Worcestershire Acute Hospitals NHS Trust

Emergency Caesarean Section

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Key Amendments

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Introduction

This evidence based guideline has been developed to help ensure consistency of quality of care experienced by women having emergency caesarean section (CS). It provides evidence based information on various aspects of emergency and urgent caesarean from the time of decision making till discharge from the hospital.

This guideline does not cover the indications for emergency caesarean section. Please check individual guidelines for different maternal and fetal conditions.

- **Decision making:** On-call registrar or the consultant should make the decision for delivery by emergency caesarean section (CS) after complete assessment of the clinical condition of the woman and the fetus.

  Consultant obstetricians should be involved in the decision making for all emergency CS. Preferably the on-call registrar should call the consultant and discuss the case prior to CS. If due to the urgency of the clinical condition registrar cannot inform the consultant then the shift coordinator / midwife familiar with the case should inform the consultant.

- **Classification / grading of urgency** The urgency of CS should be documented using the following standardised scheme in order to aid clear communication between healthcare professionals about the urgency of a CS:

  1. Immediate threat to the life of the woman or fetus
  2. Maternal or fetal compromise which is not immediately life-threatening
  3. No maternal or fetal compromise but needs early delivery
  4. Delivery timed to suit woman or staff.

  <u>It is important to clearly convey the degree of urgency and the indication to theatre staff and the on call anaesthetist. The classification and indication should be clearly documented in the records including time of decision by the person making the decision.</u>

- **Decision to delivery interval for emergency CS:** Delivery by emergency CS for maternal or fetal compromise should be accomplished as quickly as possible. A decision to delivery interval for category 1 CS should be no more than 30 minutes. This duration is from the time the obstetrician has decided to perform CS after discussing with the women and the on call consultant. For

category 2 and 3 it is important to define a time frame in which delivery should be achieved. This should frequently be reviewed as the clinical situation dictates.

- **Delay in caesarean section:** Once the decision to deliver by caesarean section is made any delay should be avoided. The reasons for delay should be clearly documented. Fetal heart monitoring by CTG should continue and consultant on call should be informed. The woman should be kept informed.

- **Who should perform emergency caesarean section?** CS should be performed by the obstetric staff trained in performing CS deliveries. If a trainee who is not fully trained in performing CS is performing part or all of the CS, the more experienced on-call obstetrician should assist in the CS delivery. Names of the surgeon and assistant should be clearly documented in the operation notes.

- **CONSENT FOR CS**

  A written consent for CS should be requested after providing pregnant women with evidence based information and in a manner that respects the woman's dignity, privacy, views and culture whilst taking into consideration the clinical situation.

  Consent should preferably be taken by the person performing the CS.

  In some cases of category 1 section it may be more appropriate to obtain verbal consent and this should be clearly recorded in the case notes with clear documentation of the staff witnesses e.g. in cases of cord prolapse or massive abruption.

  When the decision is made to perform a CS, a record should be made of all the factors that influence the decision, and which of these is the most influential.

  Its aim is to ensure that all patients undergoing this particular procedure are given consistent and adequate information for valid consent. It is recognised that specific issues will assume different levels of significance from one patient to another, sometimes dependent on the particular clinical circumstances. However, clinicians should be prepared to discuss any or all of the following with the patient and to document in the record that the discussion has taken place.

  Refusal of caesarean section: A competent pregnant woman is entitled to refuse the offer of treatment, such as CS, even when the treatment would clearly benefit her or her baby's health. Refusal of treatment needs to be one of the patient's options. In any such situation the on-call consultant should be informed and should personally review the woman. All the discussion should be clearly documented in the woman's notes. In certain circumstances it may be beneficial to involve the psychiatry and/or trust legal team.

  Consent should include:

  - Explanation of the proposed procedure including the use of urinary catheter, any drains and IV access.

  - If any other planned surgery is anticipated this must be discussed and consent must be obtained specifically for that procedure; for example, tubal sterilisation.

