Clinical Guideline for: The Management of women requiring Caesarean Section (CS)

For use in:	Maternity Services
By:	Medical, Midwifery and Theatre staff
For:	Women requiring a Caesarean Section
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If Yes - does the strategy/policy deviate from the recommendations of NICE? If so why?	No

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Version and Document Control:

Version Number	Date of Update	Change Description	Author
6	02/03/2021	Rationale to describe timing of CS in relation to national guidance.	Dr Birendra Goonetilleke
7	16/04/2021	Fetal pillow section added.	
8	28/05/2021	NICE references updated. Maternal request caesarean section added. Ruptured membranes section added. Guideline amended in line with NICE guidance NG 192.	
9	12/10/2021	Method of anaesthesia section - After regional anaesthesia, the fetal heartbeat should be auscultated for 1 minute with a handheld Doppler if a CTG is not already in place.	
10	03/12/2021	Methods of anaesthesia updated – use SBAR, final decision should be made between obstetrician and anaesthetist about need for Low Molecular Weight Heparin (LMWH). Addition of Appendix 3.	
11	21/06/2022	Changes to the use of steroids - no longer recommend steroids for planned Caesarean section between 37 and 39 weeks.	
12	28/10/2022	Consent guidance	Charles Bircher

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Clinical Guideline for: The Management of women requiring Caesarean Section (CS)

Objective of Guideline

To provide evidence based guidance on management of women requiring caesarean section.

Broad recommendations

This guideline has been developed to help ensure consistent quality care for women who:

- Have had a caesarean section (CS) in the past and are now pregnant again.
- Have a clinical indication for a CS such as having an abnormally invasive placenta.
- Are considering a CS when there is no other indication.

At Norfolk and Norwich University hospitals we adhere to the National Institute for Health and Care Excellence guidance on caesarean sections which was published in 2021. Follow Caesarean section - NICE guideline for further information.

A senior obstetrician should be involved in the decision-making process. A consultant obstetrician should be involved in the decision to perform a CS in all women with significant obstetric or medical complications of pregnancy unless doing so would be detrimental to the life of the woman or the fetus.

A woman has the right to decline interventions, and this includes Caesarean section. If a woman declines intervention, the reasons for this need to be explored fully and documented. If a Caesarean section is felt to be the safest option for mother or baby by the medical team, once declined a senior Obstetrician should be involved in this decision and the reasons for decisions need to be documented.

The guidance and management documented below mainly emphasises on the important steps to be considered in emergency and urgent caesarean sections.

Documenting the indication for CS

The reason(s) for performing CS should be clearly documented in the health records by the medical staff who make the decision. The time the decision is made and the classification of the CS should be documented at the same time.

Obtaining consent

If time allows written consent should be obtained for all Caesarean sections under general or regional anaesthesia. In this situation, the Caesarean Section specific consent form should be used.
In the emergency situation, verbal consent should be obtained which should be witnessed by another care professional. Obstetricians and the witness to verbal consent must record the decision in the patient's notes. and the reasons for proceeding to any emergency delivery without written consent. If a woman who is deemed to have capacity to consent refuses assisted delivery or caesarean section, even after full consultation and explanation of the consequences for her and for the fetus, her wishes must be respected.

Maternal request caesarean section

If a woman requests a caesarean birth, discuss the overall benefits and risks of caesarean birth compared with vaginal birth, record that this discussion has taken place and record the specific reasons for the request. The NICE guideline on Caesarean Section gives a summary of the risks and benefits of vaginal and Caesarean births which can be used to guide this discussion (Tools and resources | Caesarean birth | Guidance | NICE) and the tables from this guidance is included as Appendix 3 of this guideline. The woman should be reviewed a senior obstetrician and other relevant members of the team if necessary, for example an anaesthetist if the concern is about pain relief, to ensure the woman has accurate information.

