

1 **Intrapartum care for women with existing**
2 **medical conditions or obstetric complications**
3 **and their babies**

4
5 **NICE guideline**

6 **Draft for consultation, September 2018**

This guideline covers

- Women in spontaneous or induced labour (or who have a planned caesarean section) who are at high risk of adverse outcomes for themselves or their baby because of existing maternal medical conditions.
- Women in spontaneous or induced labour who are at high risk of adverse outcomes for themselves or their baby because:
 - of obstetric complications in the current or previous pregnancy, labour or birth
 - the baby is identified during labour to be at risk of adverse outcomes
 - they have had no antenatal care.

Who is it for?

- Pregnant women, their birth companions, families and carers, and the public.
- Obstetricians, midwives, anaesthetists and other healthcare professionals caring for women in labour.
- Providers and commissioners of maternity services.

This version of the guideline contains:

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

Information about how the guideline was developed is on the on the [NICE website](#). This includes the evidence reviews, the scope, and details of the committee and any declarations of interest.

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1 Recommendations

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

2 **1.1 Information for women with existing medical conditions**

3 1.1.1 Offer pregnant women with medical conditions and their birth companions
4 information about intrapartum care. This should include:

- 5 • general information as outlined in the NICE guideline on [intrapartum](#)
6 [care for healthy women and babies](#)
- 7 • how their medical condition may affect their care
- 8 • how labour and birth may affect their medical condition
- 9 • how their medical condition and its management may affect the baby.

10 1.1.2 Offer information about intrapartum care in consultations before
11 conception and as early as possible during pregnancy. Allow extra time to
12 discuss with the woman how her medical condition may affect her care.

13 1.1.3 Information about intrapartum care should be offered to women with
14 medical conditions by a member of the multidisciplinary team (see
15 recommendation 1.2.2).

16 1.1.4 If a woman with a medical condition has not had any antenatal care (see
17 section 1.18), give her information about intrapartum care as soon as she
18 presents.

To find out why the committee made the recommendations on information for women with existing medical conditions and how they might affect practice, see [rationale and impact](#)

1 **1.2 *Antenatal care planning involving a multidisciplinary***
2 ***team for women with existing medical conditions***

3 1.2.1 A multidisciplinary team led by a named healthcare professional should
4 work with a pregnant woman with a medical condition to prepare an
5 individualised plan for intrapartum care. The plan should be:

- 6 • formulated by following the principles of shared decision-making
7 outlined in the NICE guideline on [improving the experience of care for](#)
8 [people using adult NHS services](#)
9 • reviewed with the woman and her birth companion(s) throughout
10 pregnancy and on admission for birth
11 • updated with the woman if her medical condition changes during
12 pregnancy.

13 1.2.2 For pregnant women with a medical condition the multidisciplinary team
14 should include, as appropriate:

- 15 • a midwife
16 • an obstetrician
17 • an obstetric anaesthetist
18 • an obstetric or specialty physician with expertise in caring for pregnant
19 women with the medical condition
20 • a specialty surgeon
21 • a critical care specialist
22 • a neonatologist
23 • allied health professionals.

To find out why the committee made the recommendations on antenatal care planning involving a multidisciplinary team and how they might affect practice, see [rationale and impact](#)

1 **1.3 Heart disease**

2 **Risk assessment for women with heart disease**

3 1.3.1 Risk assessment for women with heart disease should follow the
4 principles of multidisciplinary team working (outlined in recommendation
5 1.2.1). Include a cardiologist with expertise in managing heart disease in
6 pregnant women in the multidisciplinary team discussions.

7 1.3.2 For women who present in the intrapartum period with previously
8 undiagnosed heart disease, urgent multidisciplinary discussions are
9 needed to try to ensure that the woman is offered the same level of care
10 as a woman with an existing diagnosis of heart disease and, where
11 possible, that their preferences are taken into account.

12 1.3.3 Be aware that some women with heart disease are at low risk and
13 management should be in line with the NICE guideline on [intrapartum
14 care for healthy women and babies](#), whereas others need individualised
15 specialist care.

16 1.3.4 For women with heart disease, reassess risk regularly during pregnancy
17 and the intrapartum period using all of the following:

- 18 • comprehensive clinical assessment, including history and physical
19 examination
- 20 • the modified WHO classification of risk¹, with the addition of Loeyes
21 Dietz syndrome
- 22 • NYHA functional class.

¹ The WHO classification of risk from contraceptive use and pregnancy in cardiovascular disease modified to classify pregnancy risk associated with specific cardiovascular conditions ([Thorne et al. 2006](#)). The committee adapted the modified classification of risk outlined in [Thorne et al. 2006](#), based on their clinical experience to clarify the intrapartum risk associated with heart disease, including the addition of Loeyes Dietz syndrome.

- 1 1.3.5 Ensure that investigations are not withheld from women with heart
2 disease because of pregnancy and that the results are reviewed and
3 acted upon without delay.

