NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Guideline

Caesarean birth

Draft for consultation, October 2020

This guideline covers when to offer 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 considering a caesarean birth or have had a caesarean birth in the past and are now pregnant again.

For simplicity of language, this guideline will use the term 'woman' or 'mother' throughout, and this should be taken to include people who do not identify as women but who are pregnant or who have given birth.

Who is it for?

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

This guideline will update NICE clinical guideline CG132 (published November 2011).

We have reviewed the evidence on the benefits and risks of caesarean birth compared to 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. You are invited to comment on the new and updated recommendations. These are marked as **[2020]**

We have not reviewed the evidence for the recommendations shaded in grey, and cannot accept comments on them. In some cases, we have made minor wording changes for clarification.

See update information for a full explanation of what is being updated.

This draft guideline contains:

- the draft recommendations
- recommendations for research
- rationale and impact sections that explain why the committee made the 2020 recommendations and how they might affect services.
- the guideline context.

Information about how the guideline was developed is on the guideline's page on the NICE website. This includes the evidence reviews, the scope, and details of the committee and any declarations of interest.

Full details of the evidence and the committee's discussion on the 2020 recommendations are in the evidence reviews. Evidence for the 2011 recommendations is in the full version of the 2011 guideline.

The recommendations in this guideline were developed before the COVID-19 pandemic. Please tell us if there are any particular issues relating to COVID-19 that we should take into account when finalising the guideline for publication.

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Contents

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 views and concerns are central to the decision-making process. **[2004, amended 2020]**

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

- around 25% to 35% of women will have a caesarean birth
- factors that can increase the likelihood of having a caesarean birth (for example, 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 the NICE guideline on intrapartum care for more information on choosing planned place of birth)
- what the caesarean birth procedure involves
- implications for future pregnancies and birth after caesarean birth or vaginal birth (for example, after a caesarean birth the chances of caesarean birth being necessary in a future pregnancy may be increased). **[2011, amended 2020]**

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. **[2020]**

1.1.4 Using the information in boxes 1 and 2 and tables 1 and 2, 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 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 personal risk estimates cannot be given for individual women. **[2020]**

Box 1. Outcomes for women and babies that are likely to be similar for caesarean or vaginal birth

Outcomes for women:

- thromboembolic disease
- major obstetric haemorrhage
- postnatal depression
- faecal incontinence (occurring more than 1 year after birth; compared to unassisted vaginal birth).

Outcomes for babies/children:

- admission to neonatal unit
- infectious morbidity
- persistent verbal delay
- infant mortality (up to 1 year)

More details on the differences in risk, how they were estimated and uncertainty in the evidence including confidence intervals are provided in appendix M of evidence review A.

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Box 2. Outcomes for women and babies that have conflicting or limited evidence about the risk with caesarean or vaginal birth

Outcomes for women:

- ITU admission
- stillbirth in a subsequent pregnancy.

Outcomes for babies/children:

- respiratory morbidity
- cerebral palsy
- autism spectrum condition
- type 1 diabetes.

More details on the differences in risk, how they were estimated and uncertainty in the evidence including confidence intervals are provided in appendix M of evidence review A.

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

Outcomes	Estimated risk with vaginal birth	Risk difference
For women:	–	–
Peripartum hysterectomy	About 80 women per 100,000 would be expected to have a peripartum hysterectomy	About 70 more women per 100,000 who had caesarean birth would be expected to have a peripartum hysterectomy; so the method of birth would have made no difference to the chance of peripartum hysterectomy for about 99,930 women per 100,000.
Maternal death	About 4 women per 100,000 would be expected to die	About 20 more women per 100,000 who had caesarean birth would be expected to die; so the method of birth would have made no difference to the chance of death for about 99,980 women per 100,000.

Outcomes	Estimated risk with vaginal birth	Risk difference
Longer hospital stay	About 2 and a half days on average	About 1 to 2 days longer on average.
Placenta accreta in future pregnancy	About 40 women per 100,000 would be expected to have a placenta accrete in a future pregnancy	About 60 more women per 100,000 who had caesarean birth would be expected to have a placenta accreta in a future pregnancy; so the method of birth would have made no difference to the chance of placenta accrete for about 99,940 women per 100,000
Uterine rupture in future pregnancy	About 40 women per 100,000 would be expected to have a uterine rupture in a future pregnancy	About 980 more women per 100,000 who had caesarean birth would be expected to have a uterine rupture in a future pregnancy; so the method of birth would have made no difference to the chance of uterine rupture for about 99,020 women per 100,000
For babies/children:	–	–
Neonatal mortality	About 60 babies per 100,000 would be expected to die	About 80 more babies per 100,000 whose mothers had caesarean birth would be expected to die; so the method of birth would have made no difference to the chance of death for about 99,920 babies per 100,000.
Asthma	About 1,500 per 100,000 children would be expected to have asthma	About 310 more children per 100,000 whose mothers had caesarean birth would be expected to have asthma; so the method of birth would have made no difference to the chance of the asthma for about 99,690 babies or children per 100,000.
Childhood obesity	About 4,050 per 100,000 children would be expected to be obese	About 510 more children per 100,000 whose mothers had caesarean birth would be expected to be obese; so the method of birth made would have made no difference to the chance of the obesity for more than 99,490 children per 100,000.

More details on the differences in risk, how they were estimated and uncertainty in the evidence including confidence intervals are provided in appendix M of evidence review A.

Table 2. Outcomes for women that may be less likely with caesarean birth

Outcomes	Estimated risk with vaginal birth	Risk difference
Urinary incontinence occurring more than 1 year after birth	About 48,700 per 100,000 women would be expected to have urinary incontinence	About 21,180 fewer women per 100,000 who had caesarean birth would be expected to have urinary incontinence, so the method of birth would have made no difference to the chance of urinary incontinence for about 78,820 women per 100,000.
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 this outcome after assisted vaginal birth	About 7,690 fewer women per 100,000 who had caesarean birth would be expected to have faecal incontinence; so the method of birth would have made no difference to the chance of faecal incontinence for about 92,310 women per 100,000.
Injury to the vagina	About 560 per 100,000 women would be expected to have an injury to the vagina	About 560 fewer women per 100,000 who had caesarean birth would be expected to have an injury to the vagina; so the method of birth would have made no difference to the chance of injury to the vagina for about 99,440 women per 100,000.
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) (scored out of 10)	Reduction in pain scores of 6.3 during birth and 0.7 3 days after birth (scored out of 10)

More details on the differences in risk, how they were estimated and uncertainty in the evidence including confidence intervals are provided in appendix M of evidence review A.

For a short explanation of why the committee made these recommendations see the rationale and impact section on risks and benefits of caesarean birth.