- Any extra procedures that may become necessary during the procedure:
  - blood transfusion
  - other procedures
  - repair of bladder and bowel damage
  - surgery on major blood vessels
  - ovarian cystectomy/oophorectomy in response to unsuspected pathology
  - hysterectomy
- Intended benefits: To secure the safest and/or quickest route of delivery in the circumstances present at the time the decision is made, such that maternal and fetal health are preserved at optimal levels.
- **Serious or frequently occurring risks:** It is recommended that clinicians make every effort to separate serious from frequently occurring risks. Women who are obese, who have had previous surgery or pre-existing medical conditions must understand that the quoted risks for both serious and frequent complications will be increased. All surgery carries risks of wound infection and thromboembolism.

  Serious risks include:

	Risk	**Frequency of occurrence (%)**
Maternal	Hysterectomy	0.7–0.8
	Need for further surgery at a later date, including curettage	0.5
	Admission to intensive care unit (highly dependent on reason for caesarean section)	0.9
	Bladder injury	0.1
	Ureteric injury	0.03
	Death (rare/dependent on indication) (n)	1/12000
Fetal injury	Lacerations	2.0
Future pregnancies	Increased risk of uterine rupture during subsequent pregnancies/deliveries	up to 0.4
	Antepartum stillbirth	0.4

	Risk	**Frequency of occurrence (%)**
	Increased risk in subsequent pregnancies of placenta praevia and placenta accreta	0.4–0.8

Frequent risks*:*

- persistent wound and abdominal discomfort in the first few months after surgery
- Increased risk of repeat caesarean section for subsequent pregnancies.

It is likely that all serious and frequent risks and complications will be more prevalent when a caesarean section is performed in the emergency situation, despite antibiotic cover and thromboprophylaxis, which are now used routinely to minimise the not infrequent and sometimes serious risks of infection and thromboembolism.

- **Preoperative blood tests:** Full blood count and group and save serum should be performed. If there is risk of PPH or pre-existing anaemia, blood should be cross matched (see the guideline on PPH WAHT-OBS-030 for risk factors and cross match).

  In category 2-4 additional blood tests may be required depending upon clinical condition e.g. latest PET screen in PET, Clotting profile in suspected abruption and thrombocytopenia.

- **Anaesthesia** The woman must be aware of the form of anaesthesia planned and be given an opportunity to discuss this in detail with the anaesthetist before surgery.
- **Pre–op medication:** If Ranitidine has been given in the previous 6 hours give sodium citrate 0.3 molar 30ml orally prior to procedure if GA planned

  <u>If no Ranitidine orally, I.M. or I.V within previous 6 hours:</u>

  Delivery Interval < 30 minutes to delivery:

  Ranitidine 50mg I.M. or I.V.

  + sodium citrate 0.3 molar 30ml orally immediately prior to procedure

  Delivery Interval 30-120 mins to delivery:

  Ranitidine 50mg I.M. or I.V. This should ideally be given 45-60 minutes prior to procedure. However, it can be given closer if necessary.

  + sodium citrate 0.3 molar 30ml orally immediately prior to induction (If GA planned)

  Delivery Interval >2hrs to delivery:

  Ranitidine 150mg orally 2 hours pre-delivery

  + sodium citrate 0.3 molar 30ml orally immediately prior to induction (If GA planned)

- **Prophylactic antibiotics:**

Women having a CS should be offered prophylactic antibiotics.

- Administer wherever possible 30 minutes prior to the skin incision or as soon as practical. (The metronidazole should be administered at time of decision for emergency LSCS) Metronidazole 1gram suppository per rectum wherever possible 30 minutes before the skin incision or as soon as practical. By the midwife or doctor
- Cefuroxime Ig IV

Where a woman has a history of an immediate hypersensitivity reaction to penicillin or an allergy to cephalosporins the following should be administered at induction

- Clindamycin 600mg IV at induction over 20 muinutes
- Gentamicin 120mg IV at induction slow bolus over 5 minutes

- **Thromboprophylaxis:** Women having a CS should be offered thromboprophylaxis because they are at increased risk of venous thromboembolism, for example, graduated stockings, hydration, early mobilisation, low molecular weight heparin). Duration of thromboprophylaxis is decided on individual basis.

  Sequential pneumatic compression stockings should be used during CS for women with high BMI >40.