To find out why the committee made the recommendations on risk assessment for women with heart disease and how they might affect practice, see [rationale and impact](#)

4 **Management of anticoagulation for women with mechanical heart valves**

- 5 1.3.6 When pregnancy is confirmed, involve women with mechanical heart
6 valves in multidisciplinary discussion of plans for anticoagulation during
7 the intrapartum period (see recommendation 1.2.1). Explain that they will
8 need individualised anticoagulation depending on their current treatment.
- 9 1.3.7 For women with mechanical heart valves who are taking warfarin in the
10 third trimester, switch anticoagulation to low-molecular-weight heparin by
11 36⁺⁰ weeks of pregnancy or 2 weeks before planned birth (if this is earlier
12 than 36⁺⁰ weeks). Consider doing this by:
- 13 • stopping warfarin and 24 hours later starting low-molecular-weight
14 heparin using a twice daily regimen at a dose based on the most recent
15 weight available
 - 16 • checking anti-Xa levels 3 to 4 hours after at least 3 doses of low-
17 molecular-weight heparin, aiming for a peak level between 1 and
18 1.4 IU/ml
 - 19 • checking anti-Xa levels weekly or fortnightly if the last test gave a peak
20 level of 1 to 1.4 IU/ml, and at least weekly if not (checking adherence).
- 21 1.3.8 For women with mechanical heart valves, stop therapeutic low-molecular-
22 weight heparin 24 hours before a planned caesarean section and consider
23 aiming to perform the caesarean section as near to 24 hours after
24 stopping as possible and no later than 30 hours after stopping.
- 25 1.3.9 For women with mechanical heart valves who are having an induction of
26 labour, a senior obstetrician should be involved in:

- 1 • deciding when to stop low-molecular-weight heparin in order to:
 - 2 – minimise the risk of maternal haemorrhage or valve thrombosis
 - 3 – enable the option of regional analgesia
- 4 • reviewing the progress of induction and the need for anticoagulation
- 5 every 12 hours, aiming for a low level of heparin at the time of active
- 6 labour.

7 1.3.10 For women with mechanical heart valves, carry out a further senior review
8 (involving at least an obstetrician and an anaesthetist) of the risk of
9 haemorrhage and valve thrombosis 3 to 4 hours after birth. Based on this
10 review, consider 1 of the following options:

- 11 • therapeutic low-molecular-weight heparin
- 12 • prophylactic low-molecular-weight heparin
- 13 • no low-molecular-weight heparin.

14 Aim to restart therapeutic low-molecular-weight heparin as soon as
15 possible after the 3- to 4-hour review.

16 1.3.11 For women with mechanical heart valves, consider delaying restarting
17 warfarin until at least 7 days after birth and closely supervise
18 anticoagulation when doing so.

19 1.3.12 For women who are taking warfarin and who present in established
20 labour:

- 21 • check the international normalised ratio (INR) immediately and consult
22 a haematologist
- 23 • stop anticoagulation immediately until the woman has had an
24 assessment by an obstetrician, which should happen within 2 hours
- 25 • carry out a senior review (including at least a senior obstetrician,
26 haematologist and a consultant obstetric anaesthetist) to discuss the
27 mode of birth most likely to give the lowest risk of bleeding for the
28 woman and the baby
- 29 • consider reversal of anticoagulation.

- 1 1.3.13 For women with bioprosthetic valves, continue any antiplatelet treatment
2 (for example, low-dose aspirin) throughout the intrapartum period.

To find out why the committee made the recommendations on management of anticoagulation for valvular disease and how they might affect practice, see [rationale and impact](#)

3 **Mode of birth for women with heart disease**

- 4 1.3.14 Offer an individualised birth plan covering all three stages of labour to
5 women with heart disease following multidisciplinary discussion (outlined
6 in recommendation 1.2.1). Consider including a cardiologist with expertise
7 in managing heart disease in pregnant women in the multidisciplinary
8 team discussions.
- 9 1.3.15 Offer planned birth (caesarean section or induction of labour) for women
10 with mechanical heart valves in order to minimise the time off
11 anticoagulation.
- 12 1.3.16 Consider planned caesarean section for women with:
- 13 • any disease of the aorta assessed as high risk
 - 14 • pulmonary arterial hypertension
 - 15 • NYHA class III or IV heart disease.
- 16 Explain the risks and benefits of caesarean section. If the woman chooses
17 not to have a caesarean section, offer an assisted second stage of labour
18 without active pushing.
- 19 1.3.17 For women with heart disease who have planned a caesarean section,
20 offer an individualised emergency care plan in case they present in early
21 labour, with new symptoms or with obstetric complications .
- 22 1.3.18 Throughout pregnancy, manage pulmonary arterial hypertension in
23 consultation with a specialist centre for this condition.

To find out why the committee made the recommendations on mode of birth for women with heart disease and how they might affect practice, see [rationale and impact](#)

1 **Fluid management for women with heart disease**

2 1.3.19 During pregnancy, plan the management of fluid balance during the
3 intrapartum period for women with heart disease with the multidisciplinary
4 team (outlined in recommendation 1.2.2). The team should include a
5 cardiologist with expertise in managing heart disease in pregnant women.
6 Multidisciplinary discussion should include:

- 7 • how the condition affects fluid balance
- 8 • optimum fluid balance and how this might be achieved
- 9 • plans for risk assessment and monitoring.