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

1.2 Planned caesarean birth

Breech presentation

1.2.1 Offer women who have an uncomplicated singleton breech pregnancy at 36 weeks, external cephalic version, unless:

- the woman is in labour
- the woman has a uterine scar or abnormality
- there is fetal compromise
- the woman has ruptured membranes or vaginal bleeding
- the woman has any other medical conditions that would make external cephalic version inadvisable. **[2004, amended 2020]**

1.2.2 Discuss with women the benefits and risks of planned vaginal breech birth versus planned caesarean birth, if external cephalic version has been declined, is contraindicated or has been unsuccessful. **[2004, amended 2020]**

Multiple pregnancy

1.2.3 For recommendations on mode of birth in multiple pregnancy see the NICE guideline on twin and triplet pregnancy. **[2020]**

Preterm birth

1.2.4 For recommendations on mode of birth in preterm labour and birth see the NICE guideline on preterm labour and birth. **[2020]**

Placenta praevia

1.2.5 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

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

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

- discuss with the woman how magnetic resonance imaging (MRI) in addition to ultrasound can help diagnose morbidly adherent placenta and clarify the degree of invasion
- 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]**

1.2.8 Discuss birth options (for example, timing of birth, operative interventions, 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 2020]**

1.2.9 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
- 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 2020]**

1.2.10 Before performing a caesarean birth for women suspected to have morbidly adherent placenta, the multi-disciplinary team should agree which other healthcare professionals need to be consulted or present, and the responsibilities of each team member. **[2011, amended 2020]**

1.2.11 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

1.2.12 Do not use pelvimetry for decision making about mode of birth. **[2004]**

1.2.13 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 2020]**

Mother-to-child transmission of maternal infections

HIV

1.2.14 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. **[2011, amended 2020]**

Hepatitis B virus

1.2.15 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 2020]**

Hepatitis C virus

1.2.16 Do not offer women who are infected with hepatitis C a planned caesarean birth for this reason alone. **[2004, amended 2020]**

1.2.17 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 2020]**

Herpes simplex virus

1.2.18 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]**

1.2.19 Do not routinely offer pregnant women with recurrent HSV infection a planned caesarean birth outside of the context of research. **[2004, amended 2020]**

Body mass index

1.2.20 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

1.2.21 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 2020]**

1.2.22 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 2020]**

1.2.23 When a woman decides to have a caesarean birth, document the factors that that are important to the woman when making her decision. **[2004, amended 2020]**

Maternal request for caesarean birth

1.2.24 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 2020]**

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

1.2.26 If a woman requests a caesarean birth, arrange 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 2020]**

1.2.27 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 2020]**

1.2.28 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 2020]**

1.2.29 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 1.2.23), offer a planned caesarean birth for women requesting a caesarean birth. **[2011, amended 2020]**

1.2.30 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 2020]**

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 consultant obstetricians in decision-making for caesarean birth. **[2004, amended 2020]**

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 2020]**

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 2020]**

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 (one-to-one continuous support; strict definition of established labour; early routine amniotomy; routine 2-hourly vaginal examination; oxytocin if labour becomes slow)
- early amniotomy. **[2004, amended 2020]**

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 unplanned and emergency 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).
- 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 staff. **[2004, amended 2020]**

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 2020]**

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 2020]**

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 grouping and saving of serum, and a haemoglobin assessment to identify anaemia and antibodies. **[2004, amended 2020]**

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 2020]**

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 1000 ml. **[2004, amended 2020]**

1.4.9 Give women having caesarean birth with regional anaesthesia an indwelling urinary catheter to prevent over-distension of the bladder. **[2004, amended 2020]**

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 2020]**

1.4.12 Carry out induction of regional anaesthesia for caesarean birth in theatre. **[2004, amended 2020]**

1.4.13 Before beginning a caesarean birth procedure, apply a left lateral tilt of up to 15° once the woman is in a supine position on the operating table to reduce maternal hypotension. **[2004, amended 2020]**

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 2020]**

1.4.15 Use intravenous colloid pre-loading or crystalloid co-loading in addition to vasopressors to reduce the risk of hypotension occurring during caesarean birth.

Follow the MHRA safety advice on hydroxyethyl starch intravenous infusions. **[2004, amended 2020]**

1.4.16 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 2020]**

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 October 2020, this was an off-label use of proton pump inhibitors.

See NICE's information on prescribing medicines. **[2004, amended 2020]**

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°C using a fluid warming device. **[2020]**

1.4.22 Warm all irrigation fluids used during caesarean birth to 38°C to 40°C in a thermostatically controlled cabinet. **[2020]**

1.4.23 Consider forced air warming for women who shiver, feel cold, or have a temperature of less than 36°C during caesarean birth. **[2020]**

For a short explanation of why the committee made these recommendations 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 prior to 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. **[2020]**

1.4.25 Use aqueous iodine vaginal preparation prior to 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. **[2020]**

For a short explanation of why the committee made these recommendations 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 section.

Methods to prevention 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 2020]**

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. **[2020]**

For a short explanation of why the committee made the recommendation 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 section.

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 use superficial wound drains in caesarean birth as they do not decrease the incidence of wound infection or wound haematoma. **[2004]**

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 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 review of fetal wellbeing and guide ongoing care of the baby. **[2004, amended 2020]**

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 2020]**

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 2020]**

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 women having a caesarean birth thromboprophylaxis as they may be at increased risk of venous thromboembolism. 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, amended 2020]**

Women's preferences during caesarean birth

1.4.48 Accommodate the women's preferences for the 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 Encourage and facilitate early skin-to-skin contact between the woman and her baby to improve bonding and breastfeeding outcomes, and reduce baby crying. **[2004, amended 2020]**

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 2020]**

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 2020]**

Monitoring after caesarean birth

After general anaesthesia

1.6.2 After caesarean birth under a general anaesthetic, carry out one-to-one observation of the woman until:

- they have regained airway control, and
- are haemodynamically stable, and
- are able to communicate. **[2020]**

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. **[2020]**

After spinal or epidural anaesthesia

1.6.4 After caesarean birth under a spinal or epidural anaesthetic, carry out one-to-one observation of the woman until they are haemodynamically stable. **[2020]**

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, BMI 40 kg/m^2 or more, 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. **[2020]**

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. **[2020]**

1.6.7 When deciding on the location and frequency of monitoring for respiratory depression after 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). **[2020]**

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 2020]**

For a short explanation of why the committee made the recommendation 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.

Pain management after caesarean birth

1.6.9 Offer women diamorphine (0.3–0.4 mg intrathecally) for analgesia to reduce the need for supplemental analgesia after a caesarean birth. Epidural diamorphine (2.5–5 mg) is a suitable alternative where intrathecal diamorphine has not been given.