- **Presence of paediatrician at CS** Paediatrician should be present in theatre for all deliveries by emergency caesarean section. If there is unexpected neonatal emergency which require more experienced staff then senior help should be summoned accordingly (using fast bleep 2222 neonatal emergency in theatre call).

- **Delivery of Deeply Impacted fetal Head at Caesarean Section (CS)**

Risk factors for difficulty in delivering fetal head at caesarean section:

- Staff Inexperience (Surgeon and assistant)
- Suspected Obstructed labour in first stage
- CS in Second stage
- Unsuccessful trial of instrumental delivery
- Malposition /malpresentation
- High Uterine incision during CS
- High uterine muscle tone (common in CS following active labour with or without Syntocinon)
- Poor access due to previous scarring
- Morbidly Obese women

- Big baby

Techniques to assist in delivery of deeply Impacted fetal Head at Caesarean section:

It is important that delivery process is smooth and controlled and not unnecessarily rushed. It is crucial that every staff member who performs independent second stage caesarean sections is competent in various techniques of delivering impacted fetal head. If any of the trainees or trust doctors / staff grades is not competent they should inform the on call consultant and request consultant presence at every second stage CS till competency is achieved.

All staff are reminded that fetal pH drop every minute during delivery be it caesarean or vaginal delivery. Therefore it is important that if one of the techniques to deliver the fetal head at caesarean is not working you swiftly move on to the next technique (similar to shoulder dystocia rule). Usually no more than 60 seconds rule on one technique apply at CS unless there is definite improvement with that technique.

Following techniques may prove useful in delivering deeply impacted fetal head during CS:

a. **Dislodging Impacted fetal Head vaginally:**

   It is important that the surgeon performs a VE before every late first and second stage CS. If fetal head feels impacted surgeon should try and dislodge it prior to proceeding with the CS. This is the time to summon help (senior midwife or a consultant). It is the surgeon's responsibility to request experienced help to be present in theatre during such a CS as an inexperienced person pushing the head vaginally can deflex it and make the delivery much more difficult. For dislodging head per vaginum constant but firm pressure should be used with palm of the hand in a direction to flex and disimpact the head, so it is important that the surgeon inform the vaginal assistant in which direction to push to avoid deflexion. Fingers/ fists or jerky movements should not be used. There are reported incidents of fetal skull fractures during this technique.

   Some right handed surgeons use their **left hand** in this situation as it may provide better leverage and traction during delivery of fetal head.

b. **Communication with the anaesthetist** is crucial especially if impacted fetal head is suspected.

   - You can request for **maternal Head Down Tilt**
   - **Acute Uterine Relaxation:** If CS is done under regional anaesthetic and woman has been in established labour you may need to request the anaesthetist for acute uterine relaxation by using terbutaline 250 microgram subcutaneously or GTN 1 x 400microgram puff sublingually.This should be communicated to the anaesthetist prior to CS if suspected. Beware of uterine atony later with associated PPH.

c. **Extending uterine incision** into J or inverted T.

d. **Delivery by Breech:** Introduce right hand towards the upper segment of the uterus, find and grasp both feet if possible otherwise grasp one foot and deliver that leg by applying gentle traction until the second leg appears in the incision and then complete breech delivery.

e. **Lloyd Davis / Lithotomy position** of patient during CS help improve access from above and assistant from below. This technique can be really helpful but scrub nurse has to be alerted.

f. **Use of silastic catheter** over the fetal head into the lower uterine segment may release the suction and help in delivery of the fetal head.

- **Care of the woman after CS**

(See Obstetric Theatre Recovery and High Dependency Care and the Management of Severely Ill Obstetric Patient)

After CS women should be observed on a one-to-one basis by a properly trained member of staff until they have regained airway control and cardio-respiratory stability and are able to communicate.

After recovery from anaesthesia, observations (respiratory rate, heart rate, blood pressure, pain and sedation) should be continued every half hour for two hours, and hourly thereafter provided that the observations are stable or satisfactory. If these observations are not stable, more frequent observations and medical review are recommended.

It is the responsibility of the midwife caring for the woman to check for uterine contractility and lochia and to clearly document clinical findings in the notes. This information should be part of handover when the woman is transferred to the ward.