10 1.3.20 Identify women with heart disease for whom fluid balance is critical to
11 cardiac function. These include women with:

- 12 • severe left-sided stenotic lesions (for example, aortic stenosis and
13 mitral stenosis)
- 14 • hypertrophic cardiomyopathy
- 15 • cardiomyopathy with systolic ventricular dysfunction
- 16 • pulmonary arterial hypertension
- 17 • Fontan circulation and other univentricular circulations
- 18 • NYHA class IV heart disease.

19 1.3.21 For women with heart disease in whom fluid balance is critical for optimal
20 cardiac function, offer tailored monitoring and clinical review during the
21 intrapartum period, and consider escalation as follows:

- 22 • hourly monitoring of fluid input and output (with at least 4-hourly
23 assessment by a senior healthcare professional), blood pressure,
24 pulse, respiratory rate and oxygen saturation
- 25 • continuous electrocardiogram (ECG) and pulse oximetry with
26 interpretation by trained staff

- 1 • continuous intra-arterial blood pressure monitoring
2 • cardiac output monitoring with non-invasive techniques, or serial
3 echocardiography by trained staff.
- 4 1.3.22 Offer standard fluid management during the intrapartum period for women
5 with WHO 1 and NYHA class I heart disease.
- 6 1.3.23 Consider standard fluid management during the intrapartum period for
7 women with WHO 2 to 3, or NYHA class II to III heart disease after a
8 multidisciplinary discussion (outlined in recommendation 1.2.1).

To find out why the committee made the recommendations on fluid management for women with heart disease and how they might affect practice, see [rationale and impact](#)

9 **Diagnosis and management of heart failure in the intrapartum period**

- 10 1.3.24 Take a cardiac-specific history and suspect heart failure if there is not
11 another likely cause of any of the following symptoms:
- 12 • breathlessness when lying down (ruling out aortocaval compression) or
13 at rest
- 14 • unexplained cough, particularly when lying down or which produces
15 frothy pink sputum
- 16 • paroxysmal nocturnal dyspnoea – being woken from sleep by severe
17 breathlessness and coughing which may be productive of pink frothy
18 sputum, and is improved by moving to an upright position
- 19 • palpitation (awareness of persistent fast heart rate at rest).
- 20 1.3.25 Consider heart failure in the intrapartum period if there are any of the
21 following symptoms and signs:
- 22 • pale, sweaty, agitated with cool peripheries
- 23 • heart rate persistently greater than 110 beats per minute at rest
- 24 • respiratory rate persistently greater than 20 breaths per minute at rest
- 25 • hypotension (systolic blood pressure <100 mmHg)

- 1 • oxygen saturation less than 95% on air
2 • elevated jugular venous pressure
3 • added heart sound or murmur
4 • reduced air entry, basal crackles and wheeze, on listening to the chest.
- 5 1.3.26 If any of the symptoms or signs in recommendations 1.3.24 and 1.3.25
6 suggest heart failure, a consultant should review the woman's condition
7 without delay.
- 8 1.3.27 When there is a clinical suspicion of heart failure in any woman in the
9 intrapartum period:
- 10 • establish peripheral venous access
11 • measure urea and electrolytes, and perform a full blood count
12 • measure arterial blood gases
13 • perform an ECG
14 • perform a chest X-ray.
- 15 1.3.28 If clinical suspicion of heart failure in the intrapartum period cannot be
16 ruled out by the investigations in recommendation 1.3.27, arrange:
- 17 • review by a cardiologist (with interim review by a healthcare
18 professional with expertise in this area if a cardiologist is not
19 immediately available)
20 • a transthoracic echocardiogram by a trained technician or cardiologist
21 • measurement of N-terminal pro-brain natriuretic peptide (NT-proBNP)
22 levels.
- 23 1.3.29 Consider early birth for women with heart failure due to cardiomyopathy,
24 depending on the severity of the condition and how well the condition has
25 responded to treatment.
- 26 1.3.30 Optimise treatment for heart failure as soon as possible after birth even if
27 the woman is breastfeeding.

- 1 1.3.31 If clinical suspicion of heart failure persists after birth, consider cardiac
2 MRI scan.