Classification of urgent and emergency CS

It is important to recognise that the urgency with which an emergency CS should be performed will vary according to the clinical circumstances. There is no evidence that 30 minutes is a critical threshold for preventing or minimising the consequences of intrapartum hypoxia. The need to ensure maternal safety should be balanced against concerns about the baby.

The classification of emergency CS recognises that the urgency of CS represents a continuum of risk. Three categories of risk are identified for women requiring emergency CS (Category 1-3). Staff should be aware that within each category, the degree of risk in individual cases can vary. This variance in degree of risk requires an individualised, case by case, approach in deciding the specific decision-to–delivery interval. Appropriate communication between midwifery, obstetric, anaesthetic, theatre and NICU staff is therefore essential.

Classification of emergency CS

URGENCY	DEFINITION	CATEGORY
Maternal or fetal compromise	Immediate threat to life of woman or fetus	**1**
	No immediate threat of life of woman or fetus	**2**
No maternal or fetal compromise	Requires early delivery	**3**
	At a time to suit the woman and Maternity Services	**4**

Category 1/2 emergency CS

Our target is to achieve a decision-delivery interval (DDI) of 30 minutes for all category 1 emergency CS. While for category 2 to this should be 75 minutes. Certain clinical situations will require a much quicker DDI than those stated.

Delay in performing an emergency CS

Once a decision to perform an emergency CS has been made, any reason(s) for delay should be clearly documented in the health record

Method of anaesthesia

Regional anaesthesia is generally considered to be safer than general anaesthesia. The method of anaesthesia will depend on urgency of delivery but also other factors such as patient choice, sepsis, coagulopathy and co-morbidity, and should be informed by discussion between the anaesthetist and the obstetric team.
In the case of urgent (Category 1) delivery, the obstetric and anaesthetic teams should discuss the suitability of regional anaesthesia. Even in very urgent cases there may be overriding patient factors (e.g. predicted difficult airway) which would favour proceeding with regional anaesthesia.

A senior obstetric registrar or consultant must be involved in all cases where general anaesthesia is required for immediate delivery unless doing so would seriously compromise the life of mother or fetus.

After regional anaesthesia, the fetal heart beat should be auscultated for 1 minute with a handheld Doppler if a CTG is not already in place.

Procedural aspects of CS

- Beware of your limitations and if in doubt call for assistance.
- Obtain consent.
- Consider measures for intrauterine resuscitation of the fetus where appropriate.
- Ensure IV access and obtain a blood sample for FBC + group and save.
- Use the dedicated SBAR tool for handover from midwife to theatre team.
- Complete the pre-operative check list prior to transfer to theatre (unless cat 1).
- Complete WHO checklist (shortened version for cat 1).
- Site an indwelling bladder catheter before commencing procedure.
- **In women with ruptured membranes**, clean the vagina with aqueous iodine vaginal preparation before caesarean birth. If aqueous iodine vaginal preparation is not available or is contraindicated, **aqueous** chlorhexidine vaginal preparation can be used.
- Use alcohol-based chlorhexidine skin preparation before caesarean.
- All women should be offered a prophylactic dose of antibiotic prior to skin incision.
- At the end of the case a final decision should be made between the obstetrician and anaesthetist about the need for LMWH. This should be prompted by the venous thromboembolism (VTE) prompt on the World Health Organisation (WHO) sign out. The responsibility for prescribing LMWH generally lies with the anaesthetist to ensure there are no errors with timings related to regional anaesthesia. In the event that the surgeon wants to delay administer, the responsibility for prescribing falls back to the surgical team.

- Obtain paired cord blood gases in all cases of presumed fetal compromise.
- A practitioner skilled in the resuscitation of the newborn should be present at CS with a general anaesthetic or with presumed fetal compromise.
- Ensure that adequate notes are made.
- An incident form should be completed for all cases performed under general anaesthesia, where fetal umbilical artery pH is ≤ 7.0 and when there is delay in undertaking the caesarean section.

