- Thromboembolic disease, 4-16/ 10 000 (rare)
- Injury to bladder (1/1000 – rare) , ureter (3/10,000- rare)
- Death, 1/12,000 (very rare).
- Uterine rupture during subsequent pregnancies/deliveries, 2-7/1000 (uncommon)
- Increased risk of antepartum stillbirth in future pregnancy, 1-4/1000 (uncommon)
- Placenta praevia and placenta accrete in subsequent pregnany – 4-8/1000 (uncommon)

Frequent risks

- Persistent wound and abdominal discomfort 9/100 (common)
- Increased risk of repeat caesarean section when vaginal delivery attempted in subsequent pregnancies, 1/4 (very common)
- Readmission to hospital, 5/ 100 (common)
- Haemorrhage, 5/ 1000 (uncommon)
- infection, 6/ 100 (common).
- Fetal lacerations, 1-2/ 100 (common).

Any extra procedures which may become necessary during the procedure include hysterectomy, Blood transfusion, Repair of damage to bowel, bladder or blood vessels

NICE guidance report the following difference in risks for each mode of delivery:

Increased risk with caesarean section of:

Outcome	Risk with caesarean	Risk with vaginal
Peripartum hysterectomy	150/100000	80/100,000
Maternal death	24/100,000	4,1000
Hospital Stay (average)	4 days	2 days
Placenta accreta (future pregnancy)	100/100,000 (increasing with each LSCS)	40/100,000
Uterine rupture in future pregnancy	1020/100,000	40/100,000
Neonatal mortality	50/100,000	30/100,000
Asthma	1810/100,000	1500/100,000
Childhood obesity	4560/100,000	4050/100,000

Increased Risks for Vaginal Delivery

Outcome	Risk with Caesarean	Risk with Vaginal Birth
Urinary incontinence (>1 year)	27,520 / 100,000	48,700/100,000
Faecal incontinence (>1 year(	7410/100,000	15,100/100,000 for those having assisted vaginal delivery
OASIS – 3rd and 4th degree tear	0/100,000	560/100,000
Pain		
Emergency Caesarean	-	For our Trust, x % of catergory 1 / 2 LSCS

Outcomes that are **similar** for caesarean or vaginal birth

Pregnant women / people	Babies
VTE	Admission to neonatal unit
Major obstetric haemorrhage	Infection
Post natal depression	Persistent verbal delay
	Infant mortatility (upto 1 year)

Outcomes for pregnant women / people and babies that have conflicting or limited evidence about the risk include ITU admission, stillbirth in a subsequent pregnancy; and for babies - neonatal respiratory morbidity, cerebral palsy, autism spectrum condition and type 1 diabetes

APPENDIX C – ENHANCED RECOVERY IN OBSTETRICS PATHWAY FORM

ENHANCED RECOVERY

OBSTETRIC PATHWAY

Brighton and Sussex University Hospitals NHS Trust

To be used for ALL planned Caesarean Sections

CONSULTANT TO COMPLETE IN CLINIC		
Date of clinic appointment		Consultant Name:
Woman informed of ER pathway	Yes / No	Woman's Name:
Suitable for midwifery led discharge?	Yes / No	Hospital number:
Consent form completed & top copy given to woman?	Yes / No	Date of birth:
Consultant signature:		*Or attach PAS label*

TO BE COMPLETED AT PRE-OP CLINIC			
Planned date of admission		Planned time of admission	
Woman informed on Enhanced Recovery & given written information			Yes / No
Woman advised to purchase analgesia			Yes / No
Woman informed of planned early mobilisation and discharge on Day 1			Yes / No
Informed may eat until ----------	night before admission ***(insert time)***		Yes / No
Isotonic Drink (Lucozade Sport) 500mls ----------	***(insert amount)***		Yes /No
Informed may drink water until ----------	***(insert time)***		Yes / No
Pre-op Midwife (sign):		Print:	

TO BE COMPLETED 6 HOURS POST-OP	
TTO written in theatre	Yes / No
Woman eating and drinking?	Yes / No
IV line removed?	Yes / No
Observations stable?	Yes / No
Woman mobilising	Yes / No
Woman comfortable and pain controlled?	Yes / No
Woman self- medicating?	Yes / No
Catheter removed 6 hours post-op? (Record on TWOC chart)	Yes / No

