NICE National Institute for Health and Care Excellence

NICE guideline

Caesarean birth

NICE guideline

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Your responsibility

The recommendations in this guideline represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, professionals and practitioners are expected to take this guideline fully into account, alongside the individual needs, preferences and values of their patients or the people using their service. It is not mandatory to apply the recommendations, and the guideline does not override the responsibility to make decisions appropriate to the circumstances of the individual, in consultation with them and their families and carers or guardian.

Local commissioners and providers of healthcare have a responsibility to enable the guideline to be applied when individual professionals and people using services wish to use it. They should do so in the context of local and national priorities for funding and developing services, and in light of their duties to have due regard to the need to eliminate unlawful discrimination, to advance equality of opportunity and to reduce health inequalities. Nothing in this guideline should be interpreted in a way that would be inconsistent with complying with those duties.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.

Contents

This guideline partially replaces CG132.

This guideline is the basis of QS32.

Overview

This guideline covers when to offer caesarean birth, discussion of caesarean birth, procedural aspects of the operation, and care after caesarean birth. It aims to improve the consistency and quality of care for women who are thinking about having a caesarean birth or have had a previous caesarean birth and are pregnant again.

The guideline uses the terms 'woman' or 'mother' throughout. These should be taken to include people who do not identify as women but are pregnant or have given birth.

The recommendations in this guideline were developed before the COVID-19 pandemic.

Who is it for?

- Healthcare professionals
- Commissioners
- Pregnant women, their families and carers

Recommendations

People have the right to be involved in discussions and make informed decisions about their care, as described in Making decisions about your care.

Making decisions using NICE guidelines explains how we use words to show the strength (or certainty) of our recommendations, and has information about prescribing medicines (including off-label use), professional guidelines, standards and laws (including on consent and mental capacity), and safeguarding.

1.1 Planning mode of birth

Provision of information

1.1.1 Offer all pregnant women information and support to enable them to make informed decisions about childbirth. Make sure that:

- the information is evidence based
- any information provided is accessible, ideally with a choice of formats to suit different women's needs
- the language used in any information (written or oral) is respectful and suitable for the woman, taking into account any personal, cultural or religious factors that could form part of the woman's choices
- the women's preferences and concerns are central to the decision-making process. **[2004, amended 2021]**

1.1.2 Discuss mode of birth with all pregnant women early in their pregnancy. Cover information such as:

- around 25% to 30% of women have a caesarean birth
- factors that mean women may need a caesarean birth (for example, increased maternal age and BMI)

- common indications for emergency caesarean birth include slow progression of labour or concern about fetal condition
- planned place of birth may affect the mode of birth (see choosing planned place of birth in the NICE guideline on intrapartum care)
- what the caesarean birth procedure involves
- how a caesarean birth may impact on the postnatal period (for example, need for pain relief)
- implications for future pregnancies and birth after caesarean birth or vaginal birth (for example, after a caesarean birth the chances of caesarean birth in a future pregnancy may be increased). **[2011, amended 2021]**

Benefits and risks of caesarean and vaginal birth

1.1.3 Discuss the benefits and risks of both caesarean and vaginal birth with women, taking into account their circumstances, concerns, priorities and plans for future pregnancies. **[2021]**

1.1.4 Using the information in appendix A, explain to women that:

- there are benefits and risks associated with both vaginal and caesarean birth, some of which are very small absolute risks and some are greater absolute risks, and they will need to decide which risks are more (or less) acceptable to them
- there are other risks not included in these tables that might be relevant to their individual circumstances (for example placental adherence problems from multiple caesarean births, fetal lacerations in caesarean birth, term birth injuries with vaginal birth or caesarean birth)
- these tables give summary estimates only and are intended to help discussions, but precise numerical risk estimates cannot be given for individual women. **[2021]**

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on benefits and risks of caesarean and vaginal birth.

Full details of the evidence and the committee's discussion are in evidence review A: the benefits and risks of planned caesarean birth.

1.2 Planned caesarean birth

Breech presentation

1.2.1 Discuss with women the benefits and risks of planned vaginal birth versus planned caesarean birth for breech presentation, and the option of external cephalic version. **[2004, amended 2021]**

1.2.2 Offer women who have an uncomplicated singleton breech pregnancy after 36+0 weeks, external cephalic version, unless:

- the woman is in established labour
- there is fetal compromise
- the woman has ruptured membranes or vaginal bleeding
- the woman has any other medical conditions (for example, severe hypertension) that would make external cephalic version inadvisable. **[2004, amended 2021]**

1.2.3 Before carrying out a caesarean birth for an uncomplicated singleton breech pregnancy, carry out an ultrasound scan to check that the baby is in the breech position. Do this as late as possible before the caesarean birth procedure. **[2021]**

Multiple pregnancy

1.2.4 For recommendations on mode of birth in multiple pregnancy, see mode of birth in the NICE guideline on twin and triplet pregnancy. **[2021]**

Preterm birth

1.2.5 For recommendations on mode of birth in preterm labour and birth, see mode of birth in the NICE guideline on preterm labour and birth. **[2021]**

Placenta praevia

1.2.6 Offer caesarean birth to women with a placenta that partly or completely covers the internal cervical os (minor or major placenta praevia). **[2004, amended 2011]**

Morbidly adherent placenta

1.2.7 For women who have had a previous caesarean birth, offer colour-flow Doppler ultrasound at 32 to 34 weeks as the first diagnostic test for morbidly adherent placenta if low-lying placenta is confirmed. **[2011, amended 2021]**

1.2.8 If a colour-flow Doppler ultrasound scan result suggests morbidly adherent placenta:

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

Offer MRI if this is acceptable to the woman. **[2011, amended 2021]**

1.2.9 Discuss birth options (for example, timing of birth, operative interventions including possibility of hysterectomy, need for blood transfusion) with a woman suspected to have morbidly adherent placenta. This discussion should be carried out by a consultant obstetrician, or with a consultant obstetrician present. **[2011, amended 2021]**

1.2.10 When performing a caesarean birth for a woman suspected to have a morbidly adherent placenta, ensure that:

- a consultant obstetrician and a consultant anaesthetist are present in the operating theatre
- a paediatric registrar, consultant, or equivalent, is present
- a haematology registrar, consultant, or equivalent, is available for advice
- a critical care bed is available
- sufficient cross-matched blood and blood products are readily available. **[2011, amended 2021]**

1.2.11 Before performing a caesarean birth for women suspected to have morbidly adherent placenta, the multidisciplinary team should agree which other healthcare professionals need to be consulted or present, and the responsibilities of each team member. **[2011, amended 2021]**

1.2.12 All hospitals should have a locally agreed protocol for managing morbidly adherent placenta that sets out how these elements of care should be provided. **[2011]**