In October 2020, this was an off-label use of diamorphine (both intrathecal and epidural). See NICE's information on prescribing medicines. **[2004, amended 2020]**

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
- they will usually be able to breastfeed and care for their baby while taking pain relief medicines. **[2020]**

1.6.11 Offer oral morphine sulfate solution 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 or intramuscular morphine. **[2020]**

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 solution. **[2020]**

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 2020]**

1.6.14 If paracetamol does not provide sufficient pain relief after caesarean birth, or non-steroidal anti-inflammatory drugs cannot be taken,

consider co-dydramol (combination preparation of paracetamol and dihydrocodeine) as an alternative to paracetamol. **[2020]**

1.6.15 When using paracetamol, 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. **[2020]**

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

- 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 despite the possible effects, or is not breastfeeding, consider a short course of tramadol or oxycodone at the lowest effective dose. **[2020]**

1.6.17 In breastfeeding women, use opioid analgesics at the lowest effective dose and for the shortest duration, and not for more than 3 days without close supervision. Monitor the baby for sedation, breathing difficulties, constipation, difficulty feeding and adequate weight gain. **[2020]**

1.6.18 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. **[2020]**

1.6.19 Advise women that some over-the-counter medicines contain codeine, and should not be taken while breastfeeding because in some women

this can lead to serious neonatal sedation and respiratory depression. **[2020]**

For a short explanation of why the committee made the recommendation 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

1.6.20 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

1.6.21 Remove 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 epidural 'top up' dose. **[2004]**

Respiratory physiotherapy after caesarean birth

1.6.22 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

1.6.23 Inform women that length of hospital stay is likely to be longer after caesarean birth than after a vaginal birth. **[2004, amended 2020]**

1.6.24 Offer women who are recovering well, are apyrexial and do not have complications after caesarean birth early discharge (after 24 hours) from hospital and follow-up at home, as this is not associated with more readmissions for babies or mothers. **[2004, amended 2020]**

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 Offer 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. **[2020]**

1.7.3 Consider negative pressure wound therapy after caesarean birth for women with a BMI of 30 kg/m^2 or more, but less than 35 kg/m^2. **[2020]**

1.7.4 Advise women that:

- there is insufficient evidence to determine if one type of standard (not negative pressure) wound dressing is better than another at reducing the risk of wound infections after caesarean birth
- there is no difference in the risk of wound infection when standard dressings are removed 6 hours postoperatively, compared with 24 hours postoperatively. **[2020]**

For a short explanation of why the committee made the recommendation 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 section.

1.7.5 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 2020]**

Management of symptoms

1.7.6 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 1000 caesarean births)
- urinary retention. **[2004, amended 2020]**

1.7.7 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 2020]**

1.7.8 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 2020]**

Resuming activities

1.7.9 Encourage women who have had a caesarean birth to resume activities such as driving a vehicle, carrying heavy items, formal exercise and sexual intercourse once they feel they have fully recovered from the

caesarean birth (including any physical restrictions or pain). **[2004, amended 2020]**

1.7.10 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 2020]**

1.7.11 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 2020]**

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, and that the risk of uterine rupture, although higher for planned vaginal birth, is rare. **[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 induction of 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 recommendations for research.

As part of the 2020 update, the guideline committee removed the research recommendation on the 'What are the medium- to long-term risks and benefits to women and their babies of planned caesarean birth compared with planned vaginal birth?' as this was one of the questions that had been reviewed as part of the update.

Key recommendations for research

1 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 minimise the impact 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.

2 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 Clinical Negligence Scheme for Trusts (CNST). If research helped to minimise the impact 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.

3 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.

Risk and benefits of caesarean birth

Recommendations 1.1.3 and 1.1.4

Why the committee made the recommendation

There was some evidence for a selected number of outcomes on the short- and long-term effects of planned caesarean birth compared to planned vaginal birth, although there were some limitations with the quality of the evidence. The committee used this evidence, along with their clinical expertise, to update the advice comparing the relative benefits and risks of these two 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.

There were also three outcomes included in the 2011 guideline which had not been included in this current review (injury to the vagina, length of stay and perineal/abdominal pain) but where 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: benefits and risks of planned caesarean birth.

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Prevention and management of hypothermia and shivering

Recommendations 1.4.21 to 1.4.23

Why the committee made the recommendation

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 caesarean birth (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 due to 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 to 1.4.25 and 1.7.2 to 1.7.4

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, and economic evidence showing that this can lead to cost-savings in women 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 offering NPWT for women with a BMI of 35 kg/m^2 or more, and considering its use in women with BMI of 30 to 34.9 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. Nevertheless, the committee considered it likely in the women with a BMI of 35 kg/m^2 that the savings from a reduction in surgical site infections would more than offset the additional intervention costs of NPWT.

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

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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 to 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 recommendations 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 section.

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Monitoring after caesarean birth

Recommendation 1.6.2 to 1.6.7

Why the committee made the recommendation

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

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Pain management after caesarean birth

Recommendation 1.6.10 to 1.6 12 and 1.6.14 to 1.6.19

Why the committee made the recommendation

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 post-operative 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 via 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 solution, 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 (NSAIDs) such as ibuprofen should be offered in combination to all women to limit the amount of opioids required, and to allow opioids to be stopped. Based on the evidence regarding 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 co-dydramol as this is also suitable for use whilst 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.

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 following 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.

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Context

This guideline has been developed to help ensure consistent quality care for women who have had a caesarean birth (caesarean birth) 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, where there is no medical indication.

It provides evidence-based information for healthcare professionals and women about the risks and benefits of planned caesarean birth compared with planned 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 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 resources

To find out what NICE has said on topics related to this guideline, see our web page on pregnancy.

Update information

November 2020

This guideline is an update of NICE clinical guideline CG132 (published November 2011) and will replace it.

We have reviewed the evidence on the benefits and risks of caesarean birth compared to 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.

Recommendations are marked **2020** if the evidence has been reviewed.

Recommendations that have been deleted or changed

We propose to delete some recommendations from the 2011 guideline. Table 1 sets out these recommendations and includes details of replacement recommendations. If there is no replacement recommendation, an explanation for the proposed deletion is given.

In recommendations shaded in grey and ending **[2004, amended 2020] and [2011, amended 2020]**, we have made changes that could affect the intent without reviewing the evidence. Yellow shading is used to highlight these changes, and reasons for the changes are given in table 2.

In recommendations shaded in grey and ending **[2004] or [2011]**, we have not reviewed the evidence. In some cases minor changes have been made – for example, to update links, or bring the language and style up to date – without changing the intent of the recommendation. Minor changes are listed in table 3.

See also the previous NICE guideline and supporting documents.