Fully dilated caesarean sections

The decision between an instrumental delivery and a second stage C/S is complex. Both options carry risk, and the decision should be made by an experienced clinician, preferably with adequate notice of progress in labour, fetal condition and maternal wishes.

If a decision is made to proceed with caesarean section, the following good practice points are recommended:

- Perform vaginal examination, between contractions, assess if the fetal head can be gently moved out of the pelvis or is it deeply impacted and exclude the possibility of further head descent such that vaginal delivery would be more easily accomplished.

- The problem of disengaging the fetus from the pelvis can be confounded by ongoing uterine contractions. Oxytocin infusions should be stopped as soon as the decision to proceed with CS is made.
- An experienced obstetrician and paediatrician should be in attendance or readily available where a technically difficult delivery is anticipated.
- Consider fetal pillow insertion in following scenarios:
    - After a failed instrumental delivery.
    - Second stage Caesarean section with deeply impacted head.
    - Deep Transverse Arrest / Occipito Posterior position of fetal head at full dilatation.
    - Emergency Caesarean Sections for absent progress at 8-10 cm with deeply engaged head / deflexed head / brow presentation.
    - Excessive caput and moulding of fetal head at 8-10 cm of dilatation.

Fetal pillow

Fetal pillow is a disposable soft silicon balloon device which is inserted into the vagina and placed beneath the head and then inflated to help lift the fetal head and dislodge it from the pelvis before commencing the caesarean section. Fetal pillow makes the

delivery of the head easier and reduces the risk of complications for the mother and baby that occur when a caesarean section is carried out at full dilation.

Insertion technique (see Appendix 2)

1. Patient to be in lithotomy position.
2. The device is taken out from the pack onto the sterile trolley.
3. Deflate the silicon balloon completely by using the 60 mL syringe in the pack.
4. Apply liberal amount of obstetric cream on the deflated balloon before inserting it inside the vagina.
5. Hold the deflated balloon device like folded wings between the thumb and the finger, making sure that the tube attachment is at the superior end.
6. Insert this in the vagina and place it behind the fetal head.
7. Make sure this device lies flat, with the deflated surface in direct contact with the fetal head and push it posteriorly towards the sacral bone of mum.
8. **Place patient's legs flat on the operating table prior to inflation of the balloon.**
9. Inflate the balloon using the 60 mL syringe to push in 180-200mLs of normal saline through the two way tap in the tube.
10. Close the tap so that Normal saline does not escape out.
11. Commence Lower segment Caesarean section.
12. Make a curvilinear incision on the upper part of lower segment of the uterus just beneath the vesico-uterine peritoneal reflection to deliver the baby.
13. Deflate the balloon by opening the two way tap and saline to be drawn out using the 60 mL syringe- done by midwife / HCA after delivery of baby.
14. Operating surgeon to carefully remove the deflated device by hooking a finger on the plate and to pull it out gently before cleaning the vagina after Caesarean section.

<u>Contraindications</u>

Presence of active genital infection

<u>WARNING:</u>

Do not use air to inflate the balloon.

Do not inflate the balloon more than 300mL.

Steroids and Planned Caesarean Sections between 37 and 39 weeks

Ideally planned Caesarean sections should be performed between 39 and 39+6 week of pregnancy. However, when there are maternal or fetal reason to perform a Caesarean section before this, the RCOG Guideline on steroids in pregnancy[6] recommends "For women undergoing planned caesarean birth between 37+0 and 38+6 weeks an informed discussion should take place with the woman about the potential risks and benefits of a

course of antenatal corticosteroids". The infographic Appendix 4 has been approved for use with this discussion. Current evidence suggests steroids in this group "may reduce admission to the neonatal unit for respiratory morbidity, it is uncertain if there is any reduction in respiratory distress syndrome, transient tachypnoea of the newborn or neonatal unit admission overall, and antenatal corticosteroids may result in harm to the neonate which includes hypoglycaemia and potential developmental delay"[6]. Therefore, it is NNUH default practice to not routinely give steroids to this group unless the woman choses to have them after discussion about risks and benefits.