Predicting caesarean birth for cephalopelvic disproportion in labour

1.2.13 Do not use pelvimetry for decision making about mode of birth. **[2004, amended 2021]**

1.2.14 Do not use the following for decision making about mode of birth, as they do not accurately predict cephalopelvic disproportion:

- maternal shoe size
- maternal height
- estimations of fetal size (ultrasound or clinical examination). **[2004, amended 2021]**

Mother-to-child transmission of maternal infections

HIV

1.2.15 Provide women with HIV information about the benefits and risks for them and

their baby of the HIV treatment options and mode of birth as early as possible in their pregnancy, so that they can make an informed decision. Obtain specialist advice about HIV in pregnancy from a sexual health specialist if necessary. **[2011, amended 2021]**

Hepatitis B virus

1.2.16 Do not offer pregnant women with hepatitis B a planned caesarean birth for this reason alone, as mother-to-baby transmission of hepatitis B can be reduced if the baby receives immunoglobulin and vaccination. **[2004, amended 2021]**

Hepatitis C virus

1.2.17 Do not offer women who are infected with hepatitis C a planned caesarean birth for this reason alone. **[2004, amended 2021]**

1.2.18 Offer pregnant women who are co-infected with hepatitis C virus and HIV a planned caesarean birth to reduce mother-to-baby transmission of hepatitis C virus and HIV. **[2004, amended 2021]**

Herpes simplex virus

1.2.19 Offer women with primary genital herpes simplex virus (HSV) infection occurring in the third trimester of pregnancy a planned caesarean birth to decrease the risk of neonatal HSV infection. **[2004]**

1.2.20 Do not routinely offer pregnant women with recurrent HSV infection a planned caesarean birth outside of the context of research. **[2004, amended 2021]**

Body mass index

1.2.21 Do not use a body mass index (BMI) of over 50 kg/m^2 alone as an indication for planned caesarean birth. **[2011]**

Shared decision making

1.2.22 Ask for consent for caesarean birth only after providing pregnant women with evidence-based information. Ensure the woman's dignity, privacy, views and culture are respected, while taking the woman's clinical situation into account. **[2004, amended 2021]**

1.2.23 Advise women that they are entitled to decline the offer of treatment such as caesarean birth, even when it would benefit their or their baby's health. **[2004, amended 2021]**

1.2.24 When a woman decides on or declines a caesarean birth, document the factors that that are important to the woman when making her decision. **[2004, amended 2021]**

Maternal request for caesarean birth

1.2.25 When a woman with no medical indication for a caesarean birth requests a caesarean birth, explore, discuss and record the specific reasons for the request. **[2011, amended 2021]**

1.2.26 If a woman requests a caesarean birth, discuss the overall benefits and risks of caesarean birth compared with vaginal birth (see the section on planning mode of birth) and record that this discussion has taken place. **[2011]**

1.2.27 If a woman requests a caesarean birth, offer discussions with the woman, a senior midwife and/or obstetrician and other members of the team if necessary, for example an anaesthetist, to explore the reasons for the request, and ensure the woman has accurate information. **[2011, amended 2021]**

1.2.28 If a woman requests a caesarean birth because she has tokophobia or other severe anxiety about childbirth (for example, following abuse or a previous traumatic event), offer referral to a healthcare professional with expertise in providing perinatal mental health support to help with her anxiety. See the NICE guideline on antenatal and postnatal mental health for more detailed advice on providing mental health services for pregnant women. **[2011, amended 2021]**

1.2.29 Ensure healthcare professionals providing perinatal mental health support to women requesting a caesarean birth have access to the planned place of birth during the antenatal period in order to provide care. **[2011, amended 2021]**

1.2.30 If a vaginal birth is still not an acceptable option after discussion of the benefits and risks and offer of support (including perinatal mental health support if appropriate; see recommendation 1.2.28), offer a planned caesarean birth for women requesting a caesarean birth. **[2011, amended 2021]**

1.2.31 If a woman requests a caesarean birth but her current healthcare team are unwilling to offer this, refer the woman to an obstetrician willing to perform a caesarean birth. **[2011, amended 2021]**

1.3 Factors affecting the likelihood of emergency caesarean birth during intrapartum care

Factors reducing the likelihood of caesarean birth

1.3.1 Inform women that continuous support during labour from women, with or without prior training, reduces the likelihood of caesarean birth. **[2004]**

1.3.2 Use a partogram with a 4-hour action line to monitor progress of women in spontaneous labour with an uncomplicated singleton pregnancy at term to reduce the likelihood of caesarean birth. **[2004]**

1.3.3 Involve a consultant obstetrician in decision-making for caesarean birth. **[2004, amended 2021]**

No influence on the likelihood of caesarean birth

1.3.4 Inform women that the following interventions during intrapartum care have not been shown to influence the likelihood of caesarean birth, although they can affect other outcomes:

- walking in labour
- non-supine position during the second stage of labour
- immersion in water during labour
- epidural analgesia during labour
- the use of raspberry leaves. **[2004, amended 2021]**

1.3.5 Inform women that the effects on the likelihood of caesarean birth of complementary therapies used during labour (such as acupuncture, aromatherapy, hypnosis, herbal products, nutritional supplements, homeopathic medicines, and Chinese medicines) are uncertain. **[2004, amended 2021]**

Slow progression in labour and caesarean birth

1.3.6 Do not offer the following as they do not influence the likelihood of caesarean birth for slow progression in labour, although they can affect other outcomes:

- active management of labour (comprising a strict definition of established labour, early routine amniotomy, routine 2-hourly vaginal examination, oxytocin if labour becomes slow)
- early amniotomy. **[2004, amended 2021]**

Eating during labour

1.3.7 Inform women that eating a low-residue diet during labour (toast, crackers, low-fat cheese) results in larger gastric volumes, but the effect on the risk of aspiration if anaesthesia is needed is uncertain. **[2004]**

1.3.8 Inform women that having isotonic drinks during labour prevents ketosis without a concomitant increase in gastric volume. **[2004]**

1.4 Procedural aspects of caesarean birth

Timing of planned caesarean birth

1.4.1 Do not routinely carry out planned caesarean birth before 39 weeks, as this can increase the risk of respiratory morbidity in babies. **[2004]**

Classification of urgency for caesarean birth

1.4.2 Use the following standardised scheme to document the urgency of caesarean birth and aid clear communication between healthcare professionals:

- Category 1. Immediate threat to the life of the woman or fetus (for example, suspected uterine rupture, major placental abruption, cord prolapse, fetal hypoxia or persistent fetal bradycardia).
- Category 2. Maternal or fetal compromise which is not immediately life-threatening.
- Category 3. No maternal or fetal compromise but needs early birth.
- Category 4. Birth timed to suit woman or healthcare provider. **[2004, amended 2021]**

Decision-to-birth interval for unplanned and emergency caesarean birth

Category 1 caesarean birth is when there is immediate threat to the life of the woman or fetus, and category 2 caesarean birth is when there is maternal or fetal compromise which is not immediately life-threatening.

