University Hospital of North Staffordshire NHS
NHS Trust

Achieving Sustainable Quality in Maternity Services

ASQUAM Guideline for Caesarean Section

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1. PURPOSE OF THE GUIDELINE

The purpose of this guideline is to provide up-to-date information for medical and midwifery staff, to ensure the provision of consistent, high quality evidence based care for women undergoing caesarean section (CS) at the University Hospital of North Staffordshire (UHNS)

2. BACKGROUND

The caesarean section rates for England and Wales have increased from 9 % in 1980 to 21 % in 2001. Locally in North Staffordshire our CS rate in 2009 as a percentage of all cases was 22.4 %.

3. BOOKING AT UHNS

Nationally, given that approximately 1 in 5 women will have a CS,[4] we need locally to ensure that when a CS is recommended, evidence based information about CS is available for women.

4. CONSENT FOR CS AT UHNS

- Consent for CS should be requested after providing the woman with evidence based information in a way that is respectful of her dignity, privacy, views and culture whilst taking into consideration the urgency of the clinical situation[1] **(evidence level III).**
- Timing for booking a CS needs to be carefully considered to reduce the risk of respiratory morbidity in the newborn, namely transient tachypnoea of the newborn (TTN), which reduces considerably after 39 weeks.[7] **(evidence level III).**
- A competent pregnant woman is entitled to refuse a CS even when the procedure would clearly benefit her own health or that of her baby's i.e. previous multiple C-Sections, [8] except in circumstances governed under the Mental Health Act. Refusal of treatment needs to be one of the woman's options **(evidence level IV)**
- The benefits and risks of CS compared with vaginal birth should be discussed with specific reference to the individual woman and her pregnancy[1] **(GPP).**
- When the decision has been made to perform a CS all the factors that influence the decision and which is the most influential, must be clearly documented[1] **(GPP).**
- Consent ideally should be obtained by the person performing the procedure **(GPP)** or a person competent to perform the procedure **(GPP. UHNS).**
  Consent however, may also be obtained by a person, specifically trained to seek consent for the procedure **(GPP. UHNS).**
- Unless in a situation which is life threatening to the mother or the fetus, a Consultant Obstetricians where ever possible, should be

involved in the decision making for all CS, as this can reduce the likelihood of caesarean section[1, 4] **(evidence level III).** However, Senior Registrars may make the decision to perform Caesarean Section.

- Adequate advance notice must be given to the obstetric anaesthetists for all high risk cases including raised Body Mass Index (BMI) of > 40 .

5. CLASSIFICATION GRADES FOR THE URGENCY OF A CS:

I. Immediate threat to life of the woman or fetus.
Aim to deliver the baby as soon as is safely possible, within 30 minutes of decision making.

REMEMBER DETERIORATION CAN BE RAPID

II. Maternal or fetal compromise which is not immediately life threatening, although there is an urgency to deliver the baby in order to prevent further deterioration of either the mother's or baby's condition
Aim to deliver the baby as soon as is safely possible. In performing an urgent caesarean section the reason should be documented in the WMPI birth notes.

<u>Non Urgent</u>

III. No maternal or fetal compromise, but needs early delivery
Booked on the first available list

IV. Delivery timed to suit the woman or staff

6. PLANNED CS AT UHNS

The UHNS adopts the following recommendations of the NICE guideline, Caesarean Section,[1] for women who are offered a planned CS:

- **Breech** – CS is offered to women with a term breech presentation if ECV has not been successful, or has been declined by the woman. **(evidence level Ib).**
- **Multiple pregnancies** - CS is offered to women where the first twin is not cephalic.
  Planned CS is not offered for an uncomplicated twin pregnancy before 38 weeks due to the increased risk of respiratory morbidity in the babies[12] **(evidence IIb).**
- **Pre-term delivery** – CS is not routinely offered because the impact of mode of delivery in improving neonatal mortality and morbidity is uncertain[1, 13] **(evidence level III).**

