NHS
University Hospitals Sussex
NHS Foundation Trust
St Richards & Worthing Hospitals

Caesarean Section Birth Guideline

Summary statement: How does the document support patient care?	The purpose of this guideline is to provide good practice evidence for staff caring for pregnant women and people undergoing caesarean birth.
Staff/stakeholders involved in development:	Labour Ward Leads (Obstetric and Midwifery), Senior midwives and obstetricians, Joint Obstetric Guideline Group.
Division:	Women and Childrens
Department:	Maternity
Responsible Person:	Chief of Service
Author:	Obstetric consultant, midwife, obstetric anaesthetist
For use by:	All Medical and Midwifery staff
Purpose:	To provide evidence-based guidance on the management of pregnant women and people who require caesarean section (CS) and ensure care is safe, consistent and of high quality.
This document supports:	NICE 2011 Caesarean Section, NICE NG192 Caesarean Birth (2021)
Key related documents:	**UH Sussex (SRH & WH) Maternity Guidelines:** Vaginal Birth After Caesarean (VBAC), Recovery following Caesarean Section and other Obstetric Procedures, Venous Thromboembolism, Management of Infectious Diseases in Pregnancy, Uterine Rupture, Bladder Care for Maternity Patients (including management of urinary retention), Postpartum Haemorrhage, Preterm Risk Pathway, **UH Sussex Pharmacy:** Carbetocin to prevent PPH at CS
Approved by:	Joint Obstetric Guideline Group: 16th August 2023
Date uploaded:	30th October 2023
Ratified by Board of Directors/ Committee of the Board of Directors	Not Applicable – Divisional Ratification only required
Ratification Date:	Not Applicable – Divisional Ratification only required
Expiry Date:	September 2024
Review date:	March 2024
If you require this document in another format such as Braille, large print, audio or another language please contact the Trusts Communications Team	
Reference Number:	CG12030

Version	Date	Author	Status	Comment
1.0	June 2010	Obstetric Consultant and IT, Audit & Clinical Effectiveness Midwife	Archived	New Trustwide Guideline
2.0	February 2011	Obstetric Consultants	Archived	
3.0	June 2011	Obstetric Consultants	Archived	Guideline amended following incident review recommendations
4.0	July 2012	Obstetric Consultants	Archived	Guideline amended following incident review recommendations and NICE 2011 guideline
4.1	September 2013	Obstetric Consultants and CNST Midwife	Archived	Addition of actions to be taken when suspected ureteric injury Clarification of prophylactic antibiotics
5.0	November 2015	Obstetric Consultants & Senior Training Grade Doctor	Archived	Guideline triennial review and update
6.0	Oct 2016	Labour Ward manager	Archived	Addition of Enhanced Recovery Programme. Name change
7.0	March 2017	Midwife Counsellor	Archived	Addition of Appendix 3
8.0	Oct 2017	Patient safety Midwife Obstetric Consultants	Archived	Addition of consent discussion and new emergency call
9.0	July 2018	Obstetric consultant	Archived	Addition of PICO flowchart
10.0	January 2021	[redacted], Clinical Effectiveness Support Midwife	Archived	Guideline revised in line with NICE CG132 Caesarean Section
11.0	April 2022	[redacted], Consultant Anaesthetist [redacted], Clinical Effectiveness Support Midwife	Archived	• Guideline revised in line with NICE NG192 Caesarean Birth (2021) • Flow charts for Cat 1 CS made separate from other categories. (See appendix 2a & 2b). • Equipment & personnel for CS outside of maternity unit updated. (See appendix 3). • Anaesthetic review of guideline and update to reflect change to use of preservative free morphine. (See appendices 7 & 8). • Management of impacted fetal head added. (See appendix 10). • Neurological monitoring added (See appendix 11). • Consultant attendance table added. (See appendix 12). • Information regarding vaginal cleansing added. (See appendix 13).
11.1	July 2022	[redacted], Consultant Anaesthetist [redacted], W&C Pharmacist [redacted] Obstetric Registrar [redacted], Clinical Effectiveness Support Midwife	Archived	• Amendments made to post-operative analgesia for Medicines Governance Committee. • Updated regarding discussing risks and benefits for corticosteroids and connected appendix in line with RCOG (2022) GTG no.74 Antenatal Corticosteroids to reduce neonatal morbidity and mortality
11.2	March 2023	[redacted], Maternity Governance Lead	Archived	• Minor amendment to 12.0- Observations within an hour of admission.

11.3	July 2023	[redacted], Maternity In-Patient Matron Clinical Effectiveness Team	LIVE	• Addition of carbetocin for the prevention of PPH for uterine atony following caesarean birth. • Removed requirement for MRSA testing antenatally to align with UHSIC007 – Prevention and Control of MRSA Policy • Category 3 CS definition amended. • Worthing 'Immediate CS' call changed to 'Cat 1 Caesarean Section' to align with the rest of the Trust.

The interpretation and application of clinical guidelines will remain the responsibility of the individual clinician. If in doubt contact a senior colleague or expert.

Contents

Caesarean Section (CS) Birth Guideline

1.0. Aim

To provide evidence-based guidance on the management of pregnant women and people who require caesarean birth (CS) and ensure care of women experiencing CS is safe, consistent and of high quality.

2.0. Scope

This guideline applies to:

- Midwives
- Obstetricians
- Anaesthetists
- Maternity recovery staff
- Operating Department Practitioners
- Maternity Assistants

3.0. Responsibilities

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

Midwives & obstetricians:

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

Management:

- To ensure the guideline is reviewed as required in line with Trust and National recommendations.
- To ensure the guideline is accessible to all relevant staff.

4.0. Introduction

At UH Sussex West between 2018 and 2019, 32.4% of births were undertaken by caesarean section (CS). In the UK for June 2020 29% of pregnant women and people had a CS (13% had an elective CS and 16% had an emergency CS) (Maternity Services Monthly Statistics June 2020 – NHS Digital). The indications for the procedure vary.

This guideline has been developed to help ensure consistency and quality of care experienced by women and people in these groups:

- Pregnant women and people who have a clinical indication for a CS.
- Pregnant women and people who are considering a CS in the absence of a clinical indication.

The purpose of this guideline is to enable clinicians to give appropriate, research-based advice to women and people and their families. This will enable the woman and people to make properly informed decisions about their care.

4.1 Abbreviations used within this guideline

CS - Caesarean Section	**GA -** General Anaesthesia
ECV - External Cephalic Version	**VTE -** Venous Thromboembolism
ERP - Enhanced Recovery Plan	**TAP -** Transverse Abdominis Plane
G&S - Group and Save	**PCA -** Patient Controlled Anaesthesia
CTG - Cardiotocograph	**CT -** Computed Tomograph
NSAIDs - Non-Steroidal Anti-Inflammatory Drugs	**IOCS -** Intraoperative Cell Salavage
PFM - Preservative Free Morphine	**TTN -** Transient Tachypnoea of the Newborn
SCBU – Special Care Baby Unit	**MIS -** Maternity Information system eg Badgernet

5.0. Classification of urgency of caesarean birth

The following classifications should be used to describe the urgency of caesarean births undertaken within this Trust.

Category	Definition	Decision to delivery interval
Category 1	Involves an immediate threat to the life of the mother and person and/or fetus	Within 30 minutes
Category 2	Maternal and birthing parent or fetal compromise which is not immediately life-threatening	Within 75 minutes
Category 3	No maternal and birthing parent or fetal compromise but requires early birth	No maternal and birthing parent or fetal compromise but needs early birth
Category 4	Elective	Delivery timed to suit woman and person and service provision

Perform Category 1 and 2 caesarean births as quickly as possible after making the decision (particularly for Category 1); taking into account the condition of the woman and person and the unborn baby when making decisions about rapid delivery.

6.0. Planned caesarean birth

- Caesarean birth should be recommended only when delivery confers benefit to the woman and person or baby.
- The indication should be clearly documented in the notes with all the factors that influence the decision documented, and which of these is the most influential.

- Women and people who have had one or more previous CS should be counselled regarding birth options. (See CG1152 Birth after Caesarean Section (BAC) Guideline)

6.1 Planned CS is recommended in the following situations:

- A term singleton breech (if ECV contraindicated or unsuccessful).
- A twin pregnancy with the first twin breech.
- Primary genital herpes in third trimester.
- Placenta praevia, where placenta partly or completely covers the internal cervical os (minor or major).
- Previous upper uterine segment CS or hysterotomy.
- HIV who are not receiving any retroviral therapy.
- HIV and a viral load equal to or greater than 400 copies per ml at 36 weeks regardless of anti-retroviral therapy.
- HIV and taking zidovudine monotherapy.
- Pregnant women and people who are co-infected with Hepatitis C virus and HIV should be offered planned CS because it reduces mother and birth parent-to-child transmission of both Hepatitis C virus and HIV.

This list is not exhaustive, and CS may be indicated for complex or rare conditions.

6.2 Planned CS should not be routinely offered to pregnant women and people with:

- 1 previous CS
- Preterm labour
- Twin pregnancy (first twin cephalic at term)
- A ‘small for gestational age’ baby
- Hepatitis B
- Hepatitis C
- Recurrent genital herpes at term
- BMI >50 (with no other risk factors)

Ideally, pregnant women and people who may require a planned caesarean birth should have consultant involvement in the decision-making.

Discuss the risks and benefits of CS and vaginal birth with the woman and person, taking into account their circumstances, concerns, priorities and plans for future pregnancies (including the risks of placental problems with multiple CS) See Appendix 1.

A pregnant woman and person is entitled to decline the offer of treatment such as CS, even when the treatment would clearly benefit their or their baby's health. Declining an offer of treatment needs to be one of the woman and person's options.

Women and **people with HIV positive pregnancy should not routinely be offered a planned CS if:**

- They are on highly active anti-retroviral therapy (HAART) with a viral load of less than 400 copies per ml at 36 weeks or
- Or they are on any anti-retroviral therapy with a viral load of less than 50 copies per ml.

Inform women and people that in these circumstances the risk of HIV transmission is the same for a CS and a vaginal birth.

Inform women and people on anti-retroviral therapy (ART) with a viral load of 50–400 copies per ml that there is insufficient evidence that a CS prevents mother-to-child transmission of HIV. Take into account the actual viral load, the trajectory of the viral load, length of time on treatment, adherence issues, obstetric factors and the woman and person's views in considering planned caesarean birth or vaginal birth.