Table 1 Recommendations that have been deleted

Recommendation in 2011 guideline	Comment
1.2.2.1 In otherwise uncomplicated twin pregnancies at term where the presentation of the first twin is cephalic, perinatal morbidity and mortality is increased for the second twin. However, the effect of planned CS in improving outcome for the second twin remains uncertain and therefore CS should not routinely be offered outside a research context. [2004]	This recommendation has been deleted as it has now been superseded by the section on mode of birth in the twins and triplets guideline. A link has been added to the twins and triplets guideline.
1.2.2.2 In twin pregnancies where the first twin is not cephalic the effect of CS in improving outcome is uncertain, but current practice is to offer a planned CS. [2004]	This recommendation has been deleted as it has now been superseded by the section on mode of birth in the NICE guideline on Twins and triplets. A link has been added to the Twins and triplets guideline.
1.2.3.1 Preterm birth is associated with higher neonatal morbidity and mortality. However, the effect of planned CS in improving these outcomes remains uncertain and therefore CS should not routinely be offered outside a research context. [2004]	This recommendation has been deleted as it has now been superseded by the section on mode of birth in the NICE guideline on Preterm labour and birth. A link has been added to the Preterm labour and birth guideline.
1.2.4.1 The risk of neonatal morbidity and mortality is higher with 'small for gestational age' babies. However, the effect of planned CS in improving these outcomes remains uncertain and therefore CS should not routinely be offered outside a research context. [2004]	This recommendation has been deleted as the committee agreed that it does not provide any useful guidance to healthcare professionals and women, and that the decision about mode of birth in a baby suspected to be small for gestational age would be made on an individual basis.
1.2.8.2 Do not offer a CS on the grounds of HIV status to prevent mother-to-child transmission of HIV to: • women on highly active anti-retroviral therapy (HAART) with a viral load of less than 400 copies per ml or • women on any anti-retroviral therapy with a viral load of less than 50 copies per ml. Inform women that in these circumstances the risk of HIV transmission is the same for a CS and a vaginal birth. [2011])	This recommendation has been deleted as it is now superseded by the BHIVA 2018 (updated 2020) guidelines https://www.bhiva.org/file/5f1aab1ab9aba/BHIVA-Pregnancy-guidelines-2020-3rd-interim-update.pdf

1.2.8.3 Consider either a vaginal birth or a CS for women on anti-retroviral therapy (ART) with a viral load of 50–400 copies per ml because there is insufficient evidence that a CS prevents mother-to-child transmission of HIV. **[2011]**	This recommendation has been deleted as it is now superseded by the BHIVA 2018 (updated 2020) guidelines https://www.bhiva.org/file/5f1aab1ab9aba/BHIVA-Pregnancy-guidelines-2020-3rd-interim-update.pdf
1.2.8.4 Offer a CS to women with HIV who: • are not receiving any anti-retroviral therapy or • are receiving any anti-retroviral therapy and have a viral load of 400 copies per ml or more. [2011]	This recommendation has been deleted as it is now superseded by the BHIVA 2018 (updated 2020) guidelines https://www.bhiva.org/file/5f1aab1ab9aba/BHIVA-Pregnancy-guidelines-2020-3rd-interim-update.pdf
1.2.8.5 Researchers and national bodies responsible for the collection of UK population data should continue to collect data about HIV diagnoses in pregnant women, including treatment, mode of birth, and mother-to-child transmission rates. [2011]	This recommendation has been deleted as it is now superseded by the BHIVA 2018 (updated 2020) guidelines https://www.bhiva.org/file/5f1aab1ab9aba/BHIVA-Pregnancy-guidelines-2020-3rd-interim-update.pdf
1.3.2.2 Women with an uncomplicated pregnancy should be offered induction of labour beyond 41 weeks because this reduces the risk of perinatal mortality and the likelihood of CS. [2004]	This recommendation has been deleted, as the age at which induction of labour should be offered is currently being updated in the Induction of labour guideline, and the decision to induce labour depends on other factors, not just the aim of reducing the likelihood of caesarean birth.
1.3.2.5 Electronic fetal monitoring is associated with an increased likelihood of CS. When CS is contemplated because of an abnormal fetal heart rate pattern, in cases of suspected fetal acidosis, fetal blood sampling should be offered if it is technically possible and there are no contraindications. [2004]	This recommendation has been deleted as the committee agreed that the most up to date advice on electronic fetal monitoring is in the Intrapartum care guideline
1.4.3.4 Use the following decision-to-delivery intervals to measure the overall performance of an obstetric unit: • 30 minutes for category 1 CS[2] • both 30 and 75 minutes for category 2 CS. Use these as audit standards only and not to judge multidisciplinary team performance for any individual CS. [2011]	The recommendation has been deleted as the committee agreed that it was not necessary to include performance standards within the clinical guideline

1.7.1.2 Women who have a CS should be prescribed and encouraged to take regular analgesia for postoperative pain, using: • for severe pain, co-codamol with added ibuprofen • for moderate pain, co-codamol • for mild pain, paracetamol. [2004]	The recommendation has been deleted and replaced by new recommendations on pain. All the recommendations on pain are now grouped together in section 1.6 instead of being in several places in the guideline. Co-codamol has now also been subject to an MHRA warning and should not be used in breastfeeding women.

Table 2 Amended recommendation wording (change to intent) without an evidence review

Recommendation in 2011 guideline	Recommendation in current guideline	Reason for change
Heading: 1.1 Woman-centred care	Heading: 1.1 Planning mode of birth	This heading has been changed as the whole guideline is about woman-centred care, and this first section is more specifically about planning mode of birth.
1.1.1.1 Pregnant women should be offered evidence-based information and support to enable them to make informed decisions about childbirth. Addressing women's views and concerns should be recognised as being integral to the decision making process [2004]	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 views and concerns are central to the decision-making process. [2004, amended 2020])	This recommendation has been combined with recommendation 1.1.1.3 and made into a bulleted list to improve ease of reading.

1.1.1.2 Give pregnant women evidence-based information about CS during the antenatal period, because about one in four women will have a CS. Include information about CS, such as: • indications for CS (such as presumed fetal compromise, 'failure to progress' in labour, breech presentation) • what the procedure involves • associated risks and benefits • implications for future pregnancies and birth after CS. [2011]	1.1.2 Discuss mode of birth with pregnant women early in their pregnancy. Cover information such as: • around 25% to 35% of women will have a caesarean birth • factors that can increase the likelihood of having a caesarean birth (for example, 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 the NICE guideline on Intrapartum care for more information on choosing planned place of birth) • what the caesarean birth procedure involves • implications for future pregnancies and birth after caesarean birth or vaginal birth(for example, after a caesarean birth the chances of caesarean birth being necessary in a future pregnancy may be increased). [2011, amended 2020]	This recommendation has been updated based on the committee's experience to provide guidance on when this should be discussed, to reflect the current caesarean rate, and to include a link to the Intrapartum care guideline relating to considering the place of birth when planning mode of birth.