To find out why the committee made the recommendations on diagnosis and management of heart failure in the intrapartum period and how they might affect practice, see [rationale and impact](#)

3 **Anaesthesia and analgesia for women with heart disease**

- 4 1.3.32 During pregnancy, prepare a plan for managing anaesthesia and
5 analgesia for women with heart disease involving a multidisciplinary team
6 (outlined in recommendation 1.2.1). Consider including a haematologist
7 for women on an anticoagulation regimen.
- 8 1.3.33 Consider offering the same advice about anaesthesia and analgesia in
9 labour to women with WHO 1 or WHO 2 heart disease as described in the
10 NICE guideline on [intrapartum care for healthy women and babies](#).
- 11 1.3.34 Consider regional anaesthesia for women with WHO 3 and WHO 4 heart
12 disease, unless this is contraindicated.
- 13 1.3.35 Consider collaborative working in the intrapartum period between an
14 obstetric anaesthetist and a cardiac anaesthetist for women with WHO 3
15 and WHO 4 heart disease.
- 16 1.3.36 When using regional anaesthesia for women with heart disease, aim to
17 preserve cardiovascular stability by, for example, using a combined
18 spinal–epidural technique with a low-dose spinal component and cautious
19 epidural top-up.
- 20 1.3.37 Offer close intrapartum monitoring of the heart and circulation to all
21 women with WHO 3 and WHO 4 heart disease; this will usually include
22 continuous invasive intra-arterial pressure monitoring and may include
23 central venous pressure monitoring and advanced cardiac output
24 monitoring.

1 1.3.38 Offer cardio-stable low-dose regional analgesia to women with WHO 3 or
2 WHO 4 heart disease when pain during labour and birth may affect their
3 heart.

4 1.3.39 Consider regional analgesia for women who have been on low-molecular-
5 weight heparin and who have not had a prophylactic dose for at least
6 12 hours, or a therapeutic dose for at least 24 hours.

To find out why the committee made the recommendations on anaesthesia and analgesia for women with heart disease and how they might affect practice, see [rationale and impact](#)

7 **Management of the third stage of labour for women with heart disease**

8 1.3.40 During pregnancy, prepare an individualised plan for managing the third
9 stage of labour for women with heart disease, involving a multidisciplinary
10 team (outlined in recommendation 1.2.1). Consider including a
11 cardiologist with expertise in managing heart disease in pregnant women.

12 1.3.41 Treat women with WHO 1 heart disease as low risk and consider the full
13 range of management options for healthy women in the third stage of
14 labour described in the NICE guideline on [intrapartum care for healthy
15 women and babies](#).

16 1.3.42 Consider active management of the third stage of labour for women with
17 WHO 2 heart disease, in line with the NICE guideline on [intrapartum care
18 for healthy women and babies](#).

19 1.3.43 Consider management of the third stage of labour for women with WHO 3
20 or WHO 4 heart disease according to table 1.

1 **Table 1 Management of the third stage of labour for women with WHO 3 or**
 2 **WHO 4 heart disease**

Condition	First-line uterotonic	Second-line uterotonics	Drugs to avoid due to potential harm
Significant aortopathy Marfan syndrome and aortic dilatation >40 mm Bicuspid aortopathy and aortic dilatation >45 mm Previous aortic dissection Turner syndrome and aortic size index >25 cm/m ² All women with Loeys Dietz syndrome ²	Oxytocin	Misoprostol Carboprost	Ergometrine (due to risk of hypertension-induced aortic dissection or rupture)
Limited or fixed low cardiac output, or preload-dependent circulation Severe systemic ventricular dysfunction (ejection fraction <30%) Severe valvar stenosis Hypertrophic cardiomyopathy with diastolic dysfunction or significant outflow tract obstruction Fontan circulation Cyanotic heart disease	Oxytocin	Misoprostol Carboprost	Long-acting oxytocin analogues and ergometrine (due to risk of hypertension-induced heart failure)
Pulmonary arterial hypertension	Oxytocin	Misoprostol	Ergometrine, carboprost and long-acting oxytocin analogues (due to risk of worsening pulmonary hypertension)
Coronary artery disease	Oxytocin	Misoprostol	Ergometrine (due to risk of coronary ischaemia)

3

² The committee adapted the modified WHO classification of risk outlined in [Thorne et al. 2006](#), based on their clinical experience to clarify the intrapartum risk associated with heart disease, including the addition of Loeys Dietz syndrome.

- 1 1.3.44 For women with a preload-dependent circulation, aim to avoid sudden
2 haemodynamic change when administering oxytocin, for example, by
3 giving a slow infusion rather than bolus.

To find out why the committee made the recommendations on management of the third stage of labour for women with heart disease how they might affect practice, see [rationale and impact](#)

4 **1.4 Asthma**

5 **Analgesia for women with asthma**

- 6 1.4.1 Offer women with asthma the same options for pain relief during labour as
7 women without asthma, including:
- 8 • Entonox (50% nitrous oxide plus 50% oxygen)
 - 9 • intravenous and intramuscular opioids
 - 10 • epidurals, and
 - 11 • combined spinal–epidural analgesia.

To find out why the committee made the recommendations on pain relief during labour for women with asthma and how they might affect practice, see [rationale and impact](#)

12 **Prostaglandins for women with asthma**

- 13 1.4.2 Consider prostaglandin E1 or prostaglandin E2 as options for inducing
14 labour in women with asthma because there is no evidence that they
15 worsen asthma.
- 16 1.4.3 Consider prostaglandin E1 as an option for treating postpartum
17 haemorrhage in women with asthma because there is no evidence it
18 worsens asthma.
- 19 1.4.4 Do not offer prostaglandin F2 alpha to women with asthma because of the
20 risk of bronchospasm.