POST-OP VARIANCE	
If 'no' to any goals 6 hours post-op document variance: Post-op Midwife (sign): Print:	
Removed from pathway?	Yes / No

TRIAL WITHOUT CATHETER CHART (TWOC) MEASURE 2 URINE VOLUMES POST TWOC. IF 200ML X 2 THEN TWOC SUCCESSFUL		
Date of TWOC:		
Date & Time Passed Urine	Amount passed	Urinalysis

MIDWIFERY LED DISCHARGE CHECKLIST DAY ONE	
Discharged to midwifery care?	Yes / No
Observations stable and within normal parameters?	Yes / No
Haemoglobin result available? Ferrous sulphate prescribed if required?	Yes / No Result: Yes / No / NA
Wound dressing clean and dry?	Yes/ No
TTO's written and dispensed?	Yes / No
No baby concerns?	Yes / No
Feeding established?	Yes / No
Woman aware of who to contact if any concerns once home?	Yes / No
Community Midwife confirmed	Yes / No
If 'No' document variance:	
Discharging Midwife (sign): Print:	

HT/SB/MH March 2015 2

APPENDIX D – Indications for Referal to the ARC

Please refer pregnant women / people to be seen from 24 weeks of pregnancy.
This is not an exhaustive list – please discuss other referrals with the Obstetric Anaesthetist on bleep 8140 (RSCH) or bleep 6327 (PRH).
Anaesthetic clinics operate cross-site, therefore pregnant women / people should be advised that appointments could be offered for either PRH/RSCH clinic subject to availability – this will not affect their booked site for delivery.

Obstetric	only if severe or unusual e.g. placenta accreta/percreta, major placenta praevia
Neurological	history of brain surgery/tumour, multiple sclerosis, spina bifida, neuropathy, myopathy, poorly controlled epilepsy
Cardiovascular	all pregnant women / people with significant cardiac disease to be referred to the Combined Obstetric, Cardiology & Anaesthetic (COCA) clinic, not the Obstetric ARC
Respiratory	only if severe and requiring hospital admissions in adulthood and/or under respiratory specialists e.g. severe asthma, cystic fibrosis, bronchiectasis
Anaesthetic	previous anaesthetic problems: general anaesthesia problems e.g. airway/intubation difficulties, malignant hyperthermia, suxamethonium apnoea. Pregnant women / people insisting on general anaesthesia. Failed regional anaesthesia.
Drug reactions (severe)	Unexplained anaphylaxis. Mild reactions such as vomiting or rash with drugs such as morphine or NSAIDs do not require referral
Haematological	Bleeding problems e.g., platelets < 100, those on anticoagulation (LMWH or DOAC), haemophilia, von Willebrand's disease, sickle disease or sickle C or sickle trait (the latter only if previous crises). Jehovah's Witnesses or those declining blood products
Musculoskeletal	**Refer:** Back pain or slipped discs *with neurology* e.g. sciatica, leg weakness, numbness. Back surgery involving metalwork. Moderate to severe scoliosis with neurology or requiring treatment e.g. brace or surgery; severe neck problems or movement restriction. Achondroplasia **NOT for routine referral**: Straightforward discectomy, mild scoliosis or back ache without neurological symptoms.
Endocrine	in general, only if severe, e.g. diabetics with severe neuropathy/renal impairment, phaeochromocytoma
Anxiety	severe anxiety relating to anaesthesia, severe needle phobia or other severe mental health disorders that might impact on provision of anaesthesia/analgesia
Obesity	Any pregnant woman / person with **BMI ≥ 50**. Refer those with BMI< 50 ONLY if pre-existing co-morbidities e.g., hypertension, asthma, diabetes, sleep apnoea. If no co-morbidities, please give all pregnant women / people with raised BMI 30-50 the leaflet 'Obesity in pregnancy – what it means for you' which details anaesthetic implications
Miscellaneous	severe SLE, antiphospholipid syndrome or systemic sclerosis, liver disease, renal failure, major abdominal surgery