1.4.3 Perform category 1 caesarean birth as soon as possible, and in most situations within 30 minutes of making the decision. **[2011, amended 2021]**

1.4.4 Perform category 2 caesarean birth as soon as possible, and in most situations within 75 minutes of making the decision. **[2011, amended 2021]**

1.4.5 Take into account the condition of the woman and the unborn baby when making decisions about rapid birth. Be aware that rapid birth can be harmful in certain circumstances. **[2011]**

Preoperative testing and preparation for caesarean birth

1.4.6 Before caesarean birth, carry out a full blood count to identify anaemia, antibody screening, and blood grouping with saving of serum. **[2004, amended 2021]**

1.4.7 Do not routinely carry out the following tests before caesarean birth:

- cross-matching of blood
- a clotting screen
- preoperative ultrasound for localisation of the placenta. **[2004, amended 2021]**

1.4.8 Carry out caesarean birth for pregnant women with antepartum haemorrhage, abruption or placenta praevia at a maternity unit with on-site blood transfusion services, as they are at increased risk of blood loss of more than 1,000 ml. **[2004, amended 2021]**

1.4.9 Give women having caesarean birth with regional anaesthesia an indwelling urinary catheter to prevent over-distension of the bladder. **[2004, amended 2021]**

Anaesthesia for caesarean birth

1.4.10 Provide pregnant women having a caesarean birth with information on the different types of post-caesarean birth analgesia, so that they can make an informed choice (see recommendation 1.6.9). **[2004]**

1.4.11 Offer women who are having a caesarean birth regional anaesthesia in preference to general anaesthesia, including women who have a diagnosis of placenta praevia. **[2004, amended 2021]**

1.4.12 Carry out induction of anaesthesia, including regional anaesthesia, for caesarean birth in theatre. **[2004, amended 2021]**

1.4.13 Apply a left lateral tilt of up to 15 degrees or appropriate uterine displacement once the woman is in a supine position on the operating table to reduce maternal hypotension. **[2004, amended 2021]**

1.4.14 Offer women who are having a caesarean birth under spinal anaesthesia a prophylactic intravenous infusion of phenylephrine, started immediately after the spinal injection. Adjust the rate of infusion to keep maternal blood pressure at 90% or more of baseline value and avoid decreases to less than 80% of baseline. **[2004, amended 2021]**

1.4.15 When using phenylephrine infusion, give intravenous ephedrine boluses to manage hypotension during caesarean birth, for example if the heart rate is low and blood pressure is less than 90% of baseline. **[2004, amended 2021]**

1.4.16 Use intravenous crystalloid co-loading in addition to vasopressors to reduce the risk of hypotension occurring during caesarean birth. **[2004, amended 2021]**

1.4.17 Ensure each maternity unit has a set of procedures for failed intubation during obstetric anaesthesia. **[2004]**

1.4.18 Offer women antacids and drugs (such as H_2-receptor antagonists or proton pump inhibitors) to reduce gastric volumes and acidity before caesarean birth.

In March 2021, this was an off-label use of proton pump inhibitors. See NICE's information on prescribing medicines. **[2004, amended 2021]**

1.4.19 Offer women having a caesarean birth anti-emetics (either pharmacological or acupressure) to reduce nausea and vomiting during caesarean birth. **[2004]**

1.4.20 Include pre-oxygenation, cricoid pressure and rapid sequence induction in general anaesthesia for caesarean birth to reduce the risk of aspiration. **[2004, amended 2011]**

Prevention and management of hypothermia and shivering

1.4.21 Warm IV fluids (500 ml or more) and blood products used during caesarean birth to 37 degrees Celsius using a fluid warming device. **[2021]**

1.4.22 Warm all irrigation fluids used during caesarean birth to 38 to 40 degrees Celsius in a thermostatically controlled cabinet. **[2021]**

1.4.23 Consider forced air warming for women who shiver, feel cold, or have a temperature of less than 36 degrees Celsius during caesarean birth. **[2021]**

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on prevention and management of hypothermia and shivering.

Full details of the evidence and the committee's discussion are in evidence review C: prevention and management of hypothermia and shivering.

Surgical techniques for caesarean birth

Methods to reduce infectious morbidity

1.4.24 Use alcohol-based chlorhexidine skin preparation before caesarean birth to reduce the risk of wound infections. If alcohol-based chlorhexidine skin preparation is not available, alcohol-based iodine skin preparation can be used. See the NICE guideline on surgical site infections. **[2021]**

1.4.25 Use aqueous iodine vaginal preparation before caesarean birth in women with ruptured membranes to reduce the risk of endometritis. If aqueous iodine vaginal preparation is not available or is contraindicated, aqueous chlorhexidine vaginal preparation can be used. **[2021]**

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on methods to reduce infectious morbidity and wound care after caesarean birth.

Full details of the evidence and the committee's discussion are in evidence review B: methods to reduce infectious morbidity at caesarean birth.

Methods to prevent HIV transmission in theatre

1.4.26 Wear double gloves when performing or assisting a caesarean birth for women who have tested positive for HIV, to reduce the risk of HIV infection of staff. [2004]

1.4.27 Follow general recommendations for safe surgical practice during caesarean birth to reduce the risk of HIV infection of staff. [2004]

Abdominal wall incision

1.4.28 Perform caesarean birth using a transverse abdominal incision to:

- make postoperative pain less likely
- give an improved cosmetic effect compared with a midline incision. [2004]

1.4.29 Perform caesarean birth using the Joel–Cohen transverse incision (a straight skin incision, 3 cm above the symphysis pubis; subsequent tissue layers are opened bluntly and, if necessary, extended with scissors and not a knife). This allows for shorter operating times and reduces postoperative febrile morbidity. [2004]

Instruments for skin incision

1.4.30 Do not use separate surgical knives to incise the skin and the deeper tissues in caesarean birth, as it does not decrease wound infection. [2004]

Extension of the uterine incision

1.4.31 When there is a well formed lower uterine segment, use blunt rather than sharp extension of the uterine incision to reduce blood loss, incidences of postpartum

haemorrhage and the need for transfusion during caesarean birth. [2004]

Fetal laceration

1.4.32 Inform women who are having a caesarean birth that the risk of fetal lacerations is about 2%. [2004]

Use of forceps

1.4.33 Only use forceps in caesarean birth if there is difficulty delivering the baby's head. The effect on neonatal morbidity of the routine use of forceps at caesarean birth remains uncertain. [2004]

Use of uterotonics

1.4.34 Use oxytocin 5 IU by slow intravenous injection in caesarean birth to encourage contraction of the uterus and decrease blood loss. [2004]

Method of placental removal

1.4.35 Remove the placenta in caesarean birth using controlled cord traction and not manual removal to reduce the risk of endometritis. [2004]

Exteriorisation of the uterus

1.4.36 Perform intraperitoneal repair of the uterus for caesarean birth. Routine exteriorisation of the uterus is not recommended because it is associated with more pain and does not improve operative outcomes such as haemorrhage and infection. [2004, amended 2021]

Closure of the uterus

1.4.37 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. [2021]

For a short explanation of why the committee made the recommendation and how it might affect practice, see the rationale and impact section on closure of the uterus.