1.1.1.3 Communication and information should be provided in a form that is accessible to pregnant women, taking into account the information and cultural needs of minority communities and women whose first language is not English or who cannot read, together with the needs of women with disabilities or learning difficulties. [2004]	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 views and concerns are central to the decision-making process. [2004, amended 2020])	This recommendation has been combined with recommendation 1.1.1.1 and made into a bulleted list to improve ease of reading.
1.1.2.2 Consent for CS should be requested after providing pregnant women with evidence-based information and in a manner that respects the woman's dignity, privacy, views and culture, while taking into consideration the clinical situation. [2004]	1.2.21 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 2020]	This recommendation has been clarified.
1.1.2.3 A pregnant woman is entitled to decline the offer of treatment such as CS, even when the treatment would clearly benefit her or her baby's health. Refusal of treatment needs to be one of the woman's options.[2004, amended 2011]	1.2.22 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. 2020]	The language has been amended from refusal of treatment to declining treatment, and the recommendation has been reworded to make it easier to read
1.1.2.4 When a decision is made to perform a CS, a record should be made of all the factors that influence the decision, and which of these is the most influential.[2004, amended 2011]	1.2.23 When a woman decides to have a caesarean birth, document the factors that are important to the woman when making her decision. [2004, amended 2020]	The recommendation has been amended to make it clear that it is the woman's decision, not something that is decided for her.

1.2.1.1 Women who have an uncomplicated singleton breech pregnancy at 36 weeks' gestation should be offered external cephalic version. Exceptions include women in labour and women with a uterine scar or abnormality, fetal compromise, ruptured membranes, vaginal bleeding or medical conditions.[2004]	1.2.1 Offer women who have an uncomplicated singleton breech pregnancy at 36 weeks, external cephalic version, unless: • the woman is in labour • the woman has a uterine scar or abnormality • there is fetal compromise • the woman has ruptured membranes or, vaginal bleeding • the woman has any other medical conditions that would make external cephalic version inadvisable [2004, amended 2020]	This recommendation has been updated to clarify that the medical condition is one that would make cephalic version inadvisable, not *any* medical condition.
1.2.1.2 Pregnant women with a singleton breech presentation at term, for whom external cephalic version is contraindicated or has been unsuccessful, should be offered CS because it reduces perinatal mortality and neonatal morbidity. [2004]	1.2.2 Discuss with women the benefits and risks of planned vaginal breech birth versus planned caesarean birth, if external cephalic version has been declined, is contraindicated or has been unsuccessful.[2004, amended 2020]	The recommendation has been updated to include ‘declined’ as well as ‘contraindicated’ and ‘unsuccessful’
1.2.6.3 Discuss the interventions available for delivery with women suspected to have morbidly adherent placenta, including cross matching of blood and planned CS with a consultant obstetrician present. [2011]	1.2.8 Discuss birth options (for example, timing of birth, operative interventions, 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 2020]	This recommendation has been updated to clarify that ‘interventions’ means timing of birth, and the nature of the operative interventions, that cross-matching of blood means explaining that a blood transfusion might be necessary, and that this discussion should be carried out by a consultant obstetrician, or with one present.

1.2.6.4 When performing a CS for women suspected to have morbidly adherent placenta, ensure that: • a consultant obstetrician and a consultant anaesthetist are present • an experienced paediatrician is present • a senior haematologist is available for advice • a critical care be is available • sufficient cross-matched blood and blood products are readily available. [2011]	1.2.9 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 • 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 2020]	This recommendation has been clarified to include more detail on what is meant by an experienced paediatrician, and a senior haematologist.
1.2.6.5 When performing a CS for women suspected to have morbidly adherent placenta, the consultant obstetrician should decide which other healthcare professionals need to be consulted or present. [2011]	1.2.10 Before performing a caesarean birth for women suspected to have morbidly adherent placenta, multi-disciplinary team should agree which other healthcare professionals need to be consulted or present, and their responsibilities. [2011, amended 2020]	This recommendation has been updated to reflect the fact that a team approach is necessary and that it is important that those attending know what their role is.
1.2.7.1 Pelvimetry is not useful in predicting 'failure to progress' in labour and should not be used in decision making about mode of birth. [2004]	1.2.12 Do not use pelvimetry for decision making about mode of birth [2004, amended 2020]	The rationale for why pelvimetry should not be used is not needed in the recommendation so has been removed on the advice of the NICE editor.
1.2.7.2 Shoe size, maternal height and estimations of fetal size (ultrasound or clinical examination) do not accurately predict cephalopelvic disproportion and should not be used to predict 'failure to progress' during labour. [2004]	1.2.13 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 2020]	Shoe size has been clarified to maternal shoe size. The recommendation was clarified to indicate that these features should not be used to decide mode of birth.

1.2.8.1 As early as possible give women with HIV information about the risks and benefits for them and their child of the HIV treatment options and mode of birth so that they can make an informed decision. [2011]	1.2.14 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. [2011, amended 2020]	The committee advised that the benefit would be to the woman's baby (not child) and clarified that the information should be provided as early as possible in their pregnancy.
1.2.8.6 Mother-to-child transmission of hepatitis B can be reduced if the baby receives immunoglobulin and vaccination. In these situations pregnant women with hepatitis B should not be offered a planned CS because there is insufficient evidence that this reduces mother-to-child transmission of hepatitis B virus. [2004]	1.2.15 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 2020]	The committee advised that the benefit would be to the woman's baby (not child). The rationale for the recommendation is not needed so has been removed on the advice of the NICE editor. The wording 'for this reason alone' has been added to make it clear that women with hepatitis B can have a caesarean birth for other reasons, if required.
1.2.8.7 Women who are infected with hepatitis C should not be offered a planned CS because this does not reduce mother-to-child transmission of the virus. [2004]	1.2.16 Do not offer women who are infected with hepatitis C a planned caesarean birth for this reason alone. [2004, amended 2020]	The rationale for the recommendation is not needed so has been removed on the advice of the NICE editor. The wording 'for this reason alone' has been added to make it clear that women with hepatitis C can have a caesarean birth for other reasons, if required.
12.8.8 Pregnant women who are co-infected with hepatitis C virus and HIV should be offered planned CS because it reduces mother-to-child transmission of both hepatitis C virus and HIV. [2004]	1.2.17 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 2020]	The committee advised that the benefit would be to the woman's baby (not child).
1.2.8.10 Pregnant women with a recurrence of HSV at birth should be informed that there is uncertainty about the effect of planned CS in reducing the risk of neonatal HSV infection. Therefore, CS should not routinely be offered outside a research context. [2004]	1.2.19 Do not routinely offer pregnant women with recurrent HSV infection a planned caesarean birth outside of the context of research. [2004, amended 2020]	The committee advised (and this was confirmed by the evidence from 2004) that it was not a recurrence of HSV at birth, but recurrent HSV that was under consideration here, and so clarified the wording. The rationale for the recommendation is not needed so has been removed on the advice of the NICE editor.