Appendix E: Postoperative Analgesia

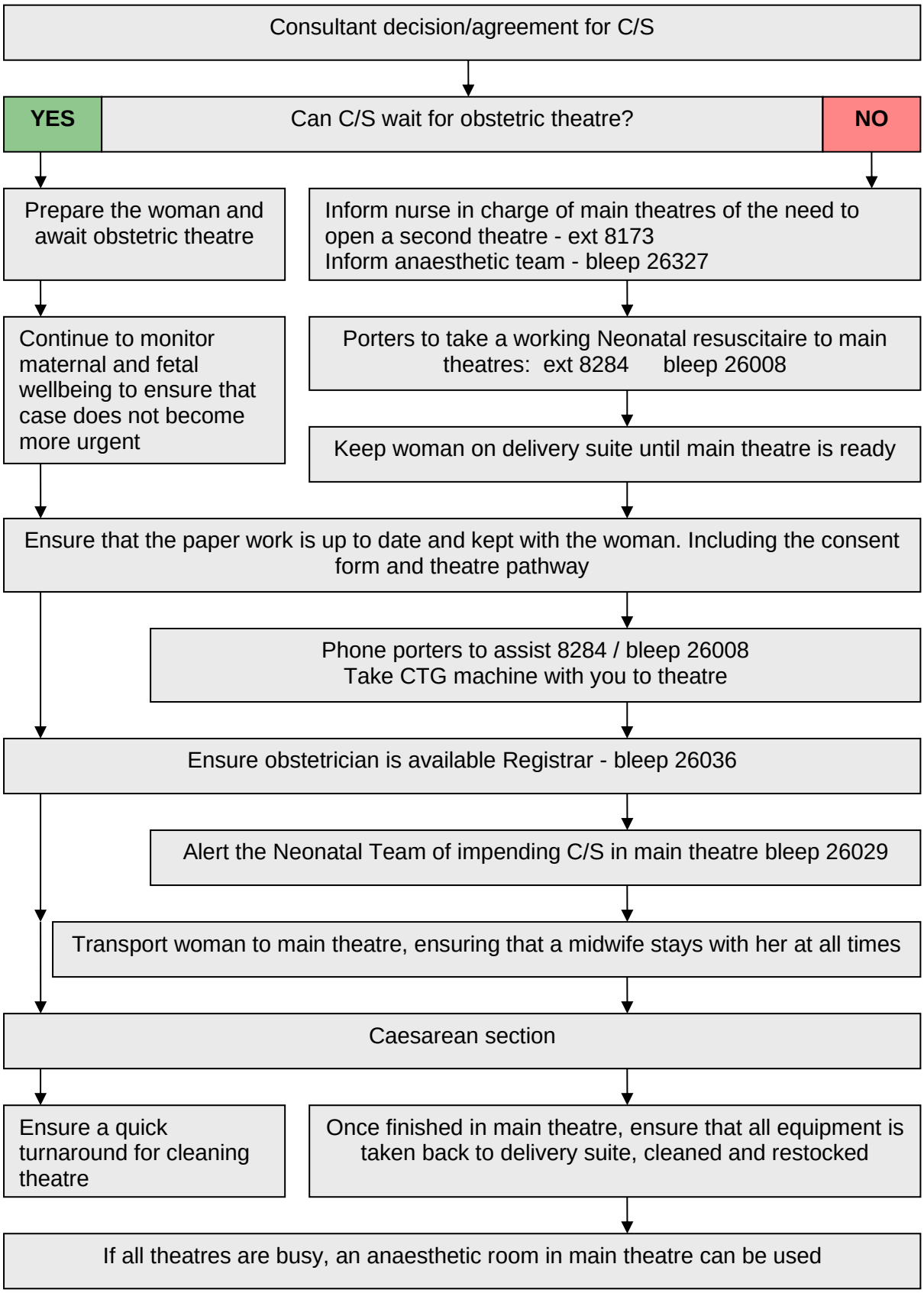
Breastfeeding/medication concerns:
Medicines Information: 8153/8566
Pain team bleep: 8102 (RSCH)/6468(PRH)