For women who have had intrathecal opioids, there should be a minimum hourly observation of respiratory rate, sedation and pain scores for at least 12 hours for diamorphine and 24 hours for morphine.

For women who have had epidural opioids and patient-controlled analgesia with opioids, there should be routine hourly monitoring of respiratory rate, sedation and pain scores throughout treatment and for at least 2 hours after discontinuation of treatment.

- **Pain management after CS**

Women should be offered diamorphine (0.3–0.4 mg intrathecally) for intra and postoperative analgesia because it reduces the need for supplemental analgesia after a CS. Epidural diamorphine (2.5–5.0 mg) is a suitable alternative.

Patient-controlled analgesia using opioid analgesics should be offered after CS because it improves pain relief.

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

- **Early eating and drinking after CS**

. Provided no complications women who have had a CS under regional anaesthesia can eat and drink as soon as they feel hungry or thirsty.Women should be encouraged to chew sugarless gum for 15mins every 2 hours after CS. This has been proved effective in reducing paralytic ileus. In all other cases medical staff should review them before commencing oral intake.

- **Urinary catheter removal after CS –** see guideline on bladder management ()

Indwelling catheters should be removed at midnight on Day 1 (day after surgery/delivery), unless otherwise specified. For women having their catheter removed at midnight a reasonable amount of

flexibility can be used to suit the woman but it should be between 2300 and 0200 hours. In certain conditions urinary catheter may need to stay in for a longer period and this should be clearly specified in post-operative instructions in yellow labour notes.

- **De-briefing for women after CS**

  Women who have had a CS should be offered the opportunity to discuss with their health care providers the reasons for the CS and implications for the child or future pregnancies.

  All the emergency caesarean sections should be reviewed by medical staff on first day of the surgery and debriefed on the procedure and indication.

  All women having their first caesarean section should be seen by the on call consultant prior to discharge and debriefed about the caesarean section and further advice should be given on options for next mode of delivery and any further follow up if required. A letter should be dictated with a copy to the patient, GP and Community Midwife summarising their intrapartum care and management of future pregnancies.

- **Length of hospital stay and readmission to hospital**

  Women who are recovering well, are apyrexial, do not have pre-existing risks or medical conditions and complications following CS should be offered early discharge (after 24 hours) from hospital and follow up at home, because this is not associated with more infant or maternal readmissions.

Pregnancy and childbirth following CS

The decision about mode of birth should consider maternal preferences and priorities, general discussion of the overall risks and benefits of CS (specific risks and benefits uncertain), risk of uterine rupture and perinatal mortality and morbidity.

Women who want VBAC should be supported and:

- Be informed that uterine rupture is very rare but is increased with VBAC (about 1 per 10,000 repeat CS and 50 per 10,000 VBAC)
- Be informed that intrapartum infant death is rare (about 10 per 10,000 – the same as the risk for women in their first pregnancy), but increased compared with planned repeat CS (about 1 per 10,000)
- Be offered electronic fetal monitoring during labour
- Should labour in a unit where there is immediate access to CS and on-site blood transfusion

- If having induction of labour should be aware of the increased risk of uterine rupture (80 per 10,000 if non-prostaglandins are used, 240 per 10,000 if prostaglandins are used)
- Be informed that women with both previous CS and a previous vaginal birth are more likely to give birth vaginally

CS is the end point of a number of care pathways. This algorithm includes the common reasons for CS, but this list is not exhaustive. CS may be required for complex or rare conditions that are outside the scope of this guideline.

Making the decision for CS

✔ Communication and information should be provided in a form that is accessible

✔ Consent for CS should be requested after providing pregnant women with evidence-based information

✔ A competent pregnant woman is entitled to refuse the offer of treatment such as CS, even when the treatment would clearly benefit her or her baby's health

Timing of planned CS: CS should be carried out after 39 weeks' gestation to decrease the risk of respiratory morbidity.

Emergency CS: In cases of suspected or confirmed acute

fetal compromise, delivery should be accomplished as soon

as possible. The accepted standard is within 30 minutes.