To find out why the committee made the recommendations on prostaglandins for women with asthma and how they might affect practice, see [rationale and impact](#)

1 **1.5 Long-term systemic steroids**

2 **Steroid replacement regimens**

3 1.5.1 For women having a vaginal birth who have adrenal insufficiency or who
4 have been taking long-term oral steroids (equivalent to 5 mg or more
5 prednisolone daily for more than 3 weeks):

- 6 • continue their regular oral steroids, **and**
- 7 • when they are in established first stage of labour add intravenous or
8 intramuscular hydrocortisone and consider a minimum dose of 50 mg
9 every 6 hours until 6 hours after the baby is born.

10 1.5.2 For women having a caesarean section who have adrenal insufficiency or
11 who have been taking long-term oral steroids (equivalent to 5 mg or more
12 prednisolone daily for more than 3 weeks):

- 13 • continue their regular oral steroids, **and**
- 14 • give intravenous hydrocortisone when starting anaesthesia; the dose
15 will depend on whether the woman has received hydrocortisone in
16 labour, for example:
 - 17 – consider giving 50 mg if she has had hydrocortisone in labour
 - 18 – consider giving 100 mg if she has not had hydrocortisone in labour
- 19 • give a further dose of hydrocortisone 6 hours after the baby is born (for
20 example, 50 mg intravenously or intramuscularly).

21 1.5.3 Do not offer supplemental hydrocortisone in the intrapartum period to
22 women taking inhaled or topical steroids.

23 1.5.4 Be aware that maternal corticosteroids given antenatally for fetal lung
24 maturation should not affect the advice given in recommendation 1.5.1 to
25 1.5.3.

To find out why the committee made the recommendations on steroid replacement for women on long-term steroids and how they might affect practice, see [rationale and impact](#)

1 **1.6 *Bleeding disorders***

2 **Regional anaesthesia and analgesia for women with bleeding disorders**

3 1.6.1 Discuss the balance of benefits and risks of regional analgesia and
4 anaesthesia with women with bleeding disorders.

5 1.6.2 When considering regional analgesia and anaesthesia for women with
6 bleeding disorders, take into account:

- 7 • the overall risk of bleeding and opportunity for corrective treatment
- 8 • therapeutic and prophylactic anticoagulation
- 9 • the risk of bleeding associated with the technique to be used
- 10 • the difficulty of needle siting or insertion
- 11 • the comparative risks associated with no analgesia or non-regional
- 12 analgesia
- 13 • the comparative risks of general anaesthesia.
- 14

To find out why the committee made the recommendations on regional anaesthesia and analgesia for women with bleeding disorders and how they might affect practice, see [rationale and impact](#)

15 **Modifying the birth plan according to platelet count or function**

16 1.6.3 For woman with known immune thrombocytopenic purpura, before
17 admission for birth:

- 18 • plan birth in an obstetric-led unit with a neonatal unit that routinely
- 19 provides high-dependency care
- 20 • assume the baby will be at risk of bleeding irrespective of the woman's
- 21 platelet count

- 1 • consider monitoring maternal platelet count weekly from 36 weeks, and
2 if the platelet count is below 50:
3 – discuss and agree a plan for intrapartum management with the
4 multidisciplinary team, including a haematologist
5 – consider giving steroids or intravenous immunoglobulin to raise the
6 maternal platelet count.
- 7 1.6.4 For women with known immune thrombocytopenic purpura, on admission
8 for birth:
- 9 • measure maternal platelet count
10 • manage intrapartum care according to table 2.
- 11 1.6.5 For women with immune thrombocytopenic purpura or suspected immune
12 thrombocytopenic purpura, take the following precautions to reduce the
13 risk of bleeding for the baby:
- 14 • do not use ventouse
15 • do not carry out fetal blood sampling
16 • use fetal scalp electrodes with caution
17 • use mid-cavity or rotational forceps with caution
18 • bear in mind that a caesarean section may not protect the baby from
19 bleeding
20 • inform the neonatal team of the imminent birth of a baby at risk
21 • measure the platelet count in the umbilical cord blood at birth.
- 22 1.6.6 For women with gestational thrombocytopenia (presenting for the first time
23 in pregnancy (without pre-eclampsia and HELLP syndrome, and
24 otherwise well), or with an uncertain diagnosis of immune
25 thrombocytopenic purpura, modify the birth plan based on maternal
26 platelet count, using table 2 as a guide.

1 **Table 2 Modifying the birth plan according to platelet count in women with**
 2 **thrombocytopenia**

	Maternal risk	Fetal and neonatal risk
Platelet count above 80 × 10⁹/l	Treat the woman as healthy for the purpose of considering regional analgesia and anaesthesia	If the woman has IPT or suspected IPT, assume the baby is at risk of bleeding and take precautions as outlined in recommendation 1.6.5 If the woman has gestational thrombocytopenia, assume the baby has a normal risk of bleeding
Platelet count 50 to 80 × 10⁹/l	Take into account clinical history, the woman's preferences and anaesthetic expertise before considering regional analgesia and anaesthesia	
Platelet count below 50 × 10⁹/l	Avoid regional analgesia and anaesthesia under most circumstances	

IPT, immune thrombocytopenic purpura.