- **Small for gestational age** – CS is not routinely offered because the impact of mode of delivery in improving neonatal mortality and morbidity is uncertain[14] **(evidence level IV).**
- **Placenta praevia** – CS is offered for major degrees of placenta praevia[1]**.**
- **HIV positive women –** these women are offered CS because it is known to reduce the risk of mother-to-child transmission of HIV[15, 16] **(evidence level Ib).**
- **Hepatitis B positive** – CS is not routinely offered, as there is insufficient evidence that this reduces mother-to-child transmission of the virus[17] **(evidence level Ib).**
- **Hepatitis C positive** – CS is not offered routinely because it is believed that this does not reduce mother-to-child transmission of the virus[18] **(evidence level III).**
- **Primary genital herpes simplex virus (HSV)** in the third trimester of pregnancy.
- **HSV recurrence at birth** – these women are not routinely offered a CS because neonatal infection with recurrent HSV is lower than for primary HSV – 33% with primary HSV and 8% with recurrent HSV[19,20, 21] **(evidence level III).**

Maternal request – CS is not routinely offered for maternal request. The reasons behind the request should be fully explored, discussed and documented. Alternative solutions should be explored.

7. PRE-OPERATIVE PREPARATION AND ASSESSMENT OF ALL WOMEN:

7.1 Pre-operative assessment clinic

About 4 weeks prior to CS women should attend this clinic, prescription for 150 mg of ranitidine given, so that they can get it from hospital pharmacy.

- FBC is taken**.**
- Preoperative checklist is completed
- MRSA swab **–** Swabs are taken in the clinic.
- Bed booked in the specific ward for the morning of CS
- **Group and Save Serum** – At the UHNS a Group and Save is <u>not</u> offered to all women **(GPP.UHNS)**
- **Women who decline blood products** - A plan of management for those women who decline blood products from the outset of pregnancy should be made[5] **(GPP).**

- **Offer antibiotics to all women having caesarean section** to reduce the incidence of post-operative infection[23] ***(evidence level Ia)***

  The drugs of choice locally, following discussion with obstetricians, anaesthetists and pharmacists are:

  Co-amoxiclav 1.2g intravenously, stat, which is administered at CS, **if no known allergies.**

  Teicoplanin 400mgs intravenously stat, which is administered at CS, **if known penicillin allergy, type I** (immediate hypersensitivity i.e. anaphylaxis, hypotension, laryngeal oedema, urticaria / angioedema or wheezing).

  The antibiotics are usually administered by the anaesthetist on behalf of the obstetrician during the operation.
- **Identify allergies** – Patients at the UHNS have a red wrist band in place, identifying the drug allergy its side effects and their name and hospital unit number **(GPP)**

  Latex allergy – The majority of equipment in maternity theatre is Latex free, however additional equipment such as urinary catheters and gloves are stored in an 'orange box' in theatre annex.
- **Assess the risk of thromboembolic disease** - Women undergoing CS are at increased risk of venous thromboembolism (VTE) and as a routine the following prophylaxis should be offered:[24] **(evidence level IV)**

  Graduated stockings

  Early mobilisation

  Hydration

  Low molecular weight heparin – **Dalteparin** is the drug of choice. We have elected to administer Dalteparin 5000 IU daily subcutaneously, to all women undergoing CS.

  The first injection to be administered 4 hours after surgery or 4 hours after insertion or removal of the epidural catheter, if present.

  The dose will need to be increased accordingly if raised BMI
- **Complete pre-operative check list (GPP.UHNS)**
- **Site an indwelling foleys bladder catheter size 14**

  Catheterisation can be carried out in theatre once the woman is anaesthetised. However should the woman receive General Anaesthesia (GA) then this procedure may be performed prior to the GA induction.
- **Ultra-sound scan (USS)** – should be performed usually in theatre, on all women with a breech or non- cephalic presentation prior to CS.

7.2 Additional pre-operative preparation for women at risk of major obstetric haemorrhage must include:

- Blood grouping and cross matching for 4 units – The blood must be available in CDS fridge prior to the CS procedure for elective CS and as soon as practically possible for all emergency CS – liaising with

the haematologist to stress the urgency of the situation **(GPP.UHNS).**
- A full clotting screen for Emergency CS **(GPP.UHNS).**
- Ensuring that the most senior obstetric and anaesthetic team available, are present at CS. **(GPP.UHNS).**

At the UHNS if a group and save has already been sent to blood bank then group specific blood can be available in 35 minutes.