Full details of the evidence and the committee's discussion are in evidence review D: techniques to close the uterus at caesarean birth.

Closure of the peritoneum

1.4.38 Do not suture the visceral or the parietal peritoneum in caesarean birth to reduce operating time and the need for postoperative analgesia, and improve maternal satisfaction. [2004]

Closure of the abdominal wall

1.4.39 If a midline abdominal incision is used in caesarean birth, use mass closure with slowly absorbable continuous sutures as this results in fewer incisional hernias and less dehiscence than layered closure. [2004]

Closure of subcutaneous tissue

1.4.40 Do not routinely close the subcutaneous tissue space in caesarean birth unless the woman has more than 2 cm subcutaneous fat, as it does not reduce the incidence of wound infection. [2004]

Use of superficial wound drains

1.4.41 Do not routinely use superficial wound drains in caesarean birth as they do not decrease the incidence of wound infection or wound haematoma. See recommendation 1.7.2 on the use of negative pressure wound therapy. [2004, amended 2021]

Closure of the skin

1.4.42 Consider using sutures rather than staples to close the skin after caesarean birth to reduce the risk of superficial wound dehiscence. See closure methods in the NICE guideline on surgical site infections. [2019]

Umbilical artery pH measurement

1.4.43 Perform paired umbilical artery and vein measurements of cord blood gases after caesarean birth for suspected fetal compromise, to allow for assessment of fetal wellbeing and guide ongoing care of the baby. **[2004, amended 2021]**

Timing of antibiotic administration

1.4.44 Offer women prophylactic antibiotics before skin incision for caesarean birth, choosing antibiotics that are effective against endometritis, urinary tract and wound infections. **[2011, amended 2021]**

1.4.45 Inform women that:

- endometritis, urinary tract and wound infections occur in about 8% of women who have had a caesarean birth
- using prophylactic antibiotics before skin incision reduces the risk of maternal infection more than prophylactic antibiotics given after skin incision, and that there is no known effect on the baby. **[2011, amended 2021]**

1.4.46 Do not use co-amoxiclav when giving prophylactic antibiotics before skin incision for caesarean birth. **[2011]**

Thromboprophylaxis for caesarean birth

1.4.47 Offer thromboprophylaxis to women having a caesarean birth. Take into account the risk of thromboembolic disease when choosing the method of prophylaxis (for example, graduated stockings, hydration, early mobilisation, low molecular weight heparin). **[2011]**

Women's preferences during caesarean birth

1.4.48 Accommodate a woman's preferences for her caesarean birth whenever possible, such as, music playing in theatre, lowering the screen to see the baby born, or silence so that the mother's voice is the first the baby hears. **[2004]**

1.5 Care of the baby born by caesarean birth

Presence of paediatrician at caesarean birth

1.5.1 Ensure an appropriately trained practitioner skilled in the resuscitation of newborn babies is present for caesarean birth performed under general anaesthesia, or if there is evidence of fetal compromise. **[2004]**

Thermal care for babies born by caesarean birth

1.5.2 As babies born by caesarean birth are more likely to have a lower temperature, ensure thermal care is in accordance with good practice for thermal care of newborn babies. **[2004]**

Maternal contact (skin-to-skin)

1.5.3 Offer and facilitate early skin-to-skin contact between the woman and her baby. **[2004, amended 2021]**

Breastfeeding

1.5.4 Offer women who have had a caesarean birth and who wish to breastfeed support to help them to start breastfeeding as soon as possible after the birth of their baby. **[2004, amended 2021]**

1.6 Care of the woman after caesarean birth

High-dependency unit/intensive therapy unit admission

1.6.1 Be aware that, although it is rare for women to need intensive care after childbirth, this may occur after caesarean birth. **[2004, amended 2021]**

Monitoring after caesarean birth

After general anaesthesia

1.6.2 After caesarean birth under a general anaesthetic, a healthcare professional with airway skills should carry out continuous, one-to-one observation of the woman until:

- she has regained airway control, and
- is haemodynamically stable, and
- is able to communicate. **[2021]**

1.6.3 When a woman has regained airway control, is haemodynamically stable, and is able to communicate after caesarean birth under a general anaesthetic:

- continue observations (oxygen saturation, respiratory rate, heart rate, blood pressure, temperature, pain and sedation) every half hour for 2 hours
- after 2 hours, if these observations are stable, carry out routine observations in accordance with local protocols
- if these observations are not stable, or the woman has other risk factors or complications (for example, severe hypertension, or signs of infection or sepsis), carry out a medical review and increase the duration and frequency of observations. **[2021]**

After spinal or epidural anaesthesia

1.6.4 After caesarean birth under a spinal or epidural anaesthetic, a healthcare professional should carry out continuous one-to-one observation of the woman until she is haemodynamically stable (for example when pulse and blood pressure have returned to baseline values). **[2021]**

1.6.5 Provide a woman who has had spinal or epidural diamorphine for caesarean birth, and who is at an increased risk of respiratory depression (for example, a significantly raised BMI, or diagnosed obstructive sleep apnoea syndrome), with:

- continuous pulse oximetry monitoring, and

- hourly monitoring of
  - respiratory rate
  - heart rate
  - blood pressure
  - temperature
  - pain
  - sedation.

  Monitor the woman for at least 12 hours, continue until they are stable enough to be discharged from anaesthetic care, and then carry out routine observations in accordance with local protocols. **[2021]**

1.6.6 For a woman who has had spinal or epidural diamorphine for caesarean birth, but is not at an increased risk of respiratory depression, carry out routine observations in accordance with local protocols. **[2021]**

1.6.7 When deciding on the location and frequency of monitoring for respiratory depression in women who have had spinal or epidural diamorphine for caesarean birth, take into account other factors that could affect monitoring needs (for example, a complicated birth, or unstable observations in first 2 hours after birth). **[2021]**

1.6.8 Ensure women who have patient-controlled analgesia with opioids after caesarean birth have routine hourly monitoring of respiratory rate, sedation and pain scores throughout treatment, and for at least 2 hours after discontinuation of treatment. **[2004, amended 2021]**

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on monitoring after caesarean birth.