For further guidance on delivery management of women and people with HIV, see CG1199 Management of infectious diseases.

7.0. Morbidly adherent placenta

The highest risk factors for the development of a morbidly adherent placenta (including placenta accreta, placenta increta and placenta percreta) are placenta praevia and previous Caesarean section (or uterine surgery). The risk in the presence of both of these risk factors is around 5-10%.

Placenta accreta should be suspected in any pregnant woman and person with an anterior placenta praevia and a previous caesarean section.

For antenatal screening, antenatal management, and additional caesarean birth recommendations see CG12004 APH & Intrapartum Haemorrhage.

8.0. Elective caesarean birth: enhanced recovery programme

Since 2016, all women and people undergoing an elective caesarean birth are offered a programme of enhanced recovery (ERP).

"The underlying principle is to enable patients to recover from surgery and leave hospital sooner by minimising the stress responses on the body during surgery." (Department of Health, 2010).

Benefits:

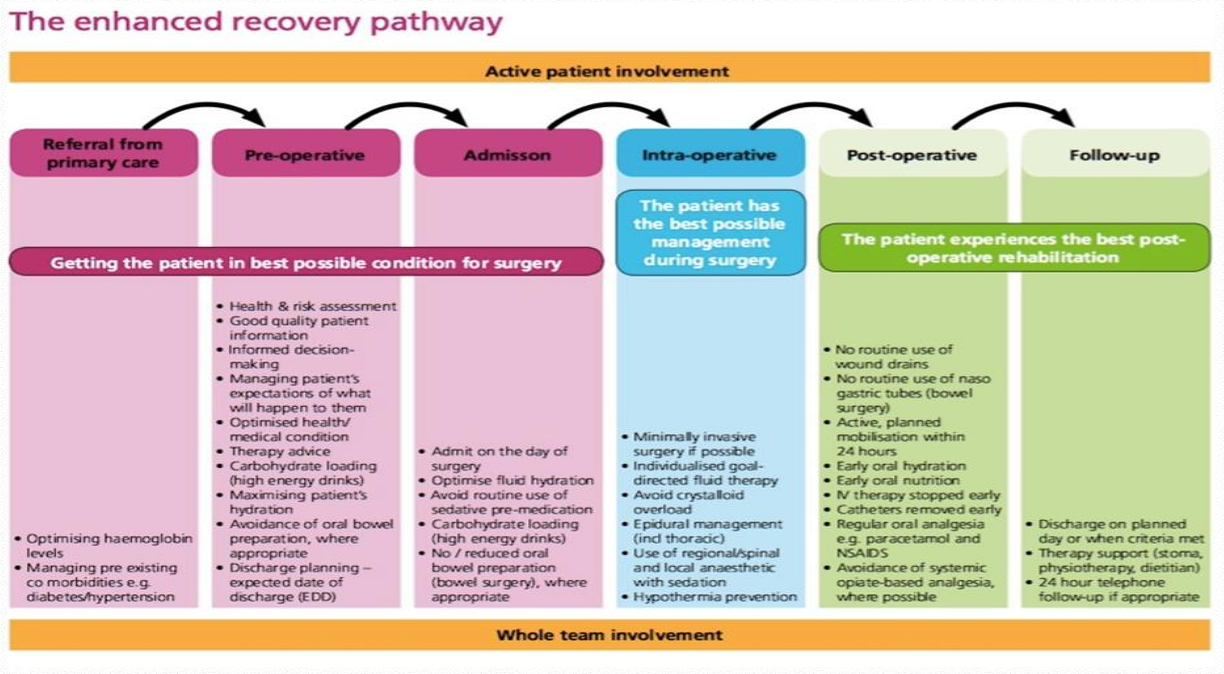
- Improved patient experience and increased confidence in organisation.
- Improved clinical outcomes and multi-disciplinary team working.
- Reduction in length of stay.
- Less in hospital acquired infections.

The key principles are that the woman and person is in the best possible condition for surgery, the woman and person has the best possible management during and after their operation and they experiences the best post-operative rehabilitation as detailed below:

When to start ERP

- Commence the pathway at the time the decision is made for an elective caesarean birth and the date is booked.
- Signpost the woman and person to the RCOG online patient information: Considering a caesarean birth patient information leaflet | RCOG
- All women and people who are booked for an elective caesarean birth are eligible to commence on the ERP. However it may be that they are not suitable to complete all parts of the pathway or need to come off the pathway all together.

It is important to note that for a variety of reasons women and people may not feel ready to go home on day 1. If they have met the ERP criteria they can be medically discharged, but no woman and person should feel that they is being rushed to leave before they are ready. This should be discussed on an individual basis.



9.0. Maternal and birthing parent request for CS

- Maternal and birthing parent request is not on its own an indication for CS (Appendix 5).
- Pregnant women and people who request a caesarean birth (when there is no clinical indication) should have a documented discussion with a member of the maternity team about the overall risks and benefits of a caesarean birth compared with vaginal birth (Appendix 1).
- Explore, discuss and record specific reasons for the request.
- Where there is anxiety about childbirth - offer referral to a healthcare professional with expertise in providing perinatal mental health support.
- For women and people requesting a CS and considering vaginal birth as still not acceptable; after discussion and offer of support, a planned CS should be offered.

- CS for maternal and birthing parent request **must** be booked by a Consultant Obstetrician.
- The clinician can decline a request for CS, but should offer referral for second opinion.

10.0. Timing of planned CS & corticosteroids

The risk of respiratory morbidity is increased in babies born by CS before labour, but this risk decreases significantly after 39 weeks. Therefore, planned CS should not routinely be carried out before 39 weeks.

For women and people undergoing planned caesarean birth between 37+0 and 38+6 weeks an informed discussion should take place with the woman and person (and their family members or carers as appropriate) about the potential risks and benefits of a course of antenatal corticosteroids and also the potential risks and benefits of birth before 39 weeks. This should be fully documented on MIS. Women and people may be offered further monitoring to provide reassurance if appropriate.

Although antenatal corticosteroids may reduce admission to the special care baby unit (SCBU) for respiratory morbidity, it is uncertain if there is any reduction in RDS, transient tachypnoea of the newborn (TTN) or SCBU admission overall, and antenatal corticosteroids may result in harm to the neonate which includes hypoglycaemia and potential developmental delay (see appendix14). RCOG (2022)

11.0. Antenatal preoperative assessment

This should usually be done in the Antenatal Clinic.

- Document the discussion and the indication for CS and that the decision has been discussed with a Consultant/Associate Specialist.
- Book a date (after 39 weeks unless otherwise indicated), by phoning Labour Ward.
- If the woman and person has had a previous CS, document awareness of the placental site (from most recent ultrasound scan). If the placenta is anterior and low the women and people should be referred for further imaging to assess the risk of placenta accreta.
- Complete the consent form in the clinic documenting discussion on risks to inform the woman and person's decision, ensuring that they are offered a copy (consent must be reconfirmed on the day of operation by the operating surgeon). (See Appendix 1 for risks and benefits).
- Blood for FBC (can be taken at or after 36 weeks) and G&S (within 72 hours of ELCS).
- Prescribe antacid prophylaxis.
- Consider use of pro-kinetic drug e.g. Metoclopramide.
- Book anaesthetic appointments if any concerns and check that appropriate early referral is made.
- Ensure patient is directed to online maternity information Considering a caesarean birth patient information leaflet | RCOG

11.1 For healthy women and people with an uncomplicated pregnancy do not routinely offer:

- Cross-matching of blood.
- Clotting screen.
- Preoperative ultrasound to localise the placenta.

Note: High risk women and people for planned CS should have a Group and Save (G&S) or cross-match, taken within 72 hours of the planned surgery, as clinically indicated.

12.0. On admission

- All women and people who attend for an elective Caesarean should have maternal and birthing parent observations, routine enquiry about fetal movements and auscultation of the fetal heart performed within an hour of admission. Further observations/FH monitoring should be performed in a timeframe agreed with the obstetric team depending on reasons for surgery.
- Welcome and admit to Labour Ward.
- Ensure patient identification applied.
- Notes and consent checked by midwife and operating obstetrician.
- If indication is malpresentation, confirm presentation by ultrasound.
    - If presentation is found to be cephalic, check that malpresentation is the only indication for CS, discuss findings with the woman and person and cancel if appropriate.
- Complete theatre checklist and pressure ulcer risk assessment on MIS.
- Anaesthetist to review.
- Insert cannula using aseptic non-touch technique and take blood for FBC, U&Es and group & save if not already taken at pre-operative assessment.
- Insert urinary catheter after anaesthetic to prevent over distension of the bladder because the anaesthetic block interferes with normal bladder function.
- Fluid balance monitoring should be commenced post catheter insertion and completed both during the caesarean section and post operatively. (See CG21009 Maternity fluid management as an in patient or in labour).

13.0. Unplanned CS

- The consultant obstetrician/associate specialist must be involved in the decision for emergency CS and the discussion documented clearly on MIS.
- In the case of a Category 1 CS for severe fetal or maternal compromise, the Consultant should be informed as soon as possible (Appendix 2).
- All the factors that influence the decision should be documented, and which of these is the most influential.
- If the CS is for an abnormal CTG, a fetal blood sample should be considered, and if this is not done, the reason documented.
- Pelvimetry, maternal and birthing parent height, estimations of fetal size (ultrasound or clinical examination) do not accurately predict cephalopelvic disproportion and should not be used to predict ‘failure to progress’ during labour.

- The reason for performing caesarean births which are classified 1 (within 30 mins) or 2 (within 75 mins) must be recorded by the obstetrician making the decision, along with the time of decision and birth. Remember that rapid delivery may be harmful in certain circumstances. For instance a Category 1 CS is not always achievable in cases of raised BMI or maternal co-morbidity due to issues of maternal and birthing parent safety. If there is delay for any reason; this must be documented on MIS.
- If IV access not already obtained, cannulate with consent and take bloods for FBC, U&Es and G&S.
- Paired cord blood sampling should be taken at CS for suspected fetal compromise.
- An appropriately trained paediatrician should be present in theatre for CS performed under GA or where there is evidence of fetal compromise.
- Risk assess for impacted fetal head (see appendix 10).