1.2.9.1 When a woman requests a CS explore, discuss and record the specific reasons for the request. [2011]	1.2.24 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 2020]	The committee agreed that the phrase 'with no other medical indication' should be moved from the subsequent recommendation into this recommendation for clarity.
1.2.9.2 If a woman requests a CS when there is no other indication, discuss the overall risks and benefits of CS compared with vaginal birth and record that this discussion has taken place (see box A). Include a discussion with other members of the obstetric team (including the obstetrician, midwife and anaesthetist) if necessary to explore the reasons for the request, and ensure the woman has accurate information. [2011]	1.2.25 If a woman requests a caesarean birth discuss the overall benefits and risks of caesarean birth compared with vaginal birth (see section on planning mode birth) and record that this discussion has taken place. 1.2.26 If a woman requests a caesarean birth, arrange 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 2020]	The committee clarified the recommendation to make it clear that the discussion would not be a single meeting with all the healthcare professionals together, and would more likely be a series of meetings, depending on the woman's concerns. The recommendation was broken into 2 separate recommendations to improve ease of reading.
1.2.9.3 When a woman requests a CS because she has anxiety about childbirth, offer referral to a healthcare professional with expertise in providing perinatal mental health support to help her address her anxiety in a supportive manner. [2011]	1.2.27 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 in a supportive manner. See the NICE guideline on Antenatal and postnatal mental health for more detailed advice on providing mental health services for pregnant women. [2011, amended 2020]	The committee clarified the recommendation to make it clear that it was only women with tokophobia or severe anxiety who should be referred to perinatal mental health services, and not women with some concerns and who had made a rational decision to elect for a caesarean birth. A link to the NICE guideline on antenatal and postnatal mental health has been added.

1.2.9.4 Ensure the healthcare professional providing perinatal mental health support has access to the planned place of birth during the antenatal period in order to provide care.[2011]	1.2.28 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.	The recommendation has been clarified to show that the mental health support is for women requesting a caesarean birth, and not all women.
1.2.9.5 For women requesting a CS, if after discussion and offer of support (including perinatal mental health support for women with anxiety about childbirth), a vaginal birth is still not an acceptable option, offer a planned CS. [2011]	1.2.29 If a vaginal birth is still not an acceptable option after discussion of benefits and risks and offer of support (including perinatal mental health support if appropriate, see recommendation 1.2.23) offer a planned caesarean birth. [2011, amended 2020]	The recommendation was amended as perinatal mental health support will only be necessary for women as defined in the earlier recommendation, and not all those with anxiety.
1.2.9.6 An obstetrician unwilling to perform a CS should refer the woman to an obstetrician who will carry out the CS. [new 2011]	1.2.30 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 2020]**	This recommendation has been reworded to clarify that this referral is for women who have requested a caesarean birth.
1.3 Factors affecting likelihood of CS during intrapartum care	1.3 Factors affecting the likelihood of emergency caesarean birth CB during intrapartum care	This heading has been amended to clarify that this is emergency caesarean .
1.3.2.4 Consultant obstetricians should be involved in the decision making for CS, because this reduces the likelihood of CS. [2004]	1.3.3 Involve consultant obstetricians in decision making for caesarean birth. [2004, amended 2020]	The rationale for the recommendation is not needed so has been removed on the advice of the NICE editor.

1.3.3.1 Women should be informed that the following interventions during intrapartum care have not been shown to influence the likelihood of CS, although they may affect other outcomes that are outside the scope of this guideline: • 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]	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 2020]	The committee recommended the removal of the words 'outside the scope of this guideline' as they agreed it was unnecessary to state this.
1.3.3.2 Women should be informed that the effects on the likelihood of CS of complementary therapies used during labour (such as acupuncture, aromatherapy, hypnosis, herbal products, nutritional supplements, homeopathic medicines, and Chinese medicines) have not been properly evaluated and further research is needed before such interventions can be recommended. [2004]	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 2020]	The committee agreed to remove the sentence 'further research is needed before such interventions can be recommended' as it implies these will be recommended as interventions at some point in the future.
Heading: Failure to progress in labour and CS	Heading: Slow progression in labour and caesarean birth	The committee agreed that the terminology 'failure to progress' should be replaced with the now more acceptable terminology 'slow progression of labour'

1.3.4.1 The following aspects of intrapartum care have not been shown to influence the likelihood of CS for 'failure to progress' and should not be offered for this reason, although they may affect other outcomes which are outside the scope of this guideline: • active management of labour • early amniotomy. [2004]	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 may can affect other outcomes: • active management of labour (one-to-one continuous support; strict definition of established labour; early routine amniotomy; routine 2-hourly vaginal examination; oxytocin if labour becomes slow) • early amniotomy. [2004, amended 2020]	The committee recommended the removal of the words 'outside the scope of this guideline' as they agreed it was unnecessary to state this. The committee agreed that the terminology 'failure to progress' should be replaced with the now more acceptable terminology 'slow progression of labour'. The definition of active management has been added (taken from the intrapartum care guideline) to add clarity to the recommendation.
Classification of urgency	Classification of urgency for unplanned and emergency caesarean birth	This heading has been clarified to clarify that this related to emergency or unplanned caesarean.
1.4.2.1 The urgency of CS should be documented using the following standardised scheme in order to aid clear communication between healthcare professionals about the urgency of a CS: • 1. immediate threat to the life of the woman or fetus • 2. maternal or fetal compromise which is not immediately life-threatening • 3. no maternal or fetal compromise but needs early delivery • 4. delivery timed to suit woman or staff. [2004]	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) 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 staff. [2004, amended 2020]	The committee agreed to add some examples to the category 1 to aid healthcare professionals' decision-making.
Decision-to-delivery interval for unplanned CS	Decision-to-delivery birth interval for unplanned and emergency caesarean birth	This heading has been clarified to clarify that this related to emergency or unplanned caesarean.

1.4.3.1 Perform category 1 and 2 CS[2] as quickly as possible after making the decision, particularly for category 1. [2011]	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 2020]	The committee amended the wording of this recommendation and the subsequent recommendation to clarify the difference in timing required between category 1 and category 2. The 30 minutes and 75 minutes are national audit standards.
1.4.3.2 Perform category 2 CS[2] in most situations within 75 minutes of making the decision. [2011]	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 2020]	The committee amended the wording of this recommendation and the previous recommendation to clarify the difference in timing required between category 1 and category 2. The 30 minutes and 75 minutes are national audit standards.
1.4.4.1 Pregnant women should be offered a haemoglobin assessment before CS to identify those who have anaemia. Although blood loss of more than 1000 ml is infrequent after CS (it occurs in 4–8% of CS) it is a potentially serious complication. [2004]	1.4.6 Before caesarean birth, carry out grouping and saving of serum, and a haemoglobin assessment to identify those who have anaemia and antibodies. [2004, amended 2020]	This recommendation was updated to include grouping and saving of serum and testing for antibodies, as the committee advised these would be necessary. The rationale for the recommendation is not needed so has been removed on the advice of the NICE editor.
1.4.4.2 Pregnant women having CS for antepartum haemorrhage, abruption, uterine rupture and placenta praevia are at increased risk of blood loss of more than 1000 ml and should have the CS carried out at a maternity unit with on-site blood transfusion services. [2004]	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 1000 ml. [2004,amended 2020]	The committee removed uterine rupture as this is an acute emergency that will occur wherever the woman is situated.