8. PROCEDURAL ASPECTS OF CAESAREAN SECTION FOR ALL WOMEN AT UHNS

Anaesthetic care:

Dedicated obstetric services are available at the UHNS as recommended in the current CEMACH report.[5] The Consultant Obstetric Anaesthetists have prepared anaesthetic guidelines for pregnant women, copies of which are kept in the anaesthetic office on the CDS for individual reference.

Regional anaesthesia:

Regional anaesthesia should normally be offered and encouraged, because it is usually safer than general anaesthesia, (GA) even for placenta praevia, towards reducing maternal and neonatal morbidity[27, 28, 29] **(evidence levels Ib and III)**

Post CS analgesic:

Options should be discussed so that analgesia best suited to their individual needs can be offered[30] **(evidence level III).**

Antacids:
Sodium citrate 30mls orally is the antacid of choice, given to all women immediately prior to CS **(no more than 15 minutes prior to surgery because of its short acting effects)**.
Prescription for ranitidine 150mg (one at 22:00 hours night before the surgery and second dose at 7:00 hours on the day of surgery) is given in the pre assessment clinic.

Anti-emetics:

Women should be offered anti-emetics to reduce nausea and vomiting,[1] commonly occurring during CS due to aortocaval compression and the resultant hypotension **(evidence level 1a).**
Ondansetron 4mgs intravenously is the drug of choice at the UHNS

General anaesthesia:

General anaesthesia for emergency CS should normally include pre-oxygenation, cricoid pressure and rapid sequence induction to reduce the risk of aspiration[33] **(evidence level III).**

9. PROCEDURAL ASPECTS OF CAESAREAN SECTION FOR ALL WOMEN AT UHNS

Surgical techniques

- **Double gloves – t**hese should be worn in all cases considered to be at high risk for blood borne infections, to reduce the risk of infection to healthcare professionals during surgery[36] **(evidence level 1b).**
  In addition locally, disposable adhesive drapes and blunt end needles are used.
- **The transverse incision of choice should be the Joel Cohen incision** – this is a straight incision 3cm above the symphysis pubis and should be used because it is associated with shorter operating times and reduced post-operative febrile morbidity[39, 40] **(evidence level Ib).**
- **Only one surgical knife** should be used to incise the skin and deeper tissues at CS because separate surgical knives have not been proven to reduce wound infection rates [41] **(evidence level Ib).**
- **Blunt extension of the uterine incision** – this method should be used as opposed to sharp extension when indicated, because it reduces blood loss, incidence of postpartum haemorrhage and the need for transfusion at CS[42] **(evidence level Ib).**
- **The use of obstetric forceps** – forceps should only be used if there is difficulty in delivering the babies head[43] **(evidence level Ib).**
- **Syntocinon 5 IU by slow bolus IV injection** (the licensed dose) – should be administered, after the baby is delivered, this is usually given by the anaesthetist .[44] **(evidence level Ib).**
- **Controlled cord traction** - The placenta should be removed by controlled cord traction to reduce the risk of endometritis[1] **(evidence level 1a).**
- **Exteriorising the uterus** - The uterus should not be exteriorised to facilitate suturing since it has shown to increase pain and does not improve operative outcomes such as haemorrhage and infection[45, 46] **(evidence level Ib).**
- **The uterine incision should be closed with 2 suture layers (evidence level IIb).**

- **Neither the visceral or parietal peritoneum should be sutured as routine at CS** - **Closure of the subcutaneous tissue space should not be routinely practised** – unless the woman has more than 2cm of subcutaneous fat.[51] **(evidence level Ia).**
- **Wound drains** - Superficial wound drains should not routinely be used at CS because they do not reduce the incidence of wound infection, haematoma or the need for analgesia[52] **(evidence level Ib).**

10. PROCEDURAL ASPECTS OF CAESAREAN SECTION FOR ALL WOMEN AT UHNS

Non-surgical procedures

Counting swabs, needles and instruments used in theatre at UHNS:

The scrub nurse/midwife with a second person i.e. a Clinical Support Worker is responsible for counting all the swabs needles and instruments prior to the operation, during the operation and before closure of the wound.