Full details of the evidence and the committee's discussion are in evidence review E: monitoring after intrathecal or epidural opioids for caesarean birth.

Pain management after caesarean birth

1.6.9 Offer women 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.

In March 2021, this was an off-label use of diamorphine (both intrathecal and epidural). See NICE's information on prescribing medicines. **[2004, amended 2021]**

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

- pain after caesarean birth can be controlled using oral or injectable medicines
- their choice of pain relief medicines after caesarean birth will depend on:
  - the severity of pain
  - whether they had spinal or epidural anaesthesia, or general anaesthesia
- if they wish to breastfeed, they will usually be able to do this and care for their baby while taking pain relief medicines. **[2021]**

1.6.11 Offer oral morphine sulfate to women who have received spinal or epidural anaesthesia for caesarean birth. If the woman cannot take oral medication (for example, because of nausea or vomiting), offer intravenous, intramuscular or subcutaneous morphine. **[2021]**

1.6.12 Consider intravenous patient-controlled analgesia (PCA) using morphine for women who have had a general anaesthetic for caesarean birth. If intravenous PCA is not acceptable to the woman, or the pain is less severe, consider oral morphine sulfate. **[2021]**

1.6.13 Use paracetamol and, unless contraindicated, a non-steroidal anti-inflammatory drug (for example, ibuprofen) in combination after caesarean birth, to reduce the need for opioids, and to allow them to be stepped down and stopped as early as possible. **[2004, amended 2021]**

1.6.14 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 (combination preparation of paracetamol and dihydrocodeine) as an alternative to paracetamol. [2021]

1.6.15 Do not offer codeine or co-codamol (combination preparation of paracetamol and codeine) to women who are currently breastfeeding, because this can lead to serious neonatal sedation and respiratory depression. Follow the MHRA safety advice on Codeine for analgesia: restricted use in children because of reports of morphine toxicity. [2021]

1.6.16 When using paracetamol, dihyrocodeine, co-dydramol or a non-steroidal anti-inflammatory drug after caesarean birth, prescribe them to be taken regularly and not just when needed for pain relief. [2021]

1.6.17 For women 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, urinary retention)
- discuss with the woman that stronger pain relief medicines are available
- make sure the woman is aware that, if taken while breastfeeding, these medicines could increase the risk of neonatal sedation and respiratory depression.

  If the women chooses to take stronger medicines, consider a short course of tramadol or oxycodone at the lowest effective dose. [2021]

1.6.18 In breastfeeding women, use opioid analgesics (for example, morphine, dihyrocodeine, tramadol or oxycodone) at the lowest effective dose and for the shortest duration, and not for more than 3 days without close supervision. [2021]

1.6.19 If, after a caesarean birth, a woman is discharged home on opioids, advise the woman to contact their healthcare provider if they are concerned about their baby (for example drowsiness, breathing difficulties, constipation or difficulty feeding). [2021]

1.6.20 Consider laxatives for women taking opioids, for the prevention of constipation. [2021]

1.6.21 Consider anti-emetics for women taking opioids, if needed for nausea and vomiting. [2021]

1.6.22 Advise women 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. [2021]

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on pain management after caesarean birth.

Full details of the evidence and the committee's discussion are in evidence review F: opioids for pain relief after caesarean birth.

Early eating and drinking after caesarean birth

1.6.23 If women are recovering well after caesarean birth and do not have complications, they can eat and drink as normal. [2004]

Urinary catheter removal after caesarean birth

1.6.24 Offer removal of the urinary bladder catheter once a woman is mobile after a regional anaesthetic for caesarean birth, but no sooner than 12 hours after the last 'top-up' dose. [2004, amended 2021]

Respiratory physiotherapy after caesarean birth

1.6.25 Do not offer routine respiratory physiotherapy to women after a caesarean birth under general anaesthesia as it does not improve respiratory outcomes (for example, coughing, phlegm, body temperature, chest palpation or auscultatory changes). [2004]

Length of hospital stay and readmission to hospital

1.6.26 Inform women that length of hospital stay is likely to be longer after caesarean

birth than after a vaginal birth. **[2004, amended 2021]**

1.6.27 Offer women who are recovering well, are apyrexial and do not have complications after caesarean birth, discharge from hospital after 24 hours and follow up at home, as this is not associated with more readmissions for babies or mothers. **[2004, amended 2021]**

1.7 Recovery after caesarean birth

1.7.1 In addition to general postnatal care, provide women who have had a caesarean birth with:

- specific care related to recovery after caesarean birth
- care related to management of other complications during pregnancy or childbirth. **[2004]**

Wound care

1.7.2 Consider negative pressure wound therapy after caesarean birth for women with a BMI of 35 kg/m^2 or more to reduce the risk of wound infections. **[2021]**

1.7.3 When using standard (not negative pressure) wound dressings after caesarean birth take into account that:

- no type of wound dressing has been shown to be better than another at reducing the risk of wound infections
- there is no difference in the risk of wound infection when dressings are removed 6 hours postoperatively, compared with 24 hours postoperatively. **[2021]**

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on methods to reduce infectious morbidity and wound care after caesarean birth.

Full details of the evidence and the committee's discussion are in evidence review B: methods to reduce infectious morbidity at caesarean birth.

1.7.4 Ensure caesarean birth wound care includes:

- removing standard dressings 6 to 24 hours after the caesarean birth
- specific monitoring for fever
- assessing the wound for signs of infection (such as increasing pain, redness or discharge), separation or dehiscence
- encouraging the woman to wear loose, comfortable clothes and cotton underwear
- gently cleaning and drying the wound daily
- if needed, planning the removal of sutures or clips.