If a Caesarean section is indicated prior to 37+0 weeks, steroids would still be recommended if there was time for administration.

Care of the mother in the first 24 hours postnatally

- One-to-one observations should be provided in the recovery area until the woman has airway control, cardiorespiratory stability and can communicate. Women should only be discharged from the recovery area once their condition has satisfied the standard obstetric discharge criteria (see Appendix 1).
- On the ward, observations of respiratory rate, blood pressure, pain and sedation, wound, lochia and urine output should be made half-hourly for 2 hours, then hourly for 2 hours, then 2 hourly for 2 hours and then 4 hourly if stable or as required by the epidural or PCA care plan.
- The anaesthetist should ensure that adequate postoperative analgesia is prescribed in a timely manner. Routinely this would be paracetamol and ibuprofen regularly with oramorph PRN. If paracetamol does not provide sufficient pain relief after caesarean birth, or non-steroidal anti-inflammatory drugs cannot be taken, consider adding dihydrocodeine to paracetamol, or changing to co-dydramol (do not offer codeine or co-codamol to women who are currently breastfeeding). If prescribed opiates while breastfeeding, inform the woman to stop if her baby becomes drowsy.
- The obstetric team should ensure that TTOs are completed in a timely manner.
- Provide adequate support to help women to start skin-to-skin contact with their baby as soon as possible to support breast feeding.
- Women who are feeling well and have no complications can eat or drink when they feel hungry or thirsty.
- Remove catheter when woman is mobile and ensure satisfactory voiding (see Bladder Care in Labour and Postnatally Trustdocs ID: 12617), **but not before 12 hours**. Continue fluid balance chart until satisfactory voiding is documented.
- The wound dressing should be routinely removed 6-24 hours after C/S. If the surgeon wants it kept on longer, this needs to be documented on the E3 operation note.

Implications for future pregnancy

The reasons for the CS, implications for her health and for future pregnancies should be discussed with the woman prior to discharge and she should be offered the opportunity to ask any questions. Give VBAC information leaflet and contraceptive advice.

Auditing and Monitoring Compliance

The Maternity Services are committed to the philosophy of clinical audit, as part of its Clinical Governance programme. The standards contained in this clinical guideline will be subject to continuous audit, with multidisciplinary review of the audit results at one of the monthly departmental Clinic Governance meetings. The results will also be summarised and a list of recommendations formed into an action plan, with a commitment to re-audit within three years, resources permitting.

Process of development and dissemination

This guideline was written by the author on behalf of the Obstetrics Clinical Guidelines Committee which has endorsed its content. It will be available electronically via the departmental link on the Trust intranet.

References / source documents

1. National Institute for Clinical Excellence. (2021). Caesarean Section
2. CNST Maternity Clinical Risk Management Standards. March 2011
3. The National Sentinel Caesarean Section Audit Report. October 2001
4. Royal college of Obstetricians and Gynaecologists. Classification of urgency of caesarean section – a continuum of risk. Good Practice No. 11, April 2010
5. Royal college of Obstetricians and Gynaecologists. Thrombosis and embolism during pregnancy and the puerperium, reducing the risk (Green-top Guideline 37a), November 2009
6. Royal college of Obstetricians and Gynaecologists. Antenatal corticosteroids to reduce neonatal morbidity and mortality (Green-top Guideline No. 74), February 2022

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Appendix 1: Obstetric Recovery Discharge Criteria