Umbilical cord gases:

Umbilical arterial and venous blood pH and base excess should be taken and recorded for all emergency and elective CS[2] **(evidence level IV).**

Women's preferences for the birth: Skin to Skin contact of the woman and her baby must also be facilitated when ever practically possible to respect the wishes of the woman

11. DOCUMENTATION TO BE COMPLETED FOR ALL CS: *(GPP.UHNS)*

- **The decision maker must document in the WMPI Birth Notes the reason for performing an emergency or urgent caesarean section**
- Swabs, needles instruments correct on operation sheet (nurse/midwife scrub)
- Theatre register (nurse/midwife scrub)
- Operation sheet – care pathway (obstetric surgeon)
- Classification of urgency of CS (obstetric surgeon/midwife) and if there is a delay please document reason for delay.
- Confirmation that heparin has been prescribed, antibiotics administered, and graduated stockings on (nurse/midwife scrub)
- CS care pathway, woman's hand held notes, electronic record, birth register, Robson data audit sheet (midwife receiving baby)

All documentation should be filed as per UHNS Trust Policy "Health Records" (RE01).

Responsibilities of midwife receiving baby in maternity theatres at UHNS in addition to the documentation previously mentioned:

- Auscultation of the fetal heart prior to CS
- Catheterising the woman prior to CS
- Alert paediatricians to attend as appropriate
- 'Scrub' to receive the baby
- Assessment of the baby, basic resuscitation if required, initial examination of the newborn
- Initiate skin-to-skin contact of the baby with the mother
- Continue midwifery care in recovery

12. GUIDANCE FOR THE PRESENCE OF CLINICIANS IN THEATRE AT THE UHNS

A Consultant Obstetrician and Anaesthetist must be present for the following CS :

- Major placenta praevia

It is advisable that a Consultant Obstetrician should be present for the following CS :

- Extreme pre-term CS (less then 28weeks gestation)
- Multiple repeat CS (3 or more previous CS)
- Anticipated Classical CS

The possibility for a Classical Caesarean Section should be anticipated in the following circumstances:

- Extreme pre-term delivery with poorly formed lower uterine segment, particularly non- cephalic presentations
- Placenta praevia with large vessels in the lower uterine segment
- Large cervical fibroid
- Severe adhesions in the lower uterine segment reducing accessibility
- A transverse lie with back down

Decision for a classical CS should whenever possible be made at Consultant level.

Experienced Obstetric Registrar (level 3, with at least 3 or more years experience) should be present for all the following CS at UHNS: (GPP.UHNS)

- Second stage CS
- Transverse and oblique lies

- Placental abruption
- Multiple pregnancy CS
- Raised BMI > 35
- Anticipated surgical complications

Paediatricians or Advanced Neo-natal Nurse Practitioners should be present in theatre for the following CS at the UHNS: *(GPP)*

- General Anaesthesia
- Presumed fetal distress
- Meconium stained liquor
- Known fetal abnormalities
- Pre-term deliveries – less than 36weeks

13. MATERNITY THEATRES AT THE UHNS - OPENING BOTH MATERNITY THEATRES ON CDS

- Locating a second anaesthetist – telephone switch (0) and ask them to page the 'on call' anaesthetist for the City General Hospital
- Having the most appropriate skilled obstetric surgeon available
- Locating a second ODP (liaise with the ODP on CDS)
- A second nurse/midwife to 'scrub' and second midwife to receive the baby
- Remaining calm
- Providing reassurance and support to the woman and her partner

14. POST OPERATIVE MONITORING AND CARE OF THE WOMAN AFTER CS

NICE guidelines recommend that women who have undergone CS should be monitored closely within the first 24 hours.[1] Please also refer to ASQUAM "Maternity Theatre Recovery" guidelines.

After Theatre Recovery – Care and Observations in the 24hrs following CS

TPR, B/P and respiratory rate should be taken on admission to the ward and documented on the MEWS chart. If MEWS score is 0 repeat 4 times in 24 hours. Any abnormal scores to be managed in line with MEWS chart.