13.1 Category 1 CS

- Decision to birth time should be within 30 minutes.
- **Dial** [redacted] and state **'Cat 1 Caesarean Section'**.
- Verbal consent may be adequate depending on the urgency of the situation.
- **Transfer immediately to theatre.**
- Liaise with Anaesthetist regarding mode of anaesthesia.
- Give appropriate preoperative antacids/pro-kinetics.
- Administer facial oxygen and ensure left lateral tilt.
- Complete Theatre Checklist and **CAT 1 essential questions (in red) on WHO Surgical Safety checklist.** (See appendix 9)
- Catheterise in theatre.

14.0. Theatre procedure for all CS

- Give antiemetic as per Trust policy.
- Use prophylactic vasopressors either by infusion (NICE recommended) or as multiple bolus doses to keep maternal and birthing parent blood pressure at >90% of baseline and avoid decreases of <80% baseline. Monitor the NIBP at least every 2 minutes.
- When using an alpha-agonist vasopressor, a bradycardia may occur. Give intravenous ephedrine boluses to manage hypotension during caesarean birth if the heart rate is low and blood pressure is less than 90% of baseline, or glycopyrrolate.
- Use intravenous crystalloid co-loading in addition to vasopressors to reduce the risk of hypotension occurring during caesarean birth.
- Include pre-oxygenation, cricoid pressure and rapid sequence induction in general anaesthesia for caesarean birth to reduce the risk of aspiration.
- Use a fluid warming device with all obstetric theatre cases. NICE recommendations are that $\geq$ 500ml of fluid should be warmed and all blood products should be administered warmed.
- Consider forced air warming for women and people who shiver, feel cold, or have a temperature of less than 36°degrees Celsius during caesarean birth.

- Women and people who are having a CS should be offered regional anaesthesia because it is safer and results in less maternal and birthing parent and neonatal morbidity than general anaesthesia. However, women and people who have additional risk factors, such as a diagnosis of placenta praevia, will have an individualised plan discussed with them and recommendations made.
- Offer women and people diamorphine (0.3 to 0.4 mg intrathecally) for analgesia to reduce the need for supplemental analgesia after a caesarean birth. Epidural diamorphine (2.5 to 5 mg) is a suitable alternative where intrathecal diamorphine has not been given. Preservative Free Morphine (PFM) in combination with fentanyl may be used as an alternative if diamorphine is unavailable. There may be more itching and nausea with PFM. (See Appendix 7)
- Clean the surgical site using appropriate skin preparation.
- Consider the use of intra-operative cell salvage; if there is risk of haemorrhage e.g. placenta praevia/accreta, multiple pregnancy, anticoagulant therapy or other risk factors for haemorrhage in an elective CS. Use IOCS for all emergency CS. (See appendix 1 of CG12029 PPH guideline v5.3 for risk factors).
- A single birth companion may accompany a woman having a CS under regional anaesthesia.
- If a general anaesthetic is required, the birth companion will be asked to leave the theatre before induction of anaesthesia.
- For emergency CS performed outside of obstetric theatres – see Appendix 3 for required equipment and personnel.

14.1 Theatre documentation

- Complete pre-operative checklist on MIS.
- Ensure all sections of the Maternity 'WHO' surgical safety checklist are completed in theatre at the appropriate times, and the final checks before the woman and person leaves theatre.

It is the responsibility of the operating surgeon to ensure this documentation is complete.

15.0. Prophylactic antibiotics

Women and people should be offered Intravenous (IV) prophylactic antibiotics and be informed that:

- Endometritis, urinary tract and wound infections occur in about 8% of women and people who have had a caesarean birth.
- IV antibiotics given before skin incision, reduces the risk of this more than prophylactic antibiotics given after skin incision.
- All IV antibiotics may be given before knife-to-skin (KTS) and are considered safe except Augmentin which is given after delivery as it may have an effect on the baby.

Peak tissue levels are 30-60 minutes after administration therefore if surgery is delayed for more than 3 hours after administration; give another full dose of the IV antibiotics.

The responsibility for administering prophylactic antibiotics rests with the anaesthetist, as with other surgical procedures.

- For Category 2, 3 and 4 CS administer IV Cefuroxime 1.5g and Metronidazole 500mgs before skin incision.
- For Category 1 CS, administer prophylactic antibiotics as above; whenever it is safe to do so.

Refer to the Trust Adult Antimicrobial Guide. If MRSA positive, contact on call microbiologist for advice with regard to prophylactic antibiotics.

16.0. Surgical techniques

For uncomplicated CS at term:

16.1 Advised surgical techniques:

- The operating table for CS should have a lateral tilt of 15°.
- Use a transverse lower abdominal incision.
- Subsequent tissue layers are opened bluntly and, if necessary, extended with scissors and not a knife.
- Use blunt extension of the uterine incision.
- Rupture the membranes and deliver the baby avoid lifting the baby high up in the 'lion king' pose and provide skin to skin if baby does not require resuscitation (see optimal cord clamping in skin to skin guidance).
- Use controlled cord traction for removal of the placenta.
- Close the uterine incision with two suture layers.
- Check haemostasis.
- Close sheath with 1/0 braided absorbable suture (currently Polysorb).
- Use sutures rather than staples to close the skin after caesarean section to reduce the risk of superficial wound dehiscence.
- Close the skin incision with a monofilament absorbable subcuticular suture.
- 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.
- In the rare circumstances that a midline abdominal incision is used at CS, mass closure with slowly absorbable continuous sutures should be used because this results in fewer incisional hernias and less dehiscence than layered closure.
- Consider need for PICO dressing (see appendix 6).
- Check umbilical artery and vein pH if CS performed for fetal compromise.
- Consider women and person's preferences for birth (e.g. music playing in theatre) along with any other birth preferences that will influence the environment.
- Facilitate early skin-to-skin contact for mother and birthing parent and baby.

16.2 Surgical techniques not advised routinely

- Close subcutaneous space (unless >2cm of fat).
- Use superficial wound drains.
- Use separate surgical knives for skin and deeper tissues.
- Use forceps to deliver baby's head.
- Suture either the visceral or parietal peritoneum.
- Exteriorise the uterus.
- Manually remove the placenta.

The effects of different suture material or methods of skin closure are uncertain.

17.0. Consultant presence at CS

17.1 Consultants are required to attend all CS for:

- Major placenta praevia.
- Placenta accreta.
- Women and people who decline blood products.
- Uterine rupture.

17.2 Other indications:

The Consultant will decide whether to attend, depending on the complexity of the case and the experience of the registrar on duty. However, the consultant is required to attend if requested by any member of staff.

17.3 Cases where consultant presence may be indicated include:

- Delivery at less than 34 weeks.
- Previous complicated abdominal surgery or multiple procedures.
- Transverse lie.
- Maternal and birthing parent medical complications.
- BMI >40.
- Large or multiple uterine fibroids.
- Caesarean section at full dilatation due to the risk of head impaction and causing fetal injury during disimpaction if not experienced in this procedure. (See appendix 10: Impacted Fetal Head)
- Please see appendix 12 for a more comprehensive list for consultant attendance.

17.4 Prevention of post partum haemorrhage (PPH)

All women and people undergoing caesarean birth are recommended to have Carbetocin instead of oxytocin for the prevention of postpartum haemorrhage due to uterine atony. Please see Carbetocin to prevent PPH at CS UHS-CG-0009-2023 for administration, contraindications and cautions.

- Carbetocin is recommend for routine administration immediately after delivery of the baby during caesarean birth to prevent postpartum haemorrhage. Carbetocin is a longer-acting analogue of oxytocin, with a similar mechanism of action and adverse effects profile.
- The increased duration of action of Carbetocin compared with oxytocin eliminates the requirement for an infusion after the initial dose making it the preferred first-line drug for routine administration immediately after birth.
- If Carbetocin does not provide adequate uterine tone, a second-line drug should be considered early. A second line agent should be guided by clinical context and presence of contraindications, for example Ergometrine, Misoprostal, Carboprost as per CG12029 PPH guideline.

18.0. Postoperative care

18.1. Immediate recovery care following CS

- After CS, women and people should be observed on a one-to-one basis.
- If the CS was under a general anaesthetic, a healthcare professional with airway skills should carry out continuous, one-to-one observation of the woman and person until they have regained airway control, and are haemodynamically stable, and able to communicate.
- See the Maternity guideline for CG11103 Recovery post regiona and GA anaesthesia for required observations and Appendix 4 (for summary).
- Use Maternity MEOWS and fluid monitoring form on MIS to document observations and fluid balance. Observations outside of normal parameters should be escalated to the appropriate personnel as per MEOWS score.
- Be aware that although it is rare for women and people to need intensive care following childbirth, this occurs more frequently after CS (about 9 per 1000).

18.2. Further care of the woman and person and baby immediately after CS

- Encourage skin to skin contact as soon as reasonably possible. This should be uninterrupted for as long as the mother wishes, until after the first feed or at least for an hour. See CG20015 Parent-to-baby skin ontact guideline
- Provide additional support to help the woman and person to feed and care for their baby.
- Breastfeeding - Lactogenesis 2 can be delayed by caesarean birth so proactive measures should be made that include:
    - Aim to breastfeed within first hour, if this is not possible hand express to stimulate lactation.
    - Hand express after each feed to continue to stimulate milk supply. Store any colostrum collected for use later if required.
    - Frequent safe skin to skin contact.
    - Bring baby to the breast as often as possible and feed regularly to encourage abundant milk supply.

- Baby driven positions that support attachment (laid back swing nursing position) which involves limited positioning of the mother and birthing parent. Alternatively side lying position or rugby position work well too.
- Offer both breasts at each feed allow baby to feed for as long as it likes.
- Adequate pain relief to adopt feeding positions and responsiveness to feeding cues (alongside staff responding to call bells to support lifting of baby).
- Avoid unnecessary supplementations due to the effect on milk supply. If above is supported there should be no ongoing concerns.

Babies born by CS are more likely to have a lower temperature, and thermal care should be in accordance with good practice for thermal care of the newborn baby, this includes skin to skin with the mother and birthing parent.

18.3. Risk of thromboembolic disease

Women and people who have had a caesarean birth may be at increased risk of thromboembolic disease (both deep vein thrombosis and pulmonary embolism). The VTE risk assessment should be performed on admission, and post-birth with prophylaxis offered according to risk.