All guidelines need to be met before discharge to ward

Assessment	Guideline	Triggers	Comments/Instructions
A – Airway	Maintains own airway	Airway support required	
B – Breathing	SaO_2 ≥ 95% on air RR ≥ 9	If O2 required seek anaesthetic review	
C – Circulation	- HR 50-100 - Systolic 101 – 139 mmHg Diastolic < 90 mmHg Blood loss < 500mL since leaving theatre	- Systolic < 101 or ≥ 140 mmHg - Diastolic > 90 mmHg Blood loss > 500mL since leaving theatre Central/arterial line	
D – Conscious level	Awake / orientated Sedation score ≥ voice > 30 minutes post GA	Reduced conscious level	
E – Temperature	>36	Scoring on MEOW for temperature	
F – Fluid management	Fluid balance maintained Further regime prescribed Yes [ ] No [ ] Clear urine ≥ 30 mL/hr (0.5mLs/hr/kg)	Drain Infusion Blood stained urine Reduced urine output	
G – Wound	Minimal wound healing	Moderate bleeding Dressing blood stained	
H– Pain	Pain score ≤ 1 Acceptable to patient Analgesia prescribed as per guideline	Epidural in situ Patient controlled analgesia Needs anaesthetic review	
I – Nausea & vomiting	Nausea controlled Anti-emetic prescribed		
J – Limb circulation	Normal sensation & power in upper limbs	Epidural Increased capillary refill	
K – Pressure Areas	Skin intact		
L – Patient property	Returned to patient		
M – Documentation	All documentation complete		

Pain Score

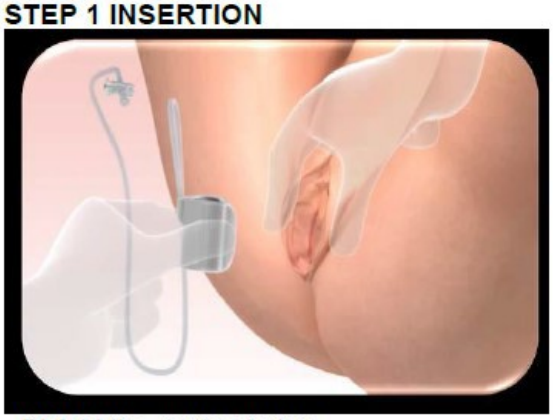
0	None
1	Mild
2	Moderate
3	Severe

Before discharge:

1. All patients must remain in recovery for ≥ 20 minutes.
2. Record name of anaesthetist the patient was received from.
3. Recovery practitioner must complete the transfer from recovery section on the last page of the theatre care plan.
4. Transfer last set of observations on to the maternity observation chart and calculate MEOWS.
5. Ensure staffing levels on receiving ward are adequate.

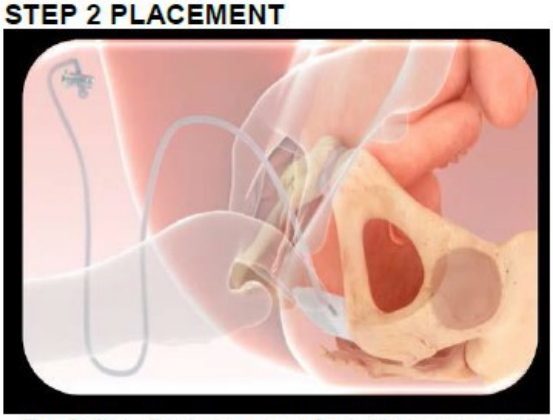
Appendix 2

STEP 1 INSERTION



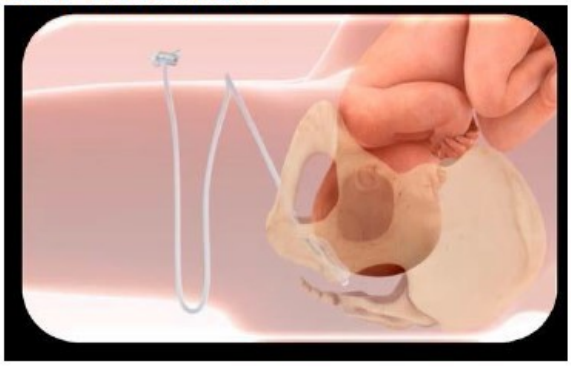
- Bi-fold the device in two
- Lubricate device
- Insert vaginally ensuring the balloon surface is in contact with the fetal head