Pain management after CS:

- Diclofenac (Voltarol) 100mgs rectally, where there are no contra-indications (such as allergies, massive obstetric haemorrhage or

severe pre-eclampsia) should be offered post CS in addition to other analgesics, because they reduce the need for opioids.[55] **(evidence level Ib)**

Locally, following consent of the woman, voltarol 100mgs rectally is given by the surgeon at the end of the CS.

- Patient Controlled Analgesia (PCA) using Morphine can be offered after CS at UHNS

Early eating and drinking after CS:

Women locally who do not have any complications prior to, during and following CS are encouraged to eat and drink when they feel thirsty or hungry[57] **(evidence level 1a).**

Urinary catheter removal after CS:

The urinary catheter is to be removed when the woman is mobile after regional anaesthesia and no sooner than 12 hours after the last epidural 'top up' dose. Reference to Guideline for the Prevention of Urinary Problems

Urinary symptoms:

The NICE CS guidelines[1] recommend that Doctors/midwives caring for women following CS, who have urinary symptoms, should consider the possible diagnosis of:

- Urinary tract infection
- Stress incontinence (which occurs in about 4% of women following CS)[58] **.**
- Urinary tract injury (occurs in about 1 per 1000)[59] **(evidence level III)**

Wound Care:

CS wound care should include:[56]

- Removing the dressing after 48 hours
- Assessing the wound for any signs of infection, (namely: increasing pain, redness, heat, discharge) separation or dehiscence
- Specific monitoring for signs of fever – pyrexia and tachycardia
- Clean the wound gently if required, Normasol sachets are currently used for this at UHNS following advice from tissue viability nurse specialists.
- Planning the removal of sutures or clips (this should be documented on the operation sheet, usually 5 days for sutures).

Irregular vaginal bleeding:

Irregular vaginal bleeding is more likely to be due to endometritis than retained products of conception.[56] **(evidence level III)**

Thromboembolic disease:

As previously mentioned women following CS are prescribed 5000 units of Dalteparin subcutaneously, daily, in line with VTE guideline.

In addition, doctors/midwives should pay particular attention to women who complain of symptoms such as a painful or swollen calf; a cough, shortness of breath and/or chest pain and unexplained pyrexia. In relation to pregnancy women are more at risk of deep vein thrombosis and pulmonary embolism, particularly after CS.[60] **(evidence level IIb)**

Resuming activities:

Women who have had a CS are advised to resume activities such as driving, formal exercise, carrying heavy items and sexual intercourse once they have fully recovered from the CS.[1]

Associated risks:

Women are informed that following their CS, they are not at increased risk of difficulties with:

- Breastfeeding[58] **(evidence level Ib)**
- Depression[11,58]**(evidence level Ib)**
- Post traumatic stress [61,62] **(evidence level IIb)**
- Dyspareunia[58] **(evidence level Ib)**
- Faecal incontinence[58] **(evidence level Ib)**

Length of hospital stay and re-admission to hospital:

The average stay of a woman following CS at UHNS is 3-4 days.
Prior to discharge a Health Professional will discuss the implication for future pregnancies in accordance with NICE Guidance. Details of the discussion should be recorded in the health record.

15. SCALPEL TRAUMA

There is a recognised 2% risk of scalpel injury to the baby at caesarean section. In the case of injury to the baby a photograph of the injury must be taken as soon as possible following delivery. Any first aid treatment required must be initiated (direct pressure to control any bleeding and dressings applied, as required). Parents must be shown the injury and any follow up treatment discussed. A datix must be completed.

16. REDUCING THE CS RATE AT UHNS

Despite our CS rates being comparable with other units in the UK continual efforts are made to reduce this locally by:

- Offering ECV to women with a breech presentation at 36 weeks of pregnancy
- Supporting women who choose VBAC
- Offering induction of labour beyond 41 weeks
- Performing fetal blood sampling before CS for an abnormal CTG in labour, whenever appropriate to do so.
- Facilitating continuous one-to-one midwifery care in labour
- Involving Consultants in decision making for CS.

17. MULTIDISCIPLINARY MONITORING AND AUDIT

The need to monitor/audit the standards set out below will be considered alongside other Directorate requirements and prioritised accordingly. The Directorate Clinical Audit programme is drafted by the Directorate Clinical auditor, in liaison with clinical staff, and approved by the Directorate.