3

To find out why the committee made the recommendations on modifying the birth plan according to platelet count or function and how they might affect practice, see [rationale and impact](#)

4 **Management of the third stage of labour for women with bleeding disorders**

5 1.6.7 Be aware that women with bleeding disorders are at increased risk of
 6 primary and secondary postpartum haemorrhage.

7 1.6.8 Offer active management rather than physiological management of the
 8 third stage of labour for women with bleeding disorders, in line with the
 9 NICE guideline on [intrapartum care for healthy women and babies](#).

10 1.6.9 Consider giving uterotonics intravenously for women with bleeding
 11 disorders if there are concerns about giving these by intramuscular
 12 injection.

To find out why the committee made the recommendations on managing the third stage of labour for women with bleeding disorders and how they might affect practice, see [rationale and impact](#)

13

1 **Postpartum management for women with bleeding disorders**

2 1.6.10 Offer individualised postpartum monitoring and management as discussed
3 with a senior haematologist for women with bleeding disorders, to include:

- 4
- 5 • estimation of blood loss
 - 6 • obstetric complications
 - 7 • haematological parameters.

8 1.6.11 Be aware that non-steroidal anti-inflammatory drugs can add to the risk of
9 bleeding.

10 1.6.12 Before discharge from hospital, inform women with bleeding disorders of
11 the risk of secondary bleeding postpartum and how to access care.

12 **1.7 Subarachnoid haemorrhage or arteriovenous malformation
13 of the brain**

14 **Mode of birth and management of the second stage of labour for women with
15 subarachnoid haemorrhage or arteriovenous malformation of the brain**

16 1.7.1 Involve the multidisciplinary team in risk assessment for women with a
17 cerebrovascular malformation or a history of intracranial bleeding. Include
18 a specialist with expertise in managing neurovascular conditions in
19 pregnant women.

20 **Care for women with cerebrovascular malformation at low risk of intracranial
21 bleeding**

22 1.7.2 Classify the risk of intrapartum intracranial bleeding as low if a woman
23 has:

- 24
- 25 • a fully treated cerebrovascular malformation, or
 - 26 • intracranial bleeding of unknown cause following investigation, which
27 occurred more than 2 years ago.

28 1.7.3 For women with a cerebrovascular malformation at low risk of intracranial
29 bleeding, discuss mode of birth with the woman and her birth

1 companion(s), and base the decision on obstetric indications and the
2 woman's preference.

3 1.7.4 For women with a cerebrovascular malformation at low risk of intracranial
4 bleeding, manage the second stage of labour according to obstetric
5 indications and the woman's preference.

6 ***Care for women with cerebrovascular malformation at high risk of intracranial***
7 ***bleeding***

8 1.7.5 Classify the risk of intrapartum intracranial bleeding as high if a woman
9 has:

- 10 • an untreated or partially treated cerebrovascular malformation that has
11 bled previously
- 12 • a large aneurysm (7 mm or more) or an aneurysm with other high-risk
13 features as defined by a neuroradiologist
- 14 • a complex arteriovenous malformation
- 15 • cavernoma with high-risk features
- 16 • intracranial bleeding within the past 2 years.

17 1.7.6 Consider caesarean section for women who are at high risk of cerebral
18 haemorrhage.

19 1.7.7 For women at high risk of cerebral haemorrhage who decide to have a
20 vaginal birth or present in the second stage of labour:

- 21 • offer regional analgesia **and**
- 22 • offer a forceps birth without active pushing following a passive descent.

23 1.7.8 For women who present in labour with a history of cerebrovascular
24 malformation or intracranial bleeding and unknown risk of intracranial
25 bleeding, manage as high risk and follow recommendations 1.7.6 and
26 1.7.7.

- 1 1.7.9 Do not withhold regional analgesia or anaesthesia from women with an
2 isolated cerebrovascular malformation unless they have a genetic
3 predisposition to multiple vascular malformations.

To find out why the committee made the recommendations on care of women at risk of intracranial bleeding and how they might affect practice, see [rationale and impact](#)

4 **1.8 Acute kidney injury or chronic kidney disease**

5 **Fluid management for women with kidney disease**

- 6 1.8.1 During pregnancy, involve the multidisciplinary team in risk assessment
7 for women with renal impairment. Include a specialist with expertise in
8 managing renal conditions in pregnant women.
- 9 1.8.2 Ensure that women with chronic kidney disease stage 4 or 5 are cared for
10 in the intrapartum period by a midwife, obstetrician and obstetric
11 anaesthetist with expertise in managing renal conditions in pregnant
12 women.
- 13 1.8.3 Ensure that a physician with expertise in renal conditions in pregnant
14 women is available for consultation during the intrapartum period for
15 women with chronic kidney disease stage 4 or 5.
- 16 1.8.4 Manage renal impairment secondary to pre-eclampsia in line with the
17 NICE guideline on [hypertension in pregnancy](#).
- 18 1.8.5 For women with chronic kidney disease with or without pre-eclampsia,
19 monitor fluid balance in the intrapartum period. Assessment, at least every
20 4 hours, should include:
- 21 • heart rate and blood pressure
 - 22 • respiratory rate and chest auscultation
 - 23 • fluid output and fluid intake
 - 24 • oxygen saturation
 - 25 • jugular venous pressure.