- Any woman and person who has undergone spinal anaesthesia will have a yellow wristband attached by the anaesthetist. The midwife should assess the woman and person for straight leg rise after 4 hours (see appendix 11). If able to straight leg rise (SLR), yellow wristband can be removed. If unable to SLR, notify the anaesthetist and leave yellow wristband in place. **Dalteparin should only be given once the regional anaesthetic block has resolved and the woman** and **person is able to straight leg raise (SLR).**
- Re-assess and document the VTE score and give dalteparin in accordance with CG1153 Obstetric VTE and aim to start, or resume, 6 hours post operatively unless there are specific contraindications.
- LMWH should not be given for **4 hours** after use of spinal anaesthesia or after the epidural catheter has been removed.
- Ensure the woman and person is reweighed post birth, before starting or recommencing VTE prophylaxis, to ensure correct dose is prescribed.

Postnatally pay particular attention to respiratory symptoms (such as cough or shortness of breath) or leg symptoms (such as painful swollen calf), and seek obstetric review if these symptoms occur postnatally. See CG1153 Obstetric VTE and Trust Venous Thromboembolism (VTE) Prevention Policy for further guidance.

18.4. Analgesia

Discuss options for pain relief after caesarean birth with women and people and explain that:

- Pain after caesarean birth can be controlled using oral or injectable medicines and will depend on the severity of pain, whether they had spinal or epidural anaesthesia, or general anaesthesia.

- Reassure if they wish to breastfeed, they will usually be able to do this and care for their baby while taking pain relief medicines. The anaesthetist will discuss with the woman and person if they are offering medication that may affect breastfeeding and the baby, such as tramadol, oxycodone or very large doses of opioids.

Immediate post CS analgesia:

- Transversus Abdominis Plane (TAP) blocks should be considered as a part of post-operative multimodal pain management for CS, especially when the CS has been performed under general anaesthesia. Morphine oral solution: prescribe 20mg PRN 2 hourly while in hospital.
- A diclofenac suppository 100mg can be inserted PR post operatively in theatre with consent gained prior to the caesarean birth.

Regular post CS analgesia:

- A combination of paracetamol and, unless contraindicated, a non-steroidal anti-inflammatory drug, like ibuprofen will reduce opioid requirements. The maximum dose of Ibuprofen is 600mg TDS which should be given with daily omeprazole on this dose. (The dose of Ibuprofen will be reduced to 400mg TDS on discharge from hospital.)
- If there is any concern about dehydration or renal function whilst on the higher dose of ibuprofen, give IV fluids or stop the NSAIDS. If there is any concern about gastric irritation increase the dose of Omeprazole to 40mg or stop the NSAIDS.
- Offer PRN morphine oral solution and PRN antiemetic to women and people who have received spinal or epidural anaesthesia for caesarean birth. The dose of Morphine oral solution is 10-20mg 2 hourlyPRN and Ondansetron every 8 hours PRN. It is recommended that senna or macrogol are offered daily whilst taking opioids to prevent constipation.
- Encourage the woman and person to take paracetamol and NSAID regularly and not just when needed for pain relief.
- Consider prescribing a second line anti-emetic, like cyclizine for women and people taking opioids, if needed for nausea and vomiting.
- Advise women and people that some over-the-counter medicines contain codeine, and should not be taken while breastfeeding because this can lead to serious neonatal sedation and respiratory depression.

Discharge medication:

- Following caesarean section, women and people will be advised to take paracetamol, ibuprofen (400mg TDS), senna.
- Ideally both ibuprofen and paracetamol should be provided by the woman and person, although a supply from ward TTO stock can be supplied if necessary.
- If being discharged before day 3, morphine oral solution should also be considered to support an earlier discharge and enhanced recovery. **If prescribing morphine oral solution on discharge prescribe the smallest effective dose, there must be 4 hours between dosages and state max number of dosages per day for limit of 3 days post birth.**

- If a woman and person is discharged home on opioids, advise them to contact their healthcare provider if they are concerned about their baby (for example drowsiness, breathing difficulties, constipation or difficulty feeding).

For women and **people with severe pain after caesarean birth, when other pain relief is not sufficient:**

- Perform a full assessment to exclude other causes for the pain (for example, sepsis, haemorrhage including haematomas, urinary retention).
- Consider Pain Team review for those whose pain is not managed with regular routine analgesia.
- Ensure the woman and person's pain control is optimised then discuss with the woman and person that alternative pain relief medicines are available. If the woman and person chooses, to try alternative opioids consider a short course of tramadol or oxycodone at the lowest effective dose.
- Make sure the woman and person is aware that, if taken while breastfeeding, these medicines could increase the risk of neonatal sedation and respiratory depression.
- In breastfeeding women and people, use opioid analgesics at the lowest effective dose and for the shortest duration, and not for more than 3 days after date of birth of the baby. (Refer to CG1127 Neonatal Abstinence Syndrome (NAS) for further information.)

18.5. Wound care

- Any pressure dressing should be removed prior to transfer to the Postnatal Ward.
- If PICO dressing present follow Appendix 6.
- Remove the wound dressing after 6 - 24 hours. There is no difference in the risk of wound infection when dressings are removed 6 hours postoperatively, compared with 24 hours postoperatively.
- If the wound is leaking a clean dressing should be applied.
- Monitor the woman and person for signs of infection (fever, increasing pain, redness or discharge) or dehiscence.
- If any concerns, liaise with the Infection Control and/or Tissue Viability nurses at the earliest opportunity.
- Encourage women and people to keep wound clean and dry (daily showering) and wear loose comfortable clothing and cotton underwear.
- If used, there should be a plan documented for the removal of clips/staples and any non-dissolvable sutures.

18.6. Oral fluids and diet

- Women and people who are feeling well and have no complications, can eat and drink when they feel hungry or thirsty (start with sips of clear fluid; wait for a minimum of 2 hours before light diet).
- All women and people should remain on water only until discharge from recovery criteria is met.

18.7. Removal of urinary catheter

See 'Bladder Care for Maternity Patients Guideline (Including Management of Urinary Retention)'.

- Removal of the urinary catheter should be carried out once the woman and person is mobile after a regional anaesthetic for caesarean birth, but no sooner than 12 hours after the last 'top-up' dose.
- If cannula has not already been removed, removal should be considered at this time.
- The recommended time is between 12 and 24 hours.

If urinary symptoms present consider the possible diagnosis of:

- Urinary tract infection.
- Stress incontinence (occurs in about 4% of women and people after CS).
- Urinary tract injury (occurs in about 1 per 1000 CS).
- Urinary retention.

18.8. Suspected ureteric injury

If ureteric injury is suspected a CT (computed tomography) urogram should be requested within 24 hours (at the weekend discuss case with the on-call Consultant Radiologist to arrange). (ToG 2016 :18:265-72)

Breastfeeding can continue following the contrast.

18.9. Pregnancy and childbirth advice following CS

Discuss the reasons for the caesarean birth and provide both verbal and written information about birth options for any future pregnancies, and document this on MIS. If the woman/person prefers, provide this at a later date.

When advising about the mode of birth following CS consider maternal and birthing parent preferences and priorities, the risks and benefits of repeat CS and the risks and benefits of planned vaginal birth, including the risk of unplanned CS.

18.10. Discharge and follow up

- Average length of stay is likely to be longer after CS compared with vaginal birth.
- Offer early discharge (after 24 hours) and home follow up to women and people who are recovering, apyrexial and have no complications.
- In the event of heavy and/or irregular vaginal bleeding following CS, healthcare professionals should consider that this is more likely to be due to endometritis than retained products of conception.
- Women and people who have undergone a Category 1 CS should be offered postnatal follow up in the Consultant clinic at around 6 weeks. Plans for

subsequent pregnancies should be discussed and documented at this time if not previously occurred.

- Discuss Birth Afterthoughts service if appropriate.
- Women/ people who have had a dural tap, failed spinal/epidural, general anaesthetic with awareness or difficult anaesthetic experience should be referred to anaesthetic obstetric clinic. This should also be noted in their discharge summary by the obstetric team and in a letter to their GP.

19.0. Audit

CS Rate is monitored via clinical dashboard and Category 1 CS are monitored via patient safety.

Suggested audit standards:

- Documented evidence of informed consent including discussion regarding risks and benefits of CS.
- Use the following decision-to-birth intervals to measure the overall performance of an obstetric unit:
  - 30 minutes for category 1 CS
  - Both 30 and 75 minutes for category 2 CS.
- Pregnant women and person who have had 1 or more previous caesarean births have a documented discussion of the option to plan a vaginal birth.
- Pregnant women and person who request a caesarean birth (when there is no clinical indication) have a documented discussion with members of the maternity team about the overall risks and benefits of a caesarean birth compared with vaginal birth.
- Pregnant women and people who request a caesarean birth because of anxiety about childbirth are offered a referral to a healthcare professional with expertise in perinatal mental health support.
- Pregnant women and people who may require a planned caesarean birth have consultant involvement in decision-making.
- Pregnant women and people having a planned caesarean birth have the procedure carried out at or after 39 weeks 0 days, unless an earlier delivery is necessary because of maternal WHO Surgical Safety Checklist birthing parent or fetal indications.
- Women and people being considered for an unplanned caesarean birth have a consultant obstetrician involved in the decision.
- Women and people in labour for whom a caesarean birth is being considered for suspected fetal compromise are offered fetal blood sampling to inform decision-making.
- Women and people who have had a caesarean birth are offered a discussion and are given written information about the reasons for their caesarean birth and birth options for future pregnancies.
- Women and people who have had a caesarean birth are monitored for postoperative complications.

References

National Institute of Clinical Excellence (NICE). 2011. Caesarean Section. Clinical guideline 132. London. NICE. Updated 2019. NICE CG132

National Institute of Clinical Excellence (NICE). 2021. Caesarean Birth. National Guidance 192. London. NICE. NICE NG192 Caesarean Birth

NHS Litigation Authority (NHSLA) 2012-13. CNST Maternity Risk Management Standards Version 1. London. NHSLA.

MBRRACE UK: Saving Lives, Improving Mother's Care 2015-2017. mbrrace-uk report 2019 Oxford : MBRRACE-UK

National Confidential Enquiry into Perioperative Death (NCEPOD) 2004. Classification of Interventions. London NCEPOD

British HIV association (BHIVA). 2014. Guidelines for the management of HIV infection in pregnant women 2012

NHS Digital. Maternity Services Monthly Statistics June 2020 – NHS Digital

Raising the standards, RCOA quality improvement compendium, 4th Edition September 2020 Chapter 7

Guideline on anaesthesia and sedation in breastfeeding women 2020 Mitchell J et al. Anaesthesia 2020

OAA / AAGBI Guidelines for Obstetric Anaesthetic services 2013 Plat F et al. Anaesthesia 2013

Safety Guideline: neurological monitoring associated with Obstetric Neuraxial Block 2020 Yentis S et al. Anaesthesia 2020

2021 Exceptional Surveillance of Caesarean birth- diamorphine (NICE guideline NG192) (Oct 19th 2021 update) pertaining to appendix 7/8.