1.4.4.3 Pregnant women who are healthy and who have otherwise uncomplicated pregnancies should not routinely be offered the following tests before CS: • grouping and saving of serum • cross-matching of blood • a clotting screen • preoperative ultrasound for localisation of the placenta, because this does not improve CS morbidity outcomes (such as blood loss of more than 1000 ml, injury of the infant, and injury to the cord or to other adjacent structures). [2004]	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 2020]	The committee removed grouping and saving from this recommendation as they advised this should be carried out before caesarean birth. The rationale for the recommendation is not needed so has been removed on the advice of the NICE editor.
1.4.4.4 Women having CS with regional anaesthesia require an indwelling urinary catheter to prevent over-distension of the bladder because the anaesthetic block interferes with normal bladder function. [2004]	1.4.9 Give women having caesarean birth with regional anaesthesia an indwelling urinary catheter to prevent over-distension of the bladder. [2004, amended 2020]	The rationale for the recommendation is not needed so has been removed on the advice of the NICE editor.
1.4.5.2 Women who are having a CS should be offered regional anaesthesia because it is safer and results in less maternal and neonatal morbidity than general anaesthesia. This includes women who have a diagnosis of placenta praevia. [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 2020]	The rationale for the recommendation is not needed so has been removed on the advice of the NICE editor.
1.4.5.3 Women who are having induction of regional anaesthesia for CS should be cared for in theatre because this does not increase women's anxiety. [2004,amended 2011]	1.4.12 Carry out induction of regional anaesthesia for caesarean birth in theatre. [2004, amended 2020]	The rationale for the recommendation is not needed so has been removed on the advice of the NICE editor.

1.4.5.4 Women who are having a CS under regional anaesthesia should be offered intravenous ephedrine or phenylephrine, and volume pre-loading with crystalloid or colloid to reduce the risk of hypotension occurring during CS. [2004]	1.4.14 Offer women who are having a caesarean birth under spinal anaesthesia a prophylactic intravenous infusion of ephedrine or 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 2020] 1.4.15 Use intravenous colloid pre-loading or crystalloid co-loading in addition to vasopressors to reduce the risk of hypotension occurring during caesarean birth. Follow the MHRA safety advice on hydroxyethyl starch intravenous infusions. [2004, amended 2020]	This recommendation has been split into 2 recommendations for ease of reading, and more detail has been added by the committee about the use of prophylactic ephedrine or phenylephrine. The MHRA warning about the use of hydroxyethylstarch (colloid) has been added as this is a new warning published since the last version of the guideline.
1.4.5.6 To reduce the risk of aspiration pneumonitis women should be offered antacids and drugs (such as H_2 receptor antagonists or proton pump inhibitors) to reduce gastric volumes and acidity before CS. [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 October 2020, this was an off-label use of proton pump inhibitors. See NICE's information on prescribing medicines. [2004, amended 2020]	The off-label note relating to proton pump inhibitors was added, as per NICE requirements for off-label medicines.

1.4.5.9 Intravenous ephedrine or phenylephrine should be used in the management of hypotension during CS. [2004]	1.4.16 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 2020]	More detail has been added by the committee about the use of ephedrine to manage hypotension.
1.4.5.10 The operating table for CS should have a lateral tilt of 15°, because this reduces maternal hypotension. [2004]	1.4.13 Before beginning a caesarean birth procedure, apply a left lateral tilt of up to 15° once the woman is in a supine position on the operating table to reduce maternal hypotension. [2004, amended 2020]	More detail has been added to the recommendation by the committee to clarify that the tilt should be left, and that this should only be done when the woman is supine.
1.4.6.11 Intraperitoneal repair of the uterus at CS should be undertaken. 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]	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 2020]	The word 'routine' has been added to the recommendation by the committee, as in some cases exteriorisation of the uterus may be necessary, for example to stop bleeding.
1.4.6.18 Umbilical artery pH should be performed after all CS for suspected fetal compromise, to allow review of fetal wellbeing and guide ongoing care of the baby. [2004]	1.4.43 Perform paired umbilical artery and vein measurements of cord blood gases after caesarean birth for suspected fetal compromise, to allow for review of fetal wellbeing and guide ongoing care of the baby. [2004, amended 2020]	The committee advised that paired cord gases were required, and that this was not just to obtain pH, so the recommendation was amended to state this.
1.4.6.19 Offer women prophylactic antibiotics at CS before skin incision. Inform them that this reduces the risk of maternal infection more than prophylactic antibiotics given after skin incision, and that no effect on the baby has been demonstrated. [2011]	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 2020]	Recommendations 1.4.6.19 and 1.4.6.20 in the previous guideline were revised and reconfigured into 2 amended recommendations – 1 about offering treatment, and 1 about the advice to be given to women.

1.4.6.20 Offer women prophylactic antibiotics at CS to reduce the risk of postoperative infections. Choose antibiotics effective against endometritis, urinary tract and wound infections, which occur in about 8% of women who have had a CS. [2011]	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 2020]	Recommendations 1.4.6.19 and 1.4.6.20 in the previous guideline were revised and reconfigured into 2 amended recommendations – 1 about offering treatment, and 1 about the advice to be given to women.
1.4.6.22 Women having a CS should be offered thromboprophylaxis because they are at increased risk of venous thromboembolism. The choice of method of prophylaxis (for example, graduated stockings, hydration, early mobilisation, low molecular weight heparin) should take into account risk of thromboembolic disease and follow existing guidelines[3]. [2004, amended 2011]	1.4.47 Offer women having a caesarean birth thromboprophylaxis as they may be at increased risk of venous thromboembolism. 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, amended 2020]	The link to the existing NICE guidelines has been removed as the committee were aware that this is out of date. The risk of venous thromboembolism has been reduced to 'may be' in accordance with the new evidence identified for the risks and benefits of caesarean birth.