- 1 After each assessment develop an individualised plan for managing fluid
2 balance, which may involve additional monitoring techniques, with the aim
3 of maintaining normal fluid volume to reduce the risks of dehydration and
4 pulmonary oedema.
- 5 1.8.6 For women with chronic kidney disease and pre-eclampsia, manage fluid
6 balance in the intrapartum period according to recommendation 1.8.5,
7 taking account of the particular risk of acute kidney injury and pulmonary
8 oedema.
- 9 1.8.7 Assess renal function at least every 24 hours during the intrapartum
10 period in all women with chronic kidney disease because prolonged
11 labour may lead to dehydration and acute kidney injury.
- 12 1.8.8 For women with acute kidney injury without pre-eclampsia:
- 13 • identify and correct the cause of the acute kidney injury
- 14 • monitor fluid balance in the intrapartum period by assessing the
- 15 following at least every 4 hours:
- 16 – heart rate and blood pressure
- 17 – respiratory rate and chest auscultation
- 18 – fluid output and fluid intake
- 19 – oxygen saturation
- 20 – jugular venous pressure
- 21 • develop an individualised plan for managing fluid balance, which may
- 22 involve additional monitoring techniques with the aim of maintaining
- 23 normal fluid volume and avoiding both dehydration and pulmonary
- 24 oedema
- 25 • consider giving a single small bolus of fluid (for example, 250 ml) as
- 26 crystalloid if the woman is dehydrated and review the fluid status and
- 27 urine output within an hour of giving the first fluid bolus and before
- 28 considering giving a second
- 29 • continue to monitor fluid balance and renal function until the acute
- 30 kidney injury has recovered.

- 1 1.8.9 Do not offer nephrotoxic drugs (for example, non-steroidal anti-
2 inflammatory drugs) in the intrapartum period to women with renal
3 impairment.
- 4 1.8.10 For all women with renal impairment during pregnancy:
- 5 • monitor the following at least every 4 hours for at least 24 hours after
6 the birth:
- 7 – heart rate and blood pressure
8 – respiratory rate and chest auscultation
9 – fluid output and fluid intake
10 – oxygen saturation
11 – jugular venous pressure
- 12 • ensure postpartum assessment of renal function and follow-up for
13 women with persistent renal impairment.

To find out why the committee made the recommendations on fluid management for women with renal impairment and how they might affect practice, see [rationale and impact](#)

14 **Timing and mode of birth for women with kidney disease**

- 15 1.8.11 Plan intrapartum care for women with renal disease due to acute lupus
16 nephritis, vasculitis or glomerulonephritis with a specialist with expertise in
17 managing renal conditions in pregnant women as early as possible in the
18 antenatal period.
- 19 1.8.12 For women with chronic kidney disease stage 1, stable renal function and
20 non-nephrotic range proteinuria (urine protein: creatinine ratio greater
21 than 300 mg/mmol), discuss timing and mode of birth with the woman and
22 her birth companion(s), and base the decision on obstetric indications and
23 the woman's preference.
- 24 1.8.13 Consider planned birth by 40⁺⁰ weeks of pregnancy for women with:

- 1 • chronic kidney disease stage 1 and nephrotic-range proteinuria (urine
2 protein: creatinine ratio greater than 300 mg/mmol), or
3 • chronic kidney disease stage 2 to 4 with stable renal function.
- 4 1.8.14 For women with chronic kidney disease stage 5 or deteriorating stage 4
5 before 34⁺⁰ weeks of pregnancy, discuss the option of dialysis with the
6 woman and the multidisciplinary team in an effort to prolong the
7 pregnancy to at least 34 weeks’.
- 8 1.8.15 For women with chronic kidney disease stage 5 or deteriorating stage 4
9 after 34⁺⁰ weeks of pregnancy, discuss the option of planned birth with the
10 woman and the multidisciplinary team and consider birth no later than
11 38⁺⁰ weeks’.
- 12 1.8.16 For all women with renal conditions, including those with a renal
13 transplant, discuss mode of birth with the woman and her birth
14 companion(s), and base the decision on obstetric indications and the
15 woman’s preference.
- 16 1.8.17 If a women with a renal transplant is having a caesarean section, consider
17 involving a renal transplant surgeon in discussion of plans for surgery.

To find out why the committee made the recommendations on timing of birth for women with renal impairment and how they might affect practice, see [rationale and impact](#)

18 **1.9 Obesity**

19 **Assessing fetal presentation early in labour for women with a BMI over 30**

- 20 1.9.1 For women with a BMI over 30 kg/m² at the booking appointment,
21 particularly those with a BMI over 35 kg/m², consider ultrasound scanning
22 at the start of established labour if the baby’s presentation is uncertain.