RCOG (2022) GTG no.74 Antenatal Corticosteroids to reduce neonatal morbidity and mortality

Association of Anaesthetists (2019) International consensus statement on the use of uterotonic agents during caesarean section. doi:10.1111/amae.14757

Appendix 1: Risks of planned CS v vaginal birth

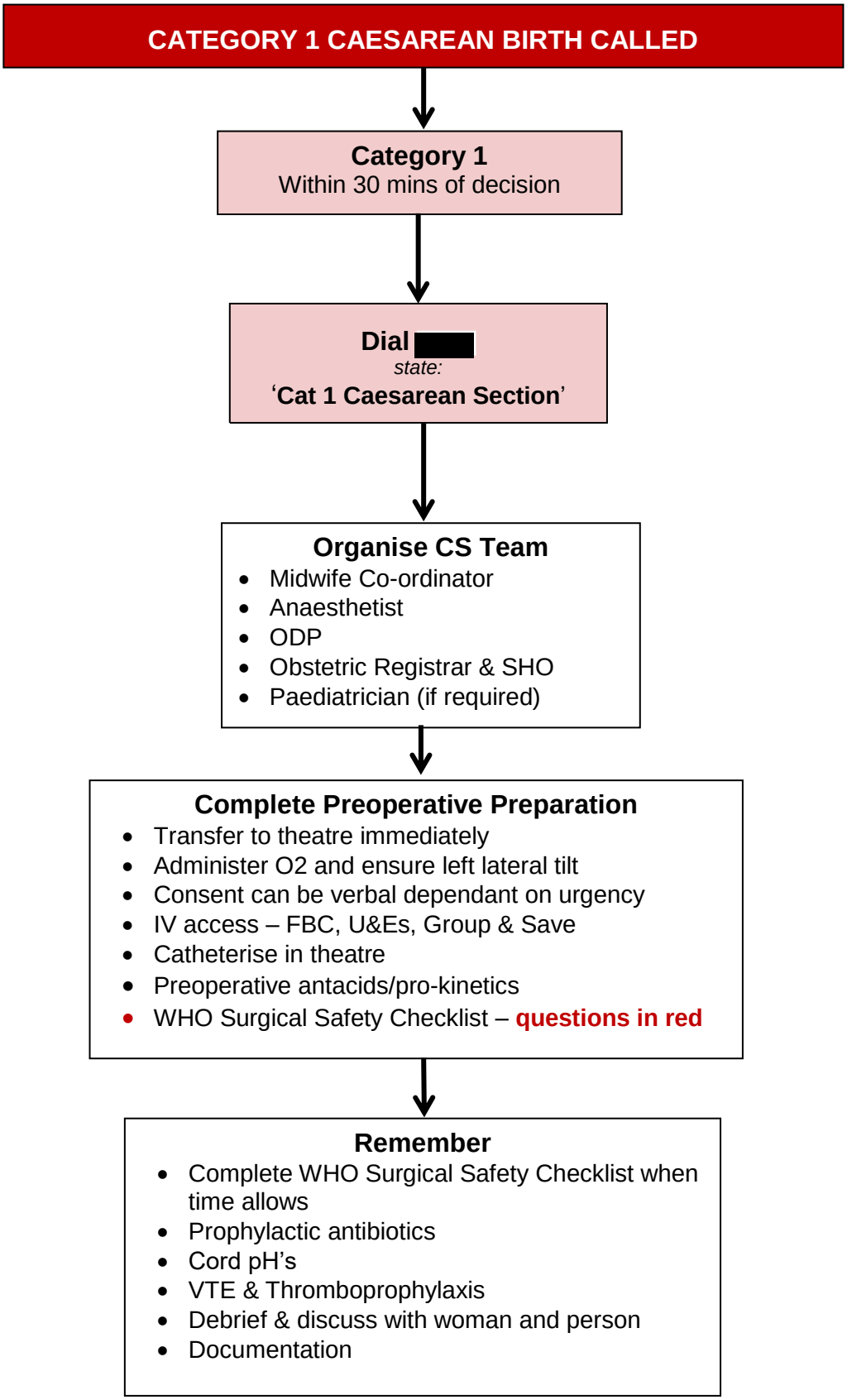
Discuss the benefits and risks of both caesarean and vaginal birth with women and people, taking into account their circumstances, concerns, priorities and plans for future pregnancies.

- 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 the pregnant woman and person 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).

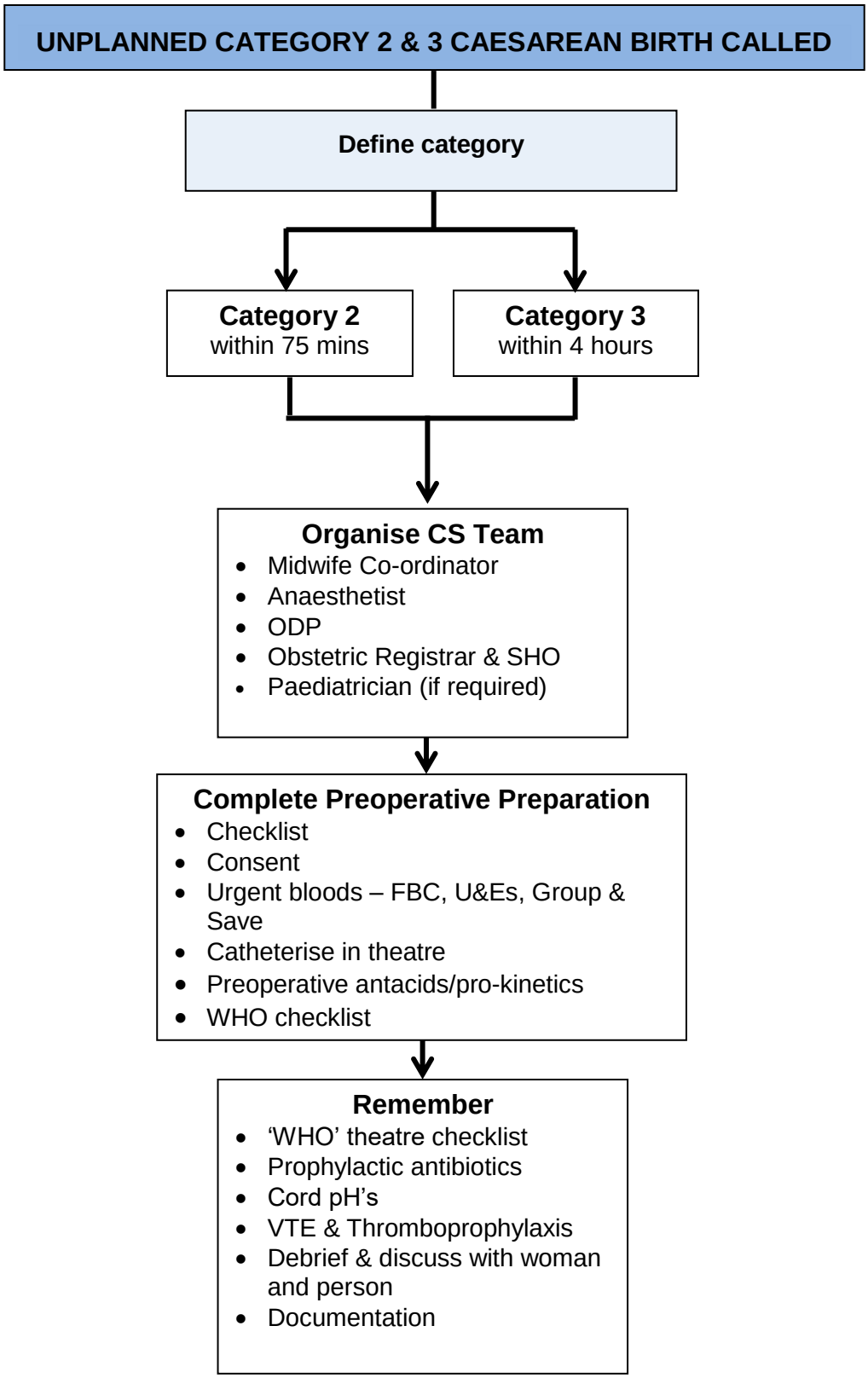
Further detail on calculated risk can be found at: NICE NG192 Caesarean Birth (2021)

Risks for women and **people**	**Risks for babies/children**
May be <u>more likely</u> with caesarean birth -	
• Peripartum hysterectomy • Maternal death • Length of hospital stay. • Placenta accreta in future pregnancy. • Uterine rupture in future pregnancy or birth.	• Neonatal mortality • Asthma • Childhood obesity
May be <u>less likely</u> with caesarean birth -	
• Urinary incontinence occurring more than 1 year after birth. • Faecal incontinence occurring more than 1 year after birth; compared to assisted vaginal birth. • Vaginal tear • Perineal/abdominal pain during birth and 3 days after birth.	
Are <u>likely to be similar</u> for caesarean or vaginal birth -	
• Thromboembolic disease • Major obstetric haemorrhage • Postnatal depression • Faecal incontinence (occurring more than 1 year after birth; compared to unassisted vaginal birth)	• Admission to neonatal unit • Infection • Persistent verbal delay • Infant mortality (up to 1 year)
Outcomes that have <u>conflicting or limited evidence</u> about the risk with caesarean or vaginal birth -	
• ITU admission • Stillbirth in a subsequent pregnancy.	• Respiratory morbidity • Cerebral palsy • Autism spectrum condition • Type 1 diabetes.