STEP 2 PLACEMENT



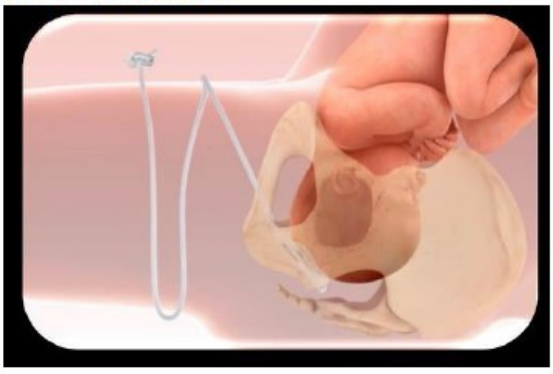
- Push the device as posteriorly as possible, towards sacrum
- Placement is similar to a posterior ventouse cup

STEP 3 LEGS FLAT



- Lay the legs flat in the operating table - otherwise it can be expelled or displaced if legs are open

STEP 4 INFLATE



- Inflate with 180ml of saline using the 60ml syringe provided -Three Full Syringes

Appendix 3

Table 1 Outcomes for women that may be more likely with caesarean birth

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

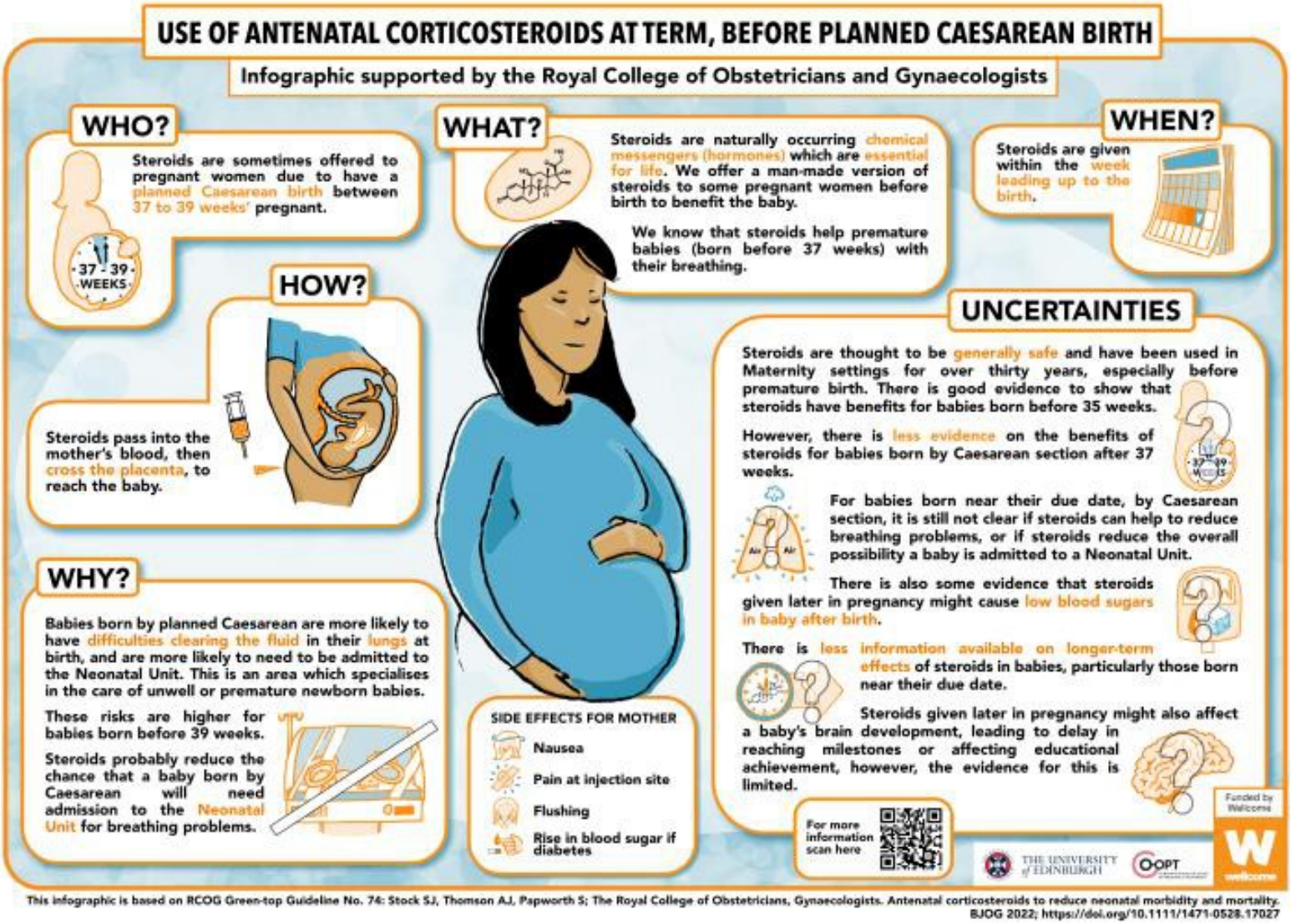
Table 2 Outcomes for babies that may be more likely with caesarean birth