Adverse incidents relating to caesarean section should be reported via the Trust Incident Reporting System (DATIX), Such incidents will be investigated and managed in accordance Trust Policy RM07 Incident Management including Serious Untoward Incidents and Maternity Services Guideline on the Management of Incidents, Complaints and Claims.

Element to be monitored	Lead	Tool	Frequency	Reporting arrangements	Acting on recommendations and lead(s)	Change in practice and lessons to be shared
classification of all caesarean sections as agreed by the maternity service	Directorate Clinical Auditor	Rolling Audit Programme	Every three years	Directorate Business, Performance and Clinical Governance Meeting	Required actions will be identified and completed in a specified timeframe as per the audit action plan.	Required changes to practice will be identified and actioned within a specific timeframe as per the audit action plan and, in addition, lessons will be shared with relevant stakeholders as per audit action plan.
classification and timing for Grade 1 classification of caesarean section as agreed by the maternity service	Directorate Clinical Auditor	Continuous Audit	At least three times a year	Directorate Business, Performance and Clinical Governance Meeting	Required actions will be identified and completed in a specified timeframe as per the audit action plan.	Required changes to practice will be identified and actioned within a specific timeframe as per the audit action plan and, in addition, lessons will be shared with relevant stakeholders as per audit action plan.
requirement to document the reason for performing a Grade 1 caesarean section in the health records by the person who makes the decision	Directorate Clinical Auditor	Continuous Audit	At least three times a year	Directorate Business, Performance and Clinical Governance Meeting	Required actions will be identified and completed in a specified timeframe as per the audit action plan.	Required changes to practice will be identified and actioned within a specific timeframe as per the audit action plan and, in addition, lessons will be shared with relevant stakeholders as per audit action plan.
need to include a consultant obstetrician in the decision making process unless doing so would be life threatening to the woman or the fetus	Directorate Clinical Auditor	Rolling Audit Programme	Every three years	Directorate Business, Performance and Clinical Governance Meeting	Required actions will be identified and completed in a specified timeframe as per the audit action plan.	Required changes to practice will be identified and actioned within a specific timeframe as per the audit action plan and, in addition, lessons will be shared with relevant stakeholders as per audit

Element to be monitored	Lead	Tool	Frequency	Reporting arrangements	Acting on recommendations and lead(s)	Change in practice and lessons to be shared
						action plan.
requirement to document any reasons for delay in undertaking the caesarean section	Directorate Clinical Auditor	Rolling Audit Programme	Every three years	Directorate Business, Performance and Clinical Governance Meeting	Required actions will be identified and completed in a specified timeframe as per the audit action plan.	Required changes to practice will be identified and actioned within a specific timeframe as per the audit action plan and, in addition, lessons will be shared with relevant stakeholders as per audit action plan.
requirement for all women to be offered antibiotic and thrombo prophylaxis	Directorate Clinical Auditor	Rolling Audit Programme	Every three years	Directorate Business, Performance and Clinical Governance Meeting	Required actions will be identified and completed in a specified timeframe as per the audit action plan.	Required changes to practice will be identified and actioned within a specific timeframe as per the audit action plan and, in addition, lessons will be shared with relevant stakeholders as per audit action plan.
care of the mother in the first 24 hours following delivery	Directorate Clinical Auditor	Rolling Audit Programme	Every three years	Directorate Business, Performance and Clinical Governance Meeting	Required actions will be identified and completed in a specified timeframe as per the audit action plan.	Required changes to practice will be identified and actioned within a specific timeframe as per the audit action plan and, in addition, lessons will be shared with relevant stakeholders as per audit action plan.
requirement to discuss with women the implications for future pregnancies before discharge	Directorate Clinical Auditor	Rolling Audit Programme	Every three years	Directorate Business, Performance and Clinical Governance Meeting	Required actions will be identified and completed in a specified timeframe as per the audit action	Required changes to practice will be identified and actioned within a specific timeframe as per the audit action plan and, in addition, lessons will be shared with relevant

Element to be monitored	Lead	Tool	Frequency	Reporting arrangements	Acting on recommendations and lead(s)	Change in practice and lessons to be shared
					plan.	stakeholders as per audit action plan.

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