Follow the recommendations in the NICE guideline on surgical site infections. **[2004, amended 2021]**

Management of symptoms

1.7.5 When caring for women who have had a caesarean birth who have urinary symptoms, consider possible diagnoses of:

- urinary tract infection
- stress incontinence (occurs in about 4% of women after caesarean birth)
- urinary tract injury (occurs in about 1 per 1,000 caesarean births)
- urinary retention. **[2004, amended 2021]**

1.7.6 When caring for women who have had a caesarean birth who have heavy and/or irregular vaginal bleeding, consider whether this is more likely to be because of endometritis than retained products of conception, and manage accordingly. **[2004, amended 2021]**

1.7.7 Pay particular attention to women who have respiratory symptoms (such as cough or shortness of breath) or leg symptoms (such as painful swollen calf), as women who have had a caesarean birth may be at increased risk of thromboembolic disease (both deep vein thrombosis and pulmonary embolism). **[2004, amended 2021]**

Resuming activities and discharge home

1.7.8 Inform women who have had a caesarean birth that they can resume activities such as driving a vehicle, carrying heavy items, formal exercise and sexual intercourse when they feel they have fully recovered from the caesarean birth (including any physical restrictions or pain). **[2004, amended 2021]**

1.7.9 When caring for women who have had a caesarean birth, discuss that after a caesarean birth they are not at increased risk of depression, post-traumatic stress symptoms, pain on sexual intercourse, faecal incontinence or difficulties with breastfeeding. **[2004, amended 2021]**

1.7.10 While women are in hospital after having an emergency or unplanned caesarean birth, give them the opportunity to discuss with healthcare professionals the reasons for the caesarean birth, and provide both verbal and printed information about birth options for any future pregnancies. If the woman prefers, provide this at a later date. **[2011, amended 2021]**

1.7.11 Inform the woman's GP if follow-up investigations are needed after discharge from hospital (for example, a repeat full blood count if there has been a large amount of blood loss), and include details of the plan or course of action if the results are abnormal. **[2021]**

1.8 Pregnancy and childbirth after caesarean birth

1.8.1 When advising about the mode of birth after a previous caesarean birth, consider:

- maternal preferences and priorities
- the risks and benefits of repeat planned caesarean birth
- the risks and benefits of planned vaginal birth after caesarean birth, including the risk of unplanned caesarean birth. **[2011]**

1.8.2 Inform women who have had up to and including 4 caesarean births that the risk of fever, bladder injuries and surgical injuries does not vary with planned mode of birth, but that the risk of uterine rupture is higher for planned vaginal birth. **[2011]**

1.8.3 Offer women planning a vaginal birth who have had a previous caesarean birth:

- electronic fetal monitoring during labour
- care during labour in a unit where there is immediate access to caesarean birth and on-site blood transfusion services. **[2011]**

1.8.4 During induction of labour, women who have had a previous caesarean birth should be monitored closely, with access to electronic fetal monitoring and with immediate access to caesarean birth, as they are at increased risk of uterine rupture. For further information see the NICE guideline on inducing labour. **[2011]**

1.8.5 Pregnant women with both previous caesarean birth and a previous vaginal birth should be informed that they have an increased likelihood of having a vaginal birth than women who have had a previous caesarean birth but no previous vaginal birth. **[2004]**

Recommendations for research

The guideline committee has made the following key recommendations for research.

As part of the 2021 update, the guideline committee removed the research recommendation on 'What are the medium- to long-term risks and benefits to women and their babies of planned caesarean birth compared with planned vaginal birth?' and replaced it with a research recommendation on the short-term and long-term risks and benefits of planned caesarean birth compared with planned vaginal birth.

1 Short-term and long-term benefits and risks of planned caesarean birth compared to planned vaginal birth

What are the benefits and risks (short term and long term) of planned caesarean birth compared with planned vaginal birth at term for women and babies/infants/children? [2021]

Why this is important

Information provided to women with low-risk pregnancies in relation to the short- and long-term benefits and risks of planned caesarean birth compared with planned vaginal birth should reflect the relevant risks during the antenatal period when a woman is planning mode of birth. Studies used to inform these discussions with women should be from 'intention to treat' type analyses. However this type of evidence is sparse for outcomes relevant to the early neonatal period and minimal for long-term outcomes and further research is needed.

For a short explanation of why the committee made the recommendation for research, see the rationale on benefits and risks of caesarean and vaginal birth.

Full details of the evidence and the committee's discussion are in evidence review A: the benefits and risks of planned caesarean birth.

2 Decision-to-birth interval (category 1 urgency)

What factors influence the decision-to-birth interval when there is a category 1 level of urgency for

caesarean birth? **[2011]**

Why this is important

'Crash' caesarean birth is a psychologically traumatic event for women and their partners, and is also stressful for clinical staff. Staff and resources might have to be obtained from other areas of clinical care. This should be done as efficiently and effectively as possible, minimising anxiety and ensuring the safety of the mother and her baby.

For category 1 caesarean birth there is a recognised urgency to deliver as quickly as is reasonably possible. Most research in this area is quantitative and looks at the impact of the decision-to-birth interval on various aspects of fetal and maternal outcomes rather than the interplay of factors that can affect this time period itself. Much of this evidence is retrospective. Although some work has been done in the UK to examine where the systematic delays are and how to avoid them, more work is needed to determine how to optimise the decision-to-birth interval. This work should use qualitative as well as quantitative research methods to assess which factors influence the decision-to-birth interval for a category 1 caesarean birth. Evaluation of these factors could be used to inform future NICE guidance, for example, specific guidance for management of category 1 caesarean birth. Such information could also be used by hospitals for maternity services planning, and at a team level would assist with audit and ongoing evaluation and training of the multidisciplinary team.

A large amount of NHS and other state funding is used to provide continuing care for babies who are disabled as a result of birth asphyxia and in providing lifelong support for the child and their family. In addition, large sums of public money are spent on litigation and compensation in some of these cases through the Clinical Negligence Scheme for Trusts (CNST). If research helped to reduce the incidence of birth asphyxia this would reduce the costs of continuing care to the state and the burden to the child, their family and the wider community.

More realistic and more relevant expectations for the decision-to-delivery interval based on evidence would inform debate in the legal system and could help to reduce the cost to the state of related litigation.

3 Decision-to-birth interval (category 2 urgency)

A prospective study to determine whether the decision-to-birth interval has an impact on maternal and neonatal outcomes when there is a category 2 level of urgency for caesarean birth. **[2011]**

Why this is important

This research is important to inform the ongoing debate about the management of category 2 caesarean birth. The 'continuum of risk' in this setting has been recognised. However, most of the work in this area, looking at maternal and fetal outcomes, generally considers unplanned caesarean birth as a whole group without making any distinction between degrees of urgency. Furthermore, much of this work is retrospective. Most women who undergo intrapartum caesarean birth fall into the category 2 level of urgency and therefore specific information for this group could affect and benefit many women and contribute to the delivery of equity of care.

Delay in birth with a compromised fetus could result in major and long-term harm including cerebral palsy and other major long-term disability. The immediate and long-term effect on a family of the birth of a baby requiring lifelong specialised care and support is enormous. If such harm could be avoided by appropriate haste this would be an important improvement in outcome. However, if such haste is of no benefit then any related risk of adverse maternal outcome needs to be minimised.

A large amount of NHS and other state funding is used to provide continuing care for babies who are disabled as a result of delay in birth and in providing lifelong support for the child and their family. In addition, large sums of public money are spent on litigation and compensation in some of these cases through the CNST. If research helped to reduce the incidence of delay in birth this would reduce the costs of continuing care to the state and the burden to the child, their family and the wider community.