Guideline for Postoperative Analgesia in Obstetrics

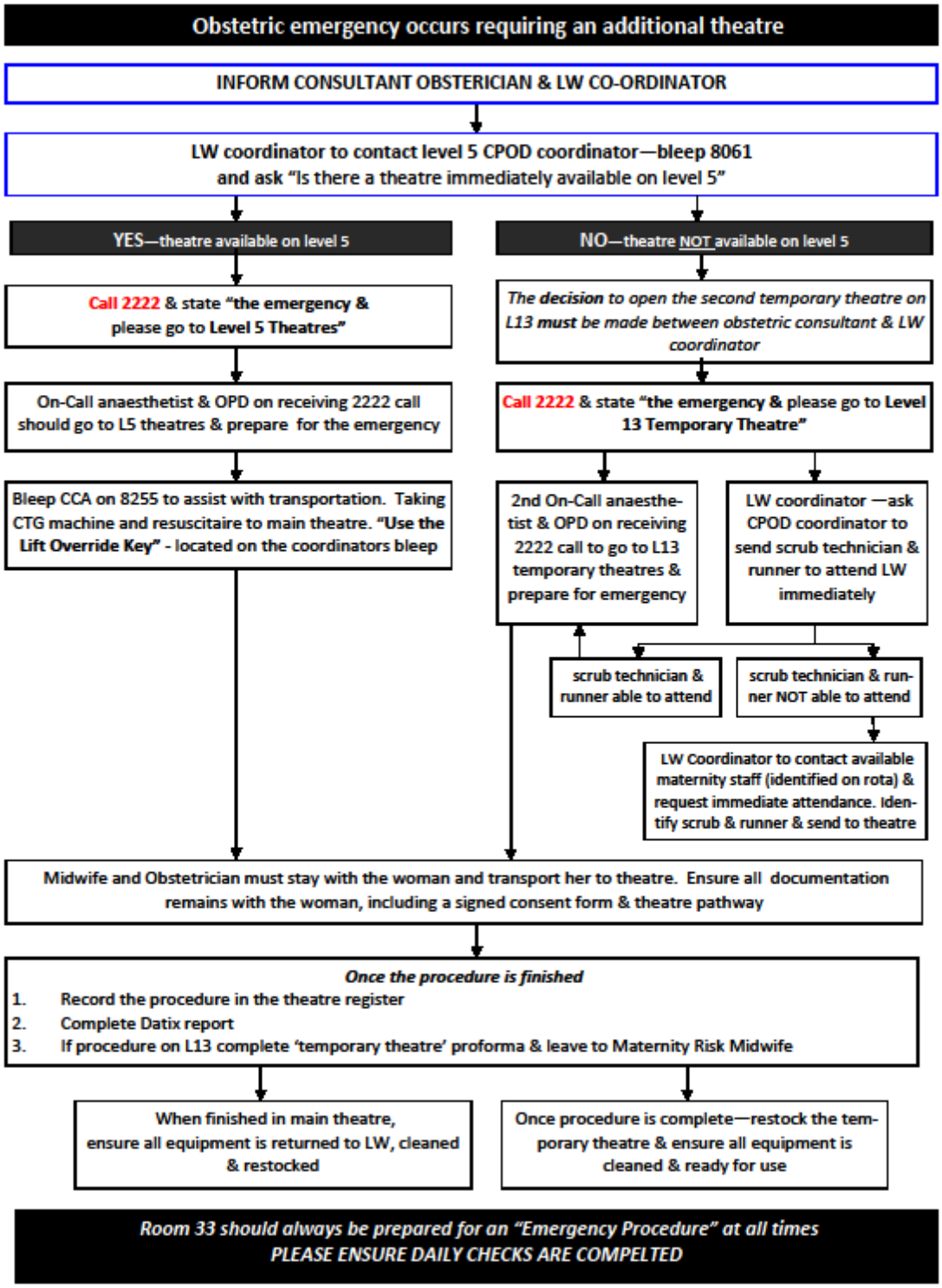
NHS
University Hospitals Sussex
NHS Foundation Trust