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

Table 3 Outcomes for women that may be less likely with caesarean birth

Outcomes	Estimated risk with vaginal birth	Calculated risk with caesarean birth	Risk difference	Category of evidence
Urinary incontinence occurring more than 1 year after birth	About 48,700 per 100,000 women would be expected to have urinary incontinence (so 51,300 would not)	About 27,520 per 100,000 women would be expected to have urinary incontinence (so 72,480 would not)	About 21,180 fewer women per 100,000 who had a caesarean birth would be expected to have urinary incontinence, so for about 78,820 women per 100,000 the outcome was the same irrespective of the method of birth.	B - Actual mode of birth (excluding unplanned caesarean)
Faecal incontinence occurring more than 1 year after birth; compared to assisted vaginal birth	About 15,100 per 100,000 women would be expected to have faecal incontinence after assisted vaginal birth	About 7,410 per 100,000 women would be expected to have faecal incontinence (so 92,590 would not)	About 7,690 fewer women per 100,000 who had a caesarean birth would be expected to have faecal incontinence; so for about 92,310 women per 100,000 the outcome was the same irrespective of the method of birth.	B - Actual mode of birth (excluding unplanned caesarean)
Vaginal tear	About 560 per 100,000 women would be expected to have a vaginal tear (so 99,440 would not)	About 0 per 100,000 women would be expected to have a vaginal tear (so 100,000 would not)	About 560 fewer women per 100,000 who had a caesarean birth would be expected to have vaginal tear; so for about 99,440 women per 100,000 the outcome was the same irrespective of the method of birth. **[2011]**	A - Planned mode of birth
Perineal/abdominal pain during birth and 3 days after birth	Median pain scores of 7.3 (during birth) and 5.2 (3 days after birth) (1 is no pain, 10 is most severe pain)	Median pain scores of 1.0 (during birth) and 4.5 (3 days after birth)	Reduction in pain score with caesarean birth compared to vaginal birth of 6.3 (during birth) and 0.7 (3 days after birth) (1 is no pain, 10 is most severe pain) **[2011]**	A - Planned mode of birth

Appendix 4



This infographic is based on RCOG Green-top Guideline No. 74: Stock SJ, Thomson AJ, Papworth S; The Royal College of Obstetricians, Gynaecologists. Antenatal corticosteroids to reduce neonatal morbidity and mortality. BJOG 2022; https://doi.org/10.1111/1471-0528.17027