Appendix 2a: Category 1 Unplanned caesarean birth flowchart



Appendix 2b: Category 2 & 3 unplanned caesarean birth flowchart



Appendix 3: Emergency CS outside of obstetric theatre – equipment and personnel

EMERGENCY CS OUTSIDE OF OBSTETRIC THEATRE

Daytime Emergency CS called

St Richards	Worthing
• Phone [redacted] and ask for Theatre Co-ordinator or bleep [redacted] • Theatre co-ordinator will have pre-determined an ODP/ scrub nurse for allocation to a second obstetric theatre and will be responsible for sending them to labour ward • Room 3/ second theatre on labour ward must be checked daily to ensure it is primed and operationally ready. Spare equipment must not be stored in room 3.	• Phone [redacted] ([redacted] if busy). • Ask for theatre manager/ coordinator. • Liaise which theatre is available/ how long is needed. • Inform Obstetric theatre staff to allow adequate discussion between Anaesthetists. **Useful numbers** [redacted] CEPOD Phone Obstetric anaesthetist bleep [redacted] [redacted] Main desk On call ODP bleep [redacted]

Out of hours/Weekends Emergency CS Called

St Richards	Worthing
• Bleep CEPOD Team on [redacted] • If already busy, contact on-call site manager to call in another team if indicated.	• Phone [redacted] ([redacted] if busy). • Ask for theatre manager/ coordinator. • Liaise which theatre is available/ how long is needed. • Inform Obstetric theatre staff to allow adequate discussion between Anaesthetists.

Personnel

St Richards	Worthing
• Obstetric consultant • Obstetric Registrar • Paediatric registrar or consultant • Neonatal specialist nurse • Midwife • Anaesthetic Reg • Anaesthetic consultant • ODP • Scrub nurse • Runner	• Obstetric consultant • Obstetric Registrar • Paediatric registrar or consultant • Neonatal specialist nurse • Midwife • Anaesthetic Reg • Anaesthetic consultant • ODP • Scrub nurse • Runner

Equipment – Theatre staff to transfer into theatre

St Richards	Worthing
Not applicable due to both theatres already being on CLS.	• LSCS tray • Resuscitaire

Resuscitaire	
St Richards	**Worthing**
Ensure checked and stocked as per standard stock requirements and transfer to theatre being opened. Sats monitor. Neonatal drug box to be put onto Resusitaire.	Ensure checked and stocked as per standard stock requirements. Ensure Neonatal Drug Box is present and in date.

Anaesthetic checklist – Equipment	
St Richards	**Worthing**
• Spinal/epidural/CSE* kit available in trolley • IV infusion pumps x 2 • Fluid warmer • Oxford Pillow • Haemorrhage Trolley (LW or Theatre 5) • IOCS if appropriate (*Epidural/CSE kit may need to be collected from LW)	• Spinal trolley • Syringe driver (for phenylephrine) • Curly wurly giving set • 50ml syringe • IV infusion pump (for oxytocin (Syntocinon)) • Giving set for infusion pump • Blood giving set and Y-connector • Cell saver (Outside Theatre 3 or 9) • Wedge - if no time can use a 3l bag fluid • Oxford pillow • Resuscitaire

Anaesthetic checklist – Drugs	
St Richards	**Worthing**
• Sodium citrate • Ergometrine (LW fridge) • Carboprost (LW fridge) • Diamorphine or PFM (LW CD cupboard) • Metaraminol infusion (0.5mg/ml) • Tocolytics – GTN spray in Tocolysis box • Carbetocin All other drugs will be found in all anaesthetic rooms: • GA drugs • Opioids • Tranexamic Acid • IV Fluid for co-loading	• Sodium citrate (Theatre 3) • Ergometrine (Theatre 3 fridge) • Carboprost (Theatre 3 fridge) • Phenylephrine (Theatre 3) • Metronidazole (Theatre 3) • Gentamicin (Theatre 3) • Cefuroxime (Pharmacy store) • Clindamycin (Pharmacy store) • Diamorphine (Theatre 8/9 CD) • Saline 100ml bag (for phenylephrine) • Saline 500ml bag (for oxytocin (Syntocinon)) • Hartmanns 1000ml • Carbetocin • Tranexamic Acid
IF SIGNIFICANT BLEEDING – Belmont Pump located in Sluice between Labour Ward Theatres	**IF DIFFICULT AIRWAY – Difficult airway trolley +/- CMAC outside Theatre 3. IF SIGNIFICANT BLEEDING – Send Porters to Delivery Suite anaesthetic room for Belmont pump.**

Appendix 4: Required observations following caesarean birth

As a minimum the following observations should be recorded **every 5 minutes** for the first 15 minutes, and recorded on the Maternity Early Obstetric Warning Score (MEOWS) on MIS. The MEOWS score instructions should be followed for abnormal observations (CG1148 Recognition and management of severely ill pregnant women)

- Level of consciousness (using AVPU as per MEOWS score).
- Heart rate.
- Blood pressure.
- Respiratory rate.
- Oxygen saturation by pulse oximetry.
- Verbal pain.
- Vaginal bleeding.
- Overall appearance (well or unwell).
- Evidence block height and motor block resolving. (see appendix 11)

These observations, if stable should then be recorded **½ hourly** for **1 hour**. Following this, **hourly observations** should continue until the pre-discharge from recovery checklist criteria on MIS is met, before commencing 4 hourly observations. If not stable, perform observations more frequently and seek medical review.

This pre-discharge checklist must be fully completed including date and time of assessment prior to discharge to the Postnatal Ward.

The following observations should be closely monitored and documented:

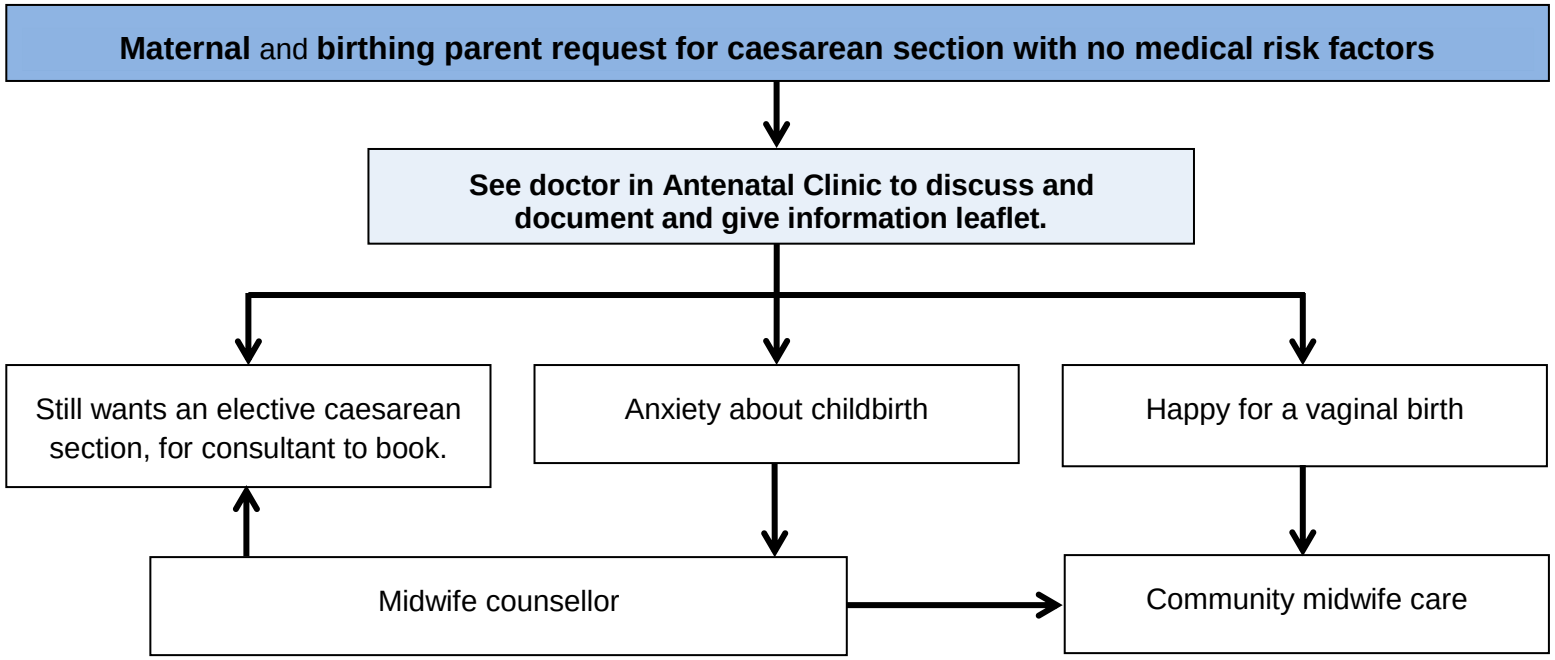
- Nausea/vomiting.
- Wound-bleeding from operation site, wound drains.
- Uterine fundus.

Additional observations to be recorded hourly for the first two hours

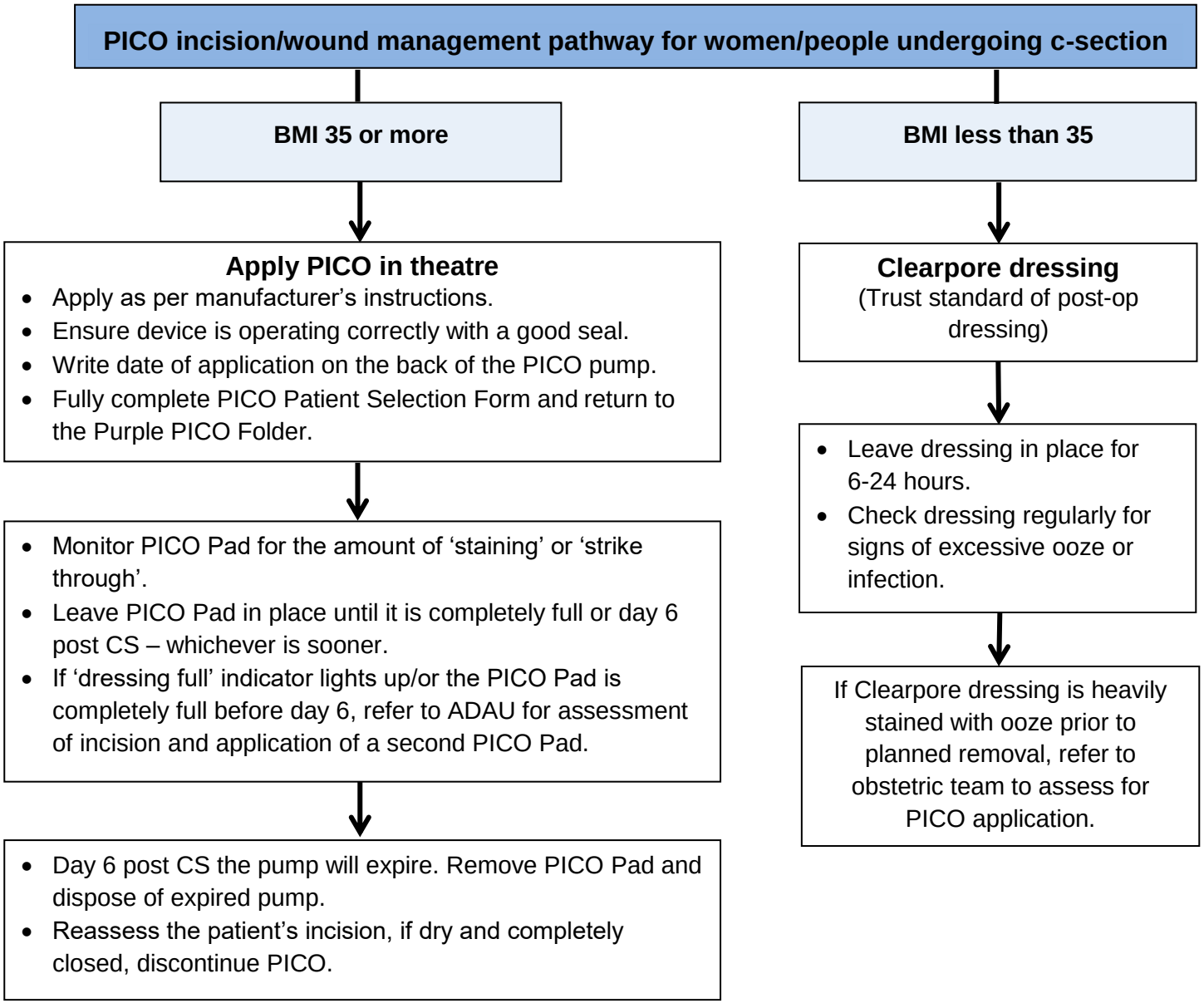
- Urine output – Obstetrician and Anaesthetist should be informed if urinary output falls below 30mls per hour on 2 consecutive occasions.
- Temperature.