	For Every Patient (unless contra-indicated)	Patients with Complex Requirements e.g. no neuraxial/extensive surgery/ opioid tolerance [chronic pain/ substance misuse]
GENERAL	Continue usual analgesics if not contraindicated/ breastfeeding	
PERI-OPERATIVE	All patients should have had neuraxial opioid if possible: Diamorphine - spinal ≤300mcg/epi ≤3mg; PF morphine- spinal 100mcg/epi ≤2mg. All patients should receive 6.6mg Dexamethasone IV, unless contra-indicated Remove epidural catheter as soon as possible after surgery, NB. Document reason for continuing epidural into recovery if applicable	
		Consider **abdominal wall blocks** (TAP/QL)
POST OPERATIVE	• Encourage oral intake, check sensory level of block and motor function. • Paracetamol 1g PO 6hrly (500mg if under 50kg); consider Intravenously (IV) for 24hrs if pain poorly controlled • Ibuprofen 400-600mg PO 6 hourly (add Omeprazole 20mg OD whilst an inpatient) • Give 1st doses in recovery if not given intra-operatively • If ONE OFF Diclofenac given intra-op: document on drug chart and clearly indicate interval before next NSAID: 50mg- 8hrs, 75mg- 12hrs, 100mg- 16hrs • **ALL Patients should receive care as per** post-operative monitoring protocol for maternity **guideline**	**Do not use NSAID in Patients with contraindication to NSAIDs e.g. GI upset/ some asthmatics/severe PET [renal dysfunction, low platelets]** Consider regular dihydrocodeine (AFTER 24hrs if neuraxial Morphine given)
PLEASE GIVE REGULAR ANALGESIA BY THE CLOCK – even if not in pain,to reduce need for additional opioids **If a dose of Paracetamol/ Ibuprofen is missed on the drug round, please give missed dose ASAP – as long as 4 hour gap before next dose there need be no disruption**		
OPIOID	**NO OPIOID (including Dihydrocdeine) PRESCRIPTION ON REGULAR SIDE OF DRUG CHART FOR 24HRS AFTER NEURAXIAL MORPHINE, PRN ONLY**	
	Oral Morphine sulphate 10-20mg 2—4 hrly Immediate release (I/R) **PRN** or Dihydrocodeine 30mg 4hrly **PRN**	Oral Morphine sulphate (I/R) 10-20mg 1-2hrly **PRN** Consider slow release morphine (MST) tablets 10mg BD x3 doses (AFTER 24hrs if had neuraxial morphine) **IV (anaesthetist Rx only)** LSCS only: Consider PCA (max 24hrs) ONLY if analgesia unachievable by oral route e.g. PONV
	Medical review if greater than 4 doses oral Morphine sulphate required within a 12 hour period	
OPIOID TOXICITY	Naloxone: 100 - 400micrograms IV as per Trust protocol for opioid induced respiratory depression Monitor neonate for adverse effects if ANY opioid given to a breast-feeding mother (eg. drowsy/poor feeding)	
Laxative	Senna 2 tabs BD or lactulose 20mls BD or macrogol (Laxido/Movicol) 1 sachet BD PRN (until bowels open)	
Anti-emetic	Ondansetron 4mg IV/PO 6 hrly (max. 16mg/24hrs) ; Cyclizine 50mg SC/IM/slow IV 8hrly	
Anti-itch	Chlorphenamine 4mg (PO) - 10mg (IV) 4-6hrly; Naloxone 40-80mcg IV PRN	
DISCHARGE	Patient to supply own paracetamol/ibuprofen—take as per instructions on packet. **Dihydrocodeine often not required and should not be routine** , (7-14 tab TTO if needed) but **MUST** have laxative on discharge even if not used during inpatient stay.	

Appendix F - Flowchart for opening Second Theatre (PRH)



Appendix G - Flowchart for opening a second theatre (RSCH)



Appendix H – Post-delivery VBAC leaflet

- Have you had a Caesarean?

You may not be thinking about future pregnancies just yet, but having had a caesarean does not necessarily mean this is the only method of birth available to you…

A normal birth may still be possible!
This is referred to as a **VBAC**
(Vaginal Birth After Caesarean)

More information is available from the midwives and doctors on the ward

Appendix E: Complex Care Booking form.

Obstetric Booking - Complex Delivery Plan

Patients Name	Patient Number			
D.O.B.	34 Week Scan Result		Planned Date	
Planned Operation/MRI summary:	Specialities: Finalised List		Contact Name & Extention Nos	
	Planned Surgeon			
	Surgical Assistant			
	Gynae Onocolgy Consultant			
	Anaesthetists			
	Midwife			
	Interventional Radiology			
	Neonatal Consultant			
	Scrub Team			
Lead Obstetric Consultant	Vascular Surgeon Needed?			
	Other Surgeons needed?			
Lead Anaesthetic Consultant	Blood Available? 4-6 units			
	HDU Booked?			
Theatre Contact Person	TMBU needed?			
	Where is patient being admitted			
Cell Saver Trained Anaesthetic Practitioner				
Equipment needed:	Equipment Available:			
Caesarean set Bakri balloon	C Arm		Level 1	
Hysterectomy set	Cell Saver			
Planned Threatre:	Have all teams been contacted?			
	Yes		No	
Booking Doctor/Bleep:	Time & Date patient booked for theatre confirmed			
Booking Doctor/Bleep	M T W T F S Sun			
	Date:		:	