Document the urgency of CS

1) Immediate threat to the life of the woman or fetus

2) Maternal or fetal compromise which is not immediately life-threatening

3) No maternal or fetal compromise but needs early delivery

4) Delivery timed to suit woman or staff

Procedural aspects of CS

Preoperative assessment

✔ Check haemoglobin

✔ Prescribe antibiotics (as detailed in main guideline)

✔ Assess risk for thromboembolic disease (offer graduated stockings, hydration, early mobilisation and low molecular weight heparin) – see WAHT-OBS-012

✔ Site an indwelling bladder catheter

For healthy women with an uncomplicated pregnancy, don't offer:

✗ Grouping and saving of serum

✗ Cross-matching of blood

✗ Clotting screen

✗ Preoperative ultrasound to localise the placenta

Anaesthetic care

✔ Discuss post-CS analgesia options

✔ Offer antacids and H^2 receptor analogues

✔ Offer anti-emetics

✔ Offer regional anaesthesia

✔ Reduce risk of hypotension using:

- intravenous ephedrine or phenylephrine infusion
- volume preloading with crystalloid or colloid
- lateral tilt of 15°

✔ General anaesthesia for emergency CS should include preoxygenation and rapid sequence induction to reduce the risk of aspiration

Maternity units should have a drill for failed intubation

Surgical techniques

(For pregnancies at term where there is a lower uterine segment. These techniques may need modification in situations such as repeat CS or placenta praevia.)

Do

✔ Wear double gloves for CS for women who are HIV-positive

✔ Use a transverse lower abdominal incision (Joel Cohen incision)

✔ Use blunt extension of the uterine incision

✔ Give oxytocin (5 IU) by slow intravenous injection

✔ Use controlled cord traction for removal of the

Don't

✗ Close subcutaneous space (unless > 2 cm fat)

✗ Use superficial wound drains

✗ Use separate surgical knives for skin and deeper tissues

✗ Use forceps routinely to deliver baby's head

✗ Suture either the visceral or the parietal

placenta

✔ Close the uterine incision with two suture layers

✔ Check umbilical artery pH if CS performed for fetal compromise

✔ Consider women's preferences for birth (such as music playing in theatre)

✔ Facilitate early skin-to-skin contact for mother and baby

peritoneum

✗ Exteriorise the uterus

✗ Manually remove the placenta

The effects of different suture materials or methods

of skin closure are uncertain

A practitioner skilled in the resuscitation of the newborn should be present at CS with a general anaesthetic

or with presumed fetal compromise

Postoperative monitoring

✔ Recovery area – one-to-one observations until the woman has airway control, cardiorespiratory stability and can communicate

✔ In the ward – half-hourly observations (respiratory rate, heart rate, blood pressure, pain and sedation) for 2 hours, then hourly if stable

✔ Intrathecal opioids – hourly observations of respiratory rate, sedation and pain scores for 12 hours for diamorphine and 24 hours for morphine

✔ For epidural opioids and patient-controlled analgesia with opioids – hourly monitoring during the CS, plus 2 hours after discontinuation

Care of the woman and her baby after CS

✔ Provide additional support to help women to start breastfeeding as soon as possible

✔ Offer diamorphine (0.3-0.4 mg intrathecally) or epidural diamorphine (2.5-5 mg) to reduce the need for supplemental analgesia

✔ Offer non-steroidal anti-inflammatory analgesics to reduce the need for opioid analgesics

- ✔ Women who are feeling well and have no complications can eat or drink when they feel hungry or thirsty
- ✔ After regional anaesthesia remove catheter when woman is mobile (> 12 hours after top-up)
- ✔ Remove wound dressing after 24 hours, keep wound clean and dry
- ✔ Discuss the reasons for the CS and implications before discharge from hospital
- ✔ Offer earlier discharge (after 24 hours) to women who are recovering, apyrexial and have no complications

Recovery following CS

- Offer postnatal care, plus specific post-CS care, and management of pregnancy complications
- Prescribe regular analgesia
- Monitor wound healing
- Inform women they can resume activities (such as driving, exercise) when pain not distracting or restricting

Consider CS complications:

- Endometritis if excessive vaginal bleeding
- Thromboembolism if cough or swollen calf
- Urinary tract infection if urinary symptoms
- Urinary tract trauma (fistula) if leaking urine

This algorithm should, where necessary be interpreted with reference to the full

NICE guideline CG013 Caesarean Section