These observations, if stable for 2 hours can be reduced to 4 hourly.

Appendix 5: Maternal and birthing parent request for CS



Appendix 6: PICO wound management



Appendix 7: Neuraxial Preservative Free Morphine (PFM)

Preservative Free Morphine for Epidural or Intrathecal Use is now available at SRH and WH in line with other hospitals within University Sussex Hospitals Trust.

Special Care:

Please ensure that **ONLY the PRESERVATIVE FREE formulation of MORPHINE (PFM)** is used via the **INTRATHECAL or EPIDURAL routes.**

Safety Features:

- PFM is only presented as 1mg/ml vials.
- PFM is only stored in clear/yellow bags in designated neuraxial CD cupboards on Labour Ward at SRH & WH.
- Care when drawing up the PFM as very low volumes are required, discard drawing up needle to inject into syringe for neuraxial injection.

Suggested Dose of PFM	Obstetrics (LSCS)	OAA Recommendation
Intrathecal Dose	0.1 – 0.15 mg (100-150 micrograms)	Add in Fentanyl 10-20 micrograms
Epidural Dose	2 mg -3 mg	Flush with 2ml N Saline

Standard Intrathecal Dose for LSCS: 100micrograms PFM and 15micrograms Fentanyl with your usual dose of bupivacaine

PFM will remain in the CSF longer when compared with diamorphine or fentanyl but recent publications recommend the same monitoring post operatively as for diamorphine but consider the caveats.
Based on the suggested doses the average duration of analgesia is 18-24 hours and side effects are rare.

Caveats:

- There is a dose dependent increased risk of delayed respiratory depression and a slightly higher incidence of pruritis and nausea/vomiting.
- Reduce dose/avoid in the elderly, COPD, morbid obesity, sleep apnoea, liver and renal failure.
- Naloxone should always be prescribed in the postoperative period.
- Ondansetron is first line for reducing PFM pruritis and consider regular prescription for the 1st 24 hours post neuraxial PFM.

Do not prescribe regular opioids for the 1st 24 hours post neuraxial PFM with doses only prescribed/ given as required (PRN).

Complete the Analgesia in Caesarean Section Audit Form - Appendix 8

Full details can be read from:

Dispensing Storage and Administration of

Appendix 8: Analgesia in caesarean section audit form

Printed surname of Person Completing Form: ……..…… Date of Follow Up: ……

Audit of Analgesia Use intra and Post C-Section with RA Block

Please complete with post-operative review by circling/documenting appropriate response.

Patient Hospital Number and Initials: …….

Was Pre-op information on Intra and Post-op analgesia given? Y / N
Was it read? Y / N

Mode of Anaesthesia: Spinal / Epidural Top Up / CSE
Opioids given via spinal/epidural? Diamorphine / PF Morphine / Fentanyl
Please note dose under drug:

IV Opioids required intra-op? Diamorphine / Morphine / Fentanyl / Alfentanil
Please note dose under drug:

Category CS? 4 3 2 1 **Number CS?** 1st 2nd 3rd 4th **Converted to GA?** Y / N

If Converted to GA what additional analgesia
was given? TAP Block / LA infiltration / PCA post-op

Patient satisfaction with pain management day 1 post-operatively:
Very Good Good Satisfactory Poor Very Poor

Has Oramorph been prescribed? Y / N

Simple Analgesics prescribed? Prn? Y / N Regular 6hr Paracetamol? Y / N
Regular (change to guidance)? Y / N Ibuprofen 600mg tds? Y / N
How much oramorph was required on day 1 post op? ……..

Anti-Emetic
Was nausea a significant issue post-op? Y / N
Was Ondansetron required? Y / N
Was a second anti-emetic required? Y / N

Antipruritic
Was itch an issue post op? Y / N
Was treatment required? Y / N

Please note any other relevant comments, critical incidents or drug reactions pertaining to Neuraxial opioid administration:

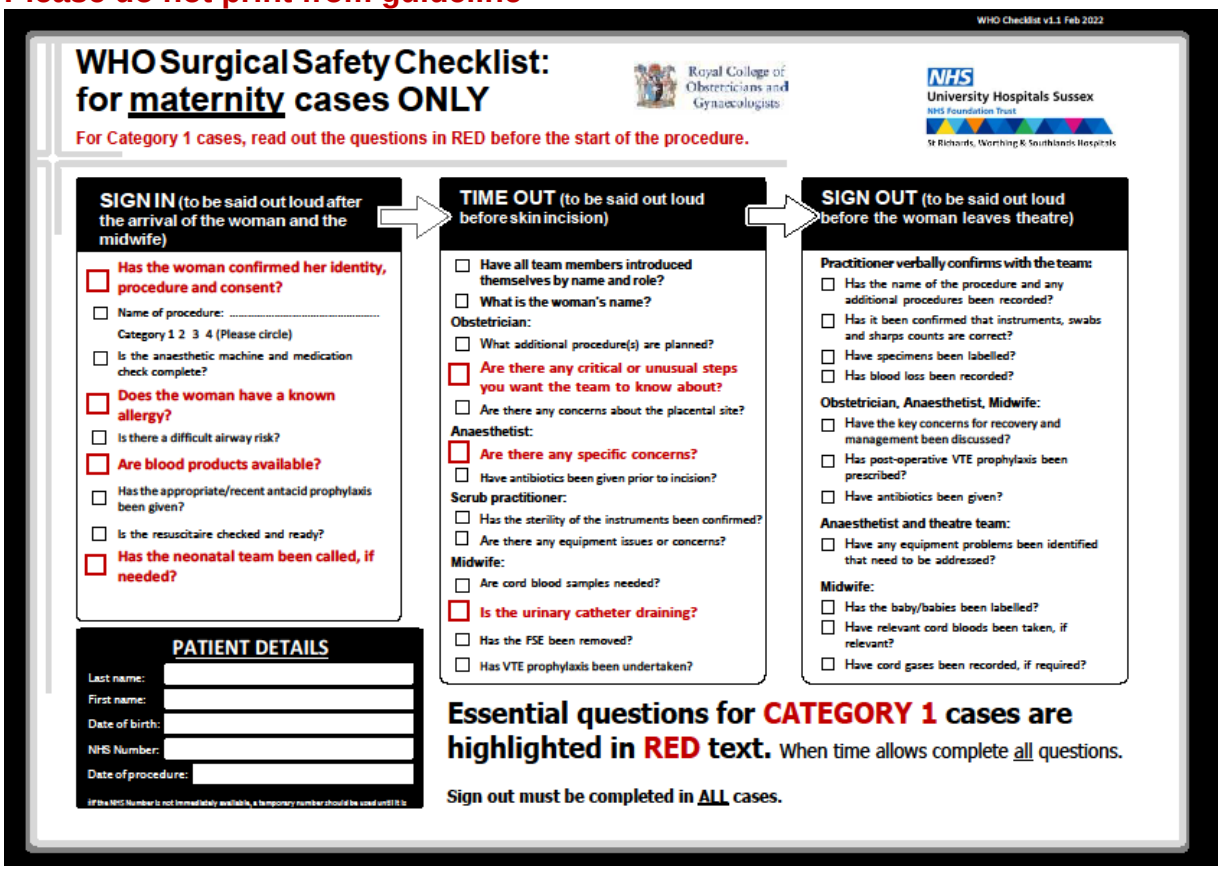
……

……..……..

Please place completed forms in the Obstetric Anaesthetic Office – Many thanks
K Ashpole Nov 2021

Appendix 9: Caesarean Section WHO Surgical Safety Checklist

Please do not print from guideline



WHO Checklist v1.1 Feb 2022

WHO Surgical Safety Checklist: for maternity cases ONLY

Royal College of Obstetricians and Gynaecologists

NHS University Hospitals Sussex NHS Foundation Trust St Richards, Worthing & Southlands Hospitals

For Category 1 cases, read out the questions in RED before the start of the procedure.

SIGN IN (to be said out loud after the arrival of the woman and the midwife)

- Has the woman confirmed her identity, procedure and consent?
- Name of procedure: .....
  Category 1 2 3 4 (Please circle)
- Is the anaesthetic machine and medication check complete?
- Does the woman have a known allergy?
- Is there a difficult airway risk?
- Are blood products available?
- Has the appropriate/recent antacid prophylaxis been given?
- Is the resuscitaire checked and ready?
- Has the neonatal team been called, if needed?