1.5.3.1 Early skin-to-skin contact between the woman and her baby should be encouraged and facilitated because it improves maternal perceptions of the infant, mothering skills, maternal behaviour, and breastfeeding outcomes, and reduces infant crying. [2004]	1.5.3 Encourage and facilitate early skin-to-skin contact between the woman and her baby to improve bonding and breastfeeding outcomes, and reduce baby crying. [2004, amended 2020]	The committee agreed that the wording of this recommendation should be amended to refer simply to bonding.
1.5.4.1 Women who have had a CS should be offered additional support to help them to start breastfeeding as soon as possible after the birth of their baby. This is because women who have had a CS are less likely to start breastfeeding in the first few hours after the birth, but, when breastfeeding is established, they are as likely to continue as women who have a vaginal birth. [2004]	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 2020]	The recommendation was amended to clarify that support should be offered to women who wish to breastfeed. The rationale for the recommendation is not needed so has been removed on the advice of the NICE editor.
1.6.1.1 Healthcare professionals caring for women after CS should be aware that, although it is rare for women to need intensive care following childbirth, this occurs more frequently after CS (about 9 per 1000). [2004]	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 2020]	The evidence review on the risks and benefits of caesarean birth compared to vaginal birth found there was uncertainty over the difference in intensive care admission, so this recommendation has been amended to reflect this.
1.6.2.4 For women who have had epidural opioids or patient-controlled analgesia with opioids, there should be routine hourly monitoring of respiratory rate, sedation and pain scores throughout treatment and for at least 2 hours after discontinuation of treatment. [2004]	1.6.8 For women who have patient-controlled analgesia with opioids after caesarean birth, there should be routine hourly monitoring of respiratory rate, sedation and pain scores throughout treatment and for at least 2 hours after discontinuation of treatment. [2004, amended 2020]	The monitoring of women who have had epidural opioids is covered in the new 2020 recommendations on monitoring after spinal or epidural anaesthesia, so this recommendation now just relates to women who have patient-controlled analgesia with opioids.

1.6.3.1 Women should be offered diamorphine (0.3–0.4 mg intrathecally) for intra- and postoperative analgesia because it reduces the need for supplemental analgesia after a CS. Epidural diamorphine (2.5–5mg) is a suitable alternative. [2004]	1.6.9 Offer women diamorphine (0.3–0.4 mg intrathecally) to reduce the need for supplemental analgesia after a caesarean birth. Epidural diamorphine (2.5–5 mg) is a suitable alternative where intrathecal diamorphine has not been given. In October 2020, this was an off-label use of diamorphine (both intrathecal and epidural). See NICE's information on prescribing medicines. [2004, amended 2020]	The recommendation has been clarified to state when epidural diamorphine should be used. The off-label note relating to diamorphine was added, as per NICE requirements for off-label medicines.
1.6.3.3 Providing there is no contraindication, non-steroidal anti-inflammatory drugs should be offered post-CS as an adjunct to other analgesics, because they reduce the need for opioids. [2004]	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 allow them to be stepped down and stopped as early as possible [2004, amended 2020]	Paracetamol has been added to the recommendation to clarify what 'other analgesics' in the original recommendation refers to, ibuprofen has been added as an example of a non-steroidal drug as this is safe in breastfeeding, and I has been calrifed that the aim is to reduce the use of opioids.
1.6.7.1 Length of hospital stay is likely to be longer after a CS (an average of 3–4 days) than after a vaginal birth (average 1–2 days). However, women who are recovering well, are apyrexial and do not have complications following CS should be offered early discharge (after 24 hours) from hospital and follow-up at home, because this is not associated with more infant or maternal readmissions. [2004]	1.6.23 Inform women that length of hospital stay is likely to be longer after caesarean birth than after a vaginal birth. [2004, amended 2020] 1.6.24 Offer women who are recovering well, are apyrexial and do not have complications after caesarean birth early discharge (after 24 hours) from hospital and follow-up at home, as this is not associated with more readmissions for babies or mothers. [2004, amended 2020]	This recommendation has been split into 2 recommendations to improve ease of reading. The details about length of stay of 3-4 days has been removed as this is no longer the case.

1.7.1.3 CS wound care should include: • removing the dressing 24 hours after the CS • 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[4]. [2004,amended 2020]	1.7.5 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 2020]	The dressing removal period has been amended to 6 to 24 hours, based on the evidence review conducted for methods to reduce infectious morbidity. A link has also been added to the NICE guideline on Surgical site infections.
1.7.1.4 Healthcare professionals caring for women who have had a CS and who have urinary symptoms should consider the possible diagnosis of: • urinary tract infection • stress incontinence (occurs in about 4% of women after CS) • urinary tract injury (occurs in about 1 per 1000 CS). [2004]	1.7.6 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 1000 caesarean births) • urinary retention. [2004,amended 2020]	The committee advised that urinary retention was also a common problem after caesarean birth and added this to the list of possible diagnoses.
1.7.1.5 Healthcare professionals caring for women who have had a CS and who have heavy and/or irregular vaginal bleeding should consider that this is more likely to be due to endometritis than retained products of conception. [2004,amended 2011]	1.7.7 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 2020]	The committee added the words ‘and manage accordingly’ to the end of this recommendation to provide more clarity that action should be taken.

1.7.1.6 Women who have had a CS are at increased risk of thromboembolic disease (both deep vein thrombosis and pulmonary embolism), so healthcare professionals need to pay particular attention to women who have chest symptoms (such as cough or shortness of breath) or leg symptoms (such as painful swollen calf). [2004]	1.7.8 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 2020]	The terminology 'chest symptoms' has been changed to 'respiratory symptoms'. The certainty of the risk of thromboembolic disease has been reduced to 'may be' in accordance with the new evidence for the risks and benefits of caesarean birth.
1.7.1.7 Women who have had a CS should resume activities such as driving a vehicle, carrying heavy items, formal exercise and sexual intercourse once they have fully recovered from the CS (including any physical restrictions or distracting effect due to pain). [2004]	1.7.9 Encourage women who have had a caesarean birth to resume activities such as driving a vehicle, carrying heavy items, formal exercise and sexual intercourse once they feel they have fully recovered from the caesarean birth (including any physical restrictions or pain). [2004, amended 2020]	The committee amended the wording to add 'feel' as it is important that women only resume these activities when they feel they are ready. The words 'distracting effect' were removed as this implies that pain is merely a distraction, and some women may have ongoing pain
1.7.1.8 Healthcare professionals caring for women who have had a CS should inform women that after a CS they are not at increased risk of difficulties with breastfeeding, depression, post-traumatic stress symptoms, dyspareunia and faecal incontinence. [2004]	1.7.10 When caring for women who have had an 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 2020]	The recommendation was reworded to clarify that dyspareunia means pain on sexual intercourse. Inform has been changed to 'discuss'.
1.7.1.9 While women are in hospital after having a CS, give them the opportunity to discuss with healthcare professionals the reasons for the CS and provide both verbal and printed information about birth options for any future pregnancies. If the woman prefers, provide this at a later date.	1.7.11 While women are in hospital after having an emergency 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 2020]	This recommendation has been clarified to state that this discussion should only be necessary in women who have had an emergency or unplanned caesarean birth.

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Table 3 Minor changes to recommendation wording (no change to intent)

Recommendation numbers in current guideline	Comment
All recommendations except those labelled [2020]	Recommendations have been edited into the direct style (in line with current NICE style for recommendations in guidelines) where possible. Yellow highlighting has not been applied to these changes.