More realistic and more relevant expectations for the decision-to-birth interval based on evidence would inform debate within the legal system and could help to reduce the cost to the state of related litigation.

4 Maternal request for caesarean birth

What support or psychological interventions would be appropriate for women who have a fear of vaginal childbirth and request a caesarean birth? **[2011]**

Why this is important

Fear of vaginal childbirth can stem from:

- fear of damage to the maternal pelvic floor

- damage to the baby during childbirth
- self-doubt on the ability to physically have a vaginal birth
- previous childbirth experience
- unresolved issues related to the genital area.

Currently there is a wide variation in practice and limited resources lead to limited availability of effective interventions. Interventions that might be appropriate include:

- antenatal clinics dedicated to providing care for women with no obstetric indications who request a caesarean birth
- referral to a psychologist or a mental health professional
- referral to an obstetric anaesthetist
- intensive midwifery support.

Continuity of healthcare professional support from the antenatal to the intrapartum periods and 'one-to-one' midwifery care during labour are also often lacking and could make a difference to women who are anxious or afraid.

All of these interventions have different resource implications and there is no clear evidence to suggest that any are of benefit. The proposed research would compare in a randomised controlled trial 2 or more of these interventions in women requesting a caesarean birth. In the absence of any evidence, there is a case for comparing these interventions with routine antenatal care (that is, no special intervention).

This research is relevant because it would help to guide the optimal use of these limited resources and future guideline recommendations.

Rationale and impact

These sections briefly explain why the committee made the recommendations and how they might affect practice. They link to details of the evidence and a full description of the committee's discussion.

Benefits and risks of caesarean and vaginal birth

Recommendations 1.1.3 and 1.1.4

Why the committee made the recommendations

There was some evidence for a selected number of outcomes on the short- and long-term effects of caesarean birth compared with vaginal birth, although there were some limitations with the quality of the evidence, and not all evidence was from a comparison of planned mode of birth. The committee used this evidence, along with their clinical expertise, to update the advice comparing the relative benefits and risks of these 2 modes of birth.

For some outcomes there was conflicting or limited evidence, and there were also a number of outcomes for which no evidence was identified for inclusion, so the committee highlighted these uncertainties.

As the evidence was limited for this review the committee made a research recommendation.

There were also 3 outcomes included in the 2011 guideline which had not been included in this current review (vaginal tears, length of stay and perineal/abdominal pain) but the committee agreed that the advice was still appropriate and should be carried forward into the updated guideline.

How the recommendations might affect practice

The committee considered that their recommendations would reinforce best practice. It is already current practice to discuss the risks and benefits of alternative modes of birth during the antenatal period and this review has simply led to an update of the information that should be discussed with women.

Full details of the evidence and the committee's discussion are in evidence review A: the benefits

and risks of planned caesarean birth.

Return to recommendations

Prevention and management of hypothermia and shivering

Recommendations 1.4.21 to 1.4.23

Why the committee made the recommendations

There was evidence for the effectiveness of active warming measures (for example, forced air warming, under body pads, warmed IV fluids) to prevent shivering and hypothermia in women having a caesarean birth, and there was some evidence for improved thermal comfort and maternal temperature. The committee recommended the use of warmed IV fluids and irrigation fluids for all women having caesarean birth, but because of the low incidence of hypothermia and shivering during caesarean birth, the physiological differences between women having caesarean birth and the general surgical population, the lack of beneficial effect on wound infections, and the fact that warming methods are likely to be as effective at managing hypothermia and shivering as they are at preventing it, the committee recommended that other warming measures should only be used in women who were shivering, said they felt cold or were hypothermic, and not in all women for prevention. The committee recommended forced air warming as the method of choice as this was already widely available, easier to use and could be easily moved with the woman.

There was evidence that pethidine was also effective at reducing shivering, but the committee did not recommend this because of the possible adverse effects on breastfeeding.

How the recommendations might affect practice

The recommendation to use forced air warming will standardise practice across the NHS. There could be resource implications for units to purchase the disposable 'blankets' used, but this could be offset by earlier discharge of women from recovery to the postnatal ward.

The use of warmed intravenous fluids, blood and irrigation fluids is already standard practice, so this recommendation will not change this.

Full details of the evidence and the committee's discussion are in evidence review C: prevention and management of hypothermia and shivering.

Return to recommendations

Methods to reduce infectious morbidity and wound care after caesarean birth

Recommendations 1.4.24 and 1.4.25 and recommendations 1.7.2 and 1.7.3

Why the committee made the recommendations

There was evidence that alcohol-based chlorhexidine solution skin preparations reduce the risk of surgical site infections, compared with alcohol-based iodine solutions.

There was also evidence that aqueous iodine vaginal preparations reduce the risk of endometritis in women with ruptured membranes. Although there was some evidence on chlorhexidine vaginal preparations, overall the evidence indicated that that iodine vaginal preparations might be more effective.

There was some evidence that negative pressure wound therapy (NPWT) reduces the risk of wound or surgical site infections for women with a BMI of 30 kg/m^2 or more but economic evidence indicated that this would not be cost effective in those with a BMI of less than 35 kg/m^2 and only borderline cost effective in the group with a BMI of 35 kg/m^2 or more.

The evidence showed no difference in wound infection or readmissions into hospital when the dressing was removed either 6 hours or 24 hours after surgery.

There was very limited evidence on the use of 2 different types of dressing, but the committee agreed it was not enough to recommend a specific type.

There was no evidence on the use of incise drapes, diathermy or body hair removal, so the committee did not make recommendations about these, but noted that the NICE guideline on surgical site infections (which covers general surgery rather than caesarean birth) has recommendations on some of these interventions.

How the recommendations might affect practice

The recommendations on skin preparation are broadly in line with current best clinical practice. The committee agreed that the recommendation to use aqueous iodine vaginal preparation will be a change in clinical practice, because the use of vaginal preparation is not routine across England.

The committee identified that considering the use of NPWT for women with a BMI of 35 kg/m^2 will be a change of practice for many units (some units do not use it at all, or only at higher BMI thresholds), and could have resource implications, particularly in areas where a higher proportion of pregnant women will meet the criteria.

Full details of the evidence and the committee's discussion are in evidence review B: methods to reduce infectious morbidity at caesarean birth.

Return to the recommendations

Closure of the uterus

Recommendation 1.4.37

Why the committee made the recommendation

There was evidence showing that there was no difference in any outcomes when comparing single and double layer closure of the uterus. There was some evidence of the reduced need for blood transfusions with single layer compared with double layer closure, as part of a comparison of different caesarean birth techniques, but this could have been confounded by other differences in the techniques.