PATIENT DETAILS

Last name:
First name:
Date of birth:
NHS Number:
Date of procedure:

If the NHS Number is not immediately available, a temporary number should be used until it is

TIME OUT (to be said out loud before skin incision)

- Have all team members introduced themselves by name and role?
- What is the woman's name?

Obstetrician:

- What additional procedure(s) are planned?
- Are there any critical or unusual steps you want the team to know about?
- Are there any concerns about the placental site?

Anaesthetist:

- Are there any specific concerns?
- Have antibiotics been given prior to incision?

Scrub practitioner:

- Has the sterility of the instruments been confirmed?
- Are there any equipment issues or concerns?

Midwife:

- Are cord blood samples needed?
- Is the urinary catheter draining?
- Has the FSE been removed?
- Has VTE prophylaxis been undertaken?

SIGN OUT (to be said out loud before the woman leaves theatre)

Practitioner verbally confirms with the team:

- Has the name of the procedure and any additional procedures been recorded?
- Has it been confirmed that instruments, swabs and sharps counts are correct?
- Have specimens been labelled?
- Has blood loss been recorded?

Obstetrician, Anaesthetist, Midwife:

- Have the key concerns for recovery and management been discussed?
- Has post-operative VTE prophylaxis been prescribed?
- Have antibiotics been given?

Anaesthetist and theatre team:

- Have any equipment problems been identified that need to be addressed?

Midwife:

- Has the baby/babies been labelled?
- Have relevant cord bloods been taken, if relevant?
- Have cord gases been recorded, if required?

Essential questions for CATEGORY 1 cases are highlighted in RED text. When time allows complete all questions.

Sign out must be completed in ALL cases.

Appendix 10: Impacted fetal head (IFH) at Caesarean

PREEMPT	Are there signs of obstruction? Is this a second stage LSCS?
PREPARE Discuss at team brief	Legs into low lithotomy. Surgical step. Tocolysis immediately available? Allocate roles. • Coordinator aware? • Paediatrics aware?
DECLARE	If head not delivered by standard techniques declare: '**Impacted fetal head**'
DELIVER	Call senior team. **'Please give GTN spray'.** Legs into McRoberts. Head down tilt or step if needed. Adequate access – extend incision if needed. Push or Pull techniques: • Push up, hand **cupped** around baby's head and **flex.** • Reverse breech extraction (OP). • Patwardhan (useful if OA) deliver the shoulders and arms first, fundal pressure to flex body and deliver legs and breech. Consider GA for uterine relaxation.
Document and debrief parents and team	

Appendix 10 (cont): Impacted fetal head (IFH) at Caesarean

Working definition is: 'Caesarean birth requiring additional techniques and/or tocolysis to disimpact the fetal head after standard delivery manoeuvres have failed'.

There is no clear national guidance on how to manage this condition which is relatively common (PROMPT). 50% occur before full dilatation.

Was considered rare, but NHS resolution early notification scheme identified IFH as a contributory factor in 9% of their cases (usually birth trauma/HIE), and Bristol reported IFH 11% all EMCS and 32% of CS at full dilatation in 2016.

Complications of IFH	
Mother	**Baby**
Damage to uterus	Skull fracture
Damage to urinary tract	Intracranial bleed
Uterine bleeding and PPH	Nerve injury
Longer hospital stay	Hypoxic brain damage
Hysterectomy	Neonatal death

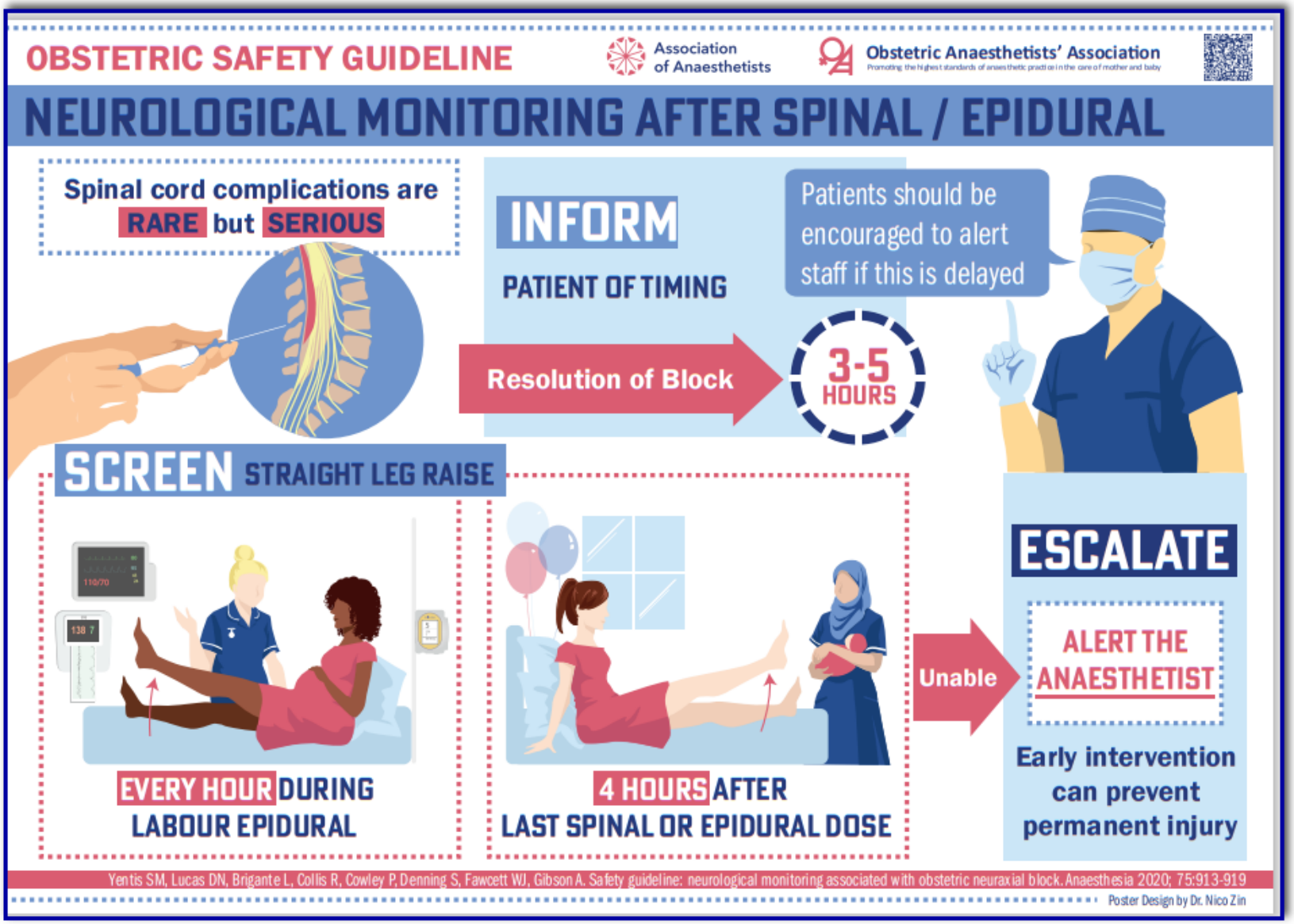
Risk factors for IFH	
Maternal/perinatal factors	Primiparity Macrosomia
Intrapartum factors	Full cervical dilatation OT/OP malposition Mid or low cavity station Oxytocin augmentation Epidural Failed operative vaginal birth
Operator factors	Less experienced obstetricians

There is some evidence that reverse breech/Patwardhan's reduces maternal/birthing parent trauma compared to pushing up, but there is no evidence of difference in fetal trauma.

Limited evidence for use of **tocolysis** in these cases – GTN 2 puffs under the tongue is suggested because immediately available and rapid onset of action. Terbutaline 250micrograms can be used, but needs to be drawn up and given subcutaneously.

References: Professor Tim Draycott, PROMPT 2020, Waterfall H, Grivell RM, Dodd JM. Techniques for assisting difficult delivery at caesarean section. Cochrane Database of Systematic Reviews 2016, Issue 1. Art. No.: CD004944. DOI: 10.1002/14651858.CD004944.pub3.

Appendix 11: Neurological monitoring after spinal/epidural



Appendix 12: Consultant attendance required table

Situations in which the consultant MUST ATTEND
In the event of high levels of activity e.g a second theatre being opened, unit closure due to high levels of activity requiring obstetrician input.
Any return to theatre
Team debrief requested
If requested to do so
Early warning score protocol or sepsis screening tool that suggests critical deterioration where HDU / ITU care is likely to become necessary.
Caesarean birth for major placenta praevia / abnormally invasive placenta
Caesarean birth for women with a BMI >50 Caesarean birth
Caesarean birth <28/40
Premature twins <30/40
4th degree perineal tear repair
Unexpected intrapartum stillbirth
Eclampsia
Maternal (or birthing parent) collapse eg septic shock, massive abruption
PPH >2L where the haemorrhage is continuing and Massive Obstetric Haemorrhage protocol has been instigated.
Situations in which the consultant must ATTEND unless the most senior doctor present has documented evidence as being signed off as competent. In these situations, the senior doctor and the consultant should decide in advance if the consultant should be INFORMED prior to the senior doctor undertaking the procedure.
Any patient in obstetrics with an EBL >1.5litres and ongoing bleeding.
Trial of instrumental birth
Vaginal twin birth
Caesarean birth at full dilatation
Caesarean birth for women with a BMI >40
Caesarean birth for transverse lie
Caesarean birth at <32/40
Vaginal breech birth
3rd degree perineal tear repair

Appendix 13: Vaginal Preparation SOP

Introduced as per WHO guidance in 2015 and a Cochrane review in 2020. The Cochrane review in 2020 showed a reduction in risk of post-caesarean endometritis of around 50% (from 7.2% to 3.1%) and evidence of reduction in wound infections and post-operative fever.

Vaginal preparation is to be done for all caesarean sections regardless of categorisation, unless it will impact the safety of mother or baby by delaying delivery.

This should be done at the time of catheter insertion, if already catheterised it should be done just before prepping the abdomen.

Equipment required:

- Sachet of Tisept (no other solution is appropriate, if Tisept not available, please ask coordinator to order from pharmacy).
- Rampleys sponge holding forceps.
- Pack of swabs.

Procedure:

- Wrap gaze swab around the end of the Rampleys sponge forceps and soak in Tisept.
- Place into the vagina and clean vagina in a circular motion for around 30 seconds.
- Count swabs and instruments.

Appendix 14: Risk and benefits for corticosteroids