How the recommendation might affect practice

Current practice is to use a double layer uterine closure technique, except in occasional circumstances when there is a specific reason for using single layer closure. This recommendation will allow surgeons to choose single or double layer closure, depending on the individual clinical circumstances at the time of the surgery.

Full details of the evidence and the committee's discussion are in evidence review D: techniques to close the uterus at caesarean birth.

Return to recommendation

Monitoring after caesarean birth

Recommendations 1.6.2 to 1.6.7

Why the committee made the recommendations

There was no evidence found on the best monitoring schedule for women, but the committee used their knowledge and expertise of current best practice to develop recommendations on the monitoring schedule, including identifying women who would be at higher risk and so would need more intensive monitoring.

How the recommendations might affect practice

The recommendations should lead to a reduction in the frequency and duration of monitoring of most women who have received intrathecal or epidural opioids at the time of caesarean birth, but will mean women need to be assessed for risk factors to determine if they need a more intensive monitoring schedule. However, as only women identified as high risk will need intensive monitoring, it is anticipated that the overall monitoring workload will decrease.

Full details of the evidence and the committee's discussion are in evidence review E: monitoring after intrathecal or epidural opioids for caesarean birth.

Return to recommendations

Pain management after caesarean birth

Recommendations 1.6.10 to 1.6 12 and 1.6.14 to 1.6.22

Why the committee made the recommendations

The committee developed separate recommendations for women receiving regional or general anaesthesia, based on their knowledge of the likely differences in analgesia requirements. For all women, the committee agreed that any postoperative analgesia should be suitable for use while breastfeeding, but that women should be made aware of any potential adverse effects on their baby.

The committee agreed to retain the previous NICE recommendation to offer diamorphine (delivered intrathecally or by epidural) for women who have regional anaesthesia. Giving spinal or epidural diamorphine in this way reduces the need for additional opioids and other rescue medications during surgery, and it remains effective for up to 12 hours (when pain is likely to be most severe).

The committee agreed that women receiving regional anaesthesia should be offered oral morphine

sulfate, as the evidence showed it to be effective.

The evidence on pain relief for women after general anaesthesia was sparse, but the committee agreed that intravenous patient-controlled analgesia (PCA) using morphine should be offered as these women will likely have a higher level of pain. If PCA morphine is not acceptable to the woman, then oral morphine should be considered as a less invasive alternative.

From their knowledge and experience, the committee agreed that paracetamol and a non-steroidal anti-inflammatory drug (NSAID) such as ibuprofen should be offered in combination to all women to limit the amount of opioids needed, and to allow opioids to be stopped. Based on the evidence on the benefits of fixed interval pain management timing, the committee recommended these be prescribed to be taken regularly to maintain good pain control, in preference to on-request administration, which had lower rates of satisfaction reported by the women.

Some women will have contraindications to NSAIDs (for example, inflammatory bowel disease, gastric ulcer or pre-eclampsia), and will not get sufficient pain relief from paracetamol alone. Based on their experience, the committee suggested an alternative of dihydocodeine in addition to paracetamol, or co-dydramol, as these are also suitable for use while breastfeeding.

There was evidence for the effectiveness of oxycodone, and some evidence for tramadol, but the committee were aware both of these drugs can cause neonatal sedation and respiratory depression if used when breastfeeding. However, in women with severe pain the committee agreed that a short course of tramadol or oxycodone could be considered as long as the woman was informed of the risks and chose to use them. The length of the course was not defined as there was no evidence for a specific period or dosage.

The committee were aware that there were general recommendations in the BNF on the use of opioids in breastfeeding women and so included these as part of their recommendations. The committee were also aware of an MHRA warning on the risk of serious neonatal respiratory depression and sedation with codeine in some women. Because of this, they recommended that codeine, or medications that include codeine (such as co-codamol) should not be used, and that women should be advised not to use codeine-containing medicines while breastfeeding.

Based on their knowledge and experience, the committee recommended that anti-emetics could be prescribed if needed for nausea and vomiting, and that laxatives should be considered for the prevention of constipation.

How the recommendations might affect practice

The committee agreed that these recommendations would reinforce current practice. However, there may be a reduction in the use of intravenous PCA opioids for pain management after caesarean birth, and an increase in the use of oral morphine. The committee agreed that the recommendations relating to dihydrocodeine and codeine-containing medicines would provide greater clarity and increase safety.

Full details of the evidence and the committee's discussion are in evidence review F: opioids for pain relief after caesarean birth.

Return to recommendations

Context

This guideline has been developed to help ensure consistent quality care for women who have had a caesarean birth (caesarean section) in the past and are now pregnant again, who have a clinical indication for a caesarean birth, or are considering a caesarean birth when planning their birth, and there is no medical indication.

It provides some evidence-based information for healthcare professionals and women about the risks and benefits of caesarean birth compared with vaginal birth, and this has now been updated to include the short- and long-term risks and benefits for both women and babies/children. It also provides guidance on specific indications for caesarean birth, effective management strategies to avoid unplanned caesarean birth and the organisational and environmental factors that affect caesarean birth rates.

For women who undergo a caesarean birth, guidance is provided on the anaesthetic and surgical aspects of care, including interventions to reduce morbidity from caesarean birth. The recommendations on monitoring after caesarean birth, pain relief after caesarean birth and on uterine closure have been updated.

This update also contains new recommendations on techniques to reduce infectious morbidity and techniques to prevent and manage hypothermia and shivering.

Finding more information and committee details

You can see everything NICE says on this topic in the NICE Pathway on caesarean birth.

To find NICE guidance on related topics, including guidance in development, see the NICE webpage on pregnancy.

For full details of the evidence and the guideline committee's discussions, see the evidence reviews. You can also find information about how the guideline was developed, including details of the committee.

NICE has produced tools and resources to help you put this guideline into practice. For general help and advice on putting our guidelines into practice, see resources to help you put NICE guidance into practice.

Update information

March 2021: We have reviewed the evidence and made new recommendations on the benefits and risks of caesarean birth compared with vaginal birth, methods to reduce infectious morbidity, methods for uterine closure, methods to prevent and treat hypothermia and shivering, monitoring after caesarean birth and pain relief. These recommendations are marked **[2021]**.

We have also made some changes without an evidence review:

- We have updated some wording to bring the language and style up to date, without changing the meaning.
- We have updated some recommendations to bring them in line with current terminology and practice.
- We have combined, clarified or reworded some recommendations to make them clearer and to improve ease of reading.

These recommendations are marked **[2011, amended 2021]** and **[2004, amended 2021]**.

Recommendations marked **[2011]** and **[2004]** last had an evidence review in 2011 and 2004, respectively. In some cases minor changes have been made to the wording to bring the language and style up to date, without changing the meaning.

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