To find out why the committee made the recommendations on assessing fetal presentation early in labour for women with a BMI over 30 kg/m² at the booking appointment and how they might affect practice, see [rationale and impact](#)

1 **Fetal monitoring for women with a BMI over 30**

- 2 1.9.2 For women with a BMI over 30 kg/m² at the booking appointment and no
3 medical complications, base fetal monitoring on obstetric indications
4 (including no antenatal care) and the woman's preference, in line with the
5 NICE guideline on [intrapartum care for healthy women and babies](#).

To find out why the committee made the recommendations on monitoring during labour for women with a BMI over 30 kg/m² at the booking appointment and how they might affect practice, see [rationale and impact](#)

6 **Position in labour for women with a BMI over 30**

- 7 1.9.3 For women with a BMI over 30 kg/m² at the booking appointment, carry
8 out a risk assessment in the third trimester and when developing the birth
9 plan, take into account:
- 10 • the woman's preference
 - 11 • the woman's mobility
 - 12 • comorbidities
 - 13 • the woman's current or most recent weight.
- 14 1.9.4 For women with a BMI over 30 kg/m² at the booking appointment,
15 consider advising the lateral position in the second stage of labour.
- 16 1.9.5 For women with a BMI over 30 kg/m² at the booking appointment and
17 adequate mobility, manage the second stage of labour in line with the
18 NICE guideline on [intrapartum care for healthy women and babies](#).

To find out why the committee made the recommendations on position during the second stage of labour for women with a BMI over 30 kg/m² at the booking appointment and how they might affect practice, see [rationale and impact](#)

1 **Equipment needs for women in labour with a BMI over 30**

2 1.9.6 All obstetric units should have 'birthing beds' able to take a safe working
3 load of 250 kg.

4 1.9.7 Carry out a risk assessment to ensure that essential equipment, in a size-
5 appropriate form, is available for the intrapartum care of women with a
6 BMI over 30 kg/m² at the booking appointment, including:

- 7 • surgical, obstetric and anaesthetic equipment
- 8 • blood pressure cuffs
- 9 • operating theatre tables
- 10 • lifting and lateral transfer equipment
- 11 • anti-embolism stockings
- 12 • monitoring and measuring equipment.

13 1.9.8 For women with a BMI over 50 kg/m² at the booking appointment, offer
14 referral to an obstetric unit with suitable equipment and expertise as early
15 as possible in pregnancy, if this is not available in their current unit.

To find out why the committee made the recommendations on equipment for optimal care of women with a BMI over 30 kg/m² at the booking appointment and how they might affect practice, see [rationale and impact](#)

16 **1.10 Information for women with obstetric complications or no**
17 **antenatal care**

18 1.10.1 Follow the recommendations on communication in the NICE guideline on
19 [intrapartum care for healthy women and babies](#) for women in labour with
20 obstetric complications or no antenatal care.

21 1.10.2 Recognise that women in labour with obstetric complications or no
22 antenatal care:

- 23 • may be more anxious than other women in labour, **and**

- 1 • are likely to have a better experience of labour and birth if they receive
2 information about the benefits and risks of options for their care and are
3 fully involved in decision-making.

4 1.10.3 Provide information about care in labour and mode of birth, which:

- 5 • is personalised to the woman's circumstances and needs
6 • uses local and national figures where possible
7 • expresses benefits and risks in a way that the woman can understand.

8 1.10.4 Recognise that individual views about risk vary and support a woman's
9 decision-making and choices.

10 1.10.5 Involve the woman in planning her care by asking about her preferences
11 and expectations for labour and birth. Take account of previous
12 discussions, planning, decisions and choices, and keep the woman and
13 her birth companion(s) fully informed.

To find out why the committee made the recommendations on information for women with obstetric complications or no antenatal care and how they might affect practice, see [rationale and impact](#)

14 **1.11 *Risk assessment for women with obstetric complications***
15 ***or no antenatal care***

16 1.11.1 Take account of symptoms reported and concerns expressed by women
17 in labour with any of the following:

- 18 • pyrexia
19 • sepsis
20 • intrapartum haemorrhage
21 • breech presentation
22 • suspected small-for-gestational-age baby
23 • suspected large-for-gestational-age baby
24 • previous caesarean section
25 • labour after 42 weeks of pregnancy

- 1 • no antenatal care.
- 2 1.11.2 Ensure that a healthcare professional with skills and experience in
3 managing obstetric complications reviews and assesses the condition of a
4 woman with any of the complications in recommendation 1.11.1, including
5 any observations recorded, and escalates care as needed.
- 6 1.11.3 Carry out and record maternal observations (pulse, blood pressure,
7 temperature and urine output), as recommended in the NICE guideline on
8 [intrapartum care for healthy women and babies](#), and the respiratory rate
9 as shown in table 3, for women in labour with any of the following and no
10 other reasons for concern:
- 11 • breech presentation
- 12 • suspected small-for-gestational age baby
- 13 • suspected large-for-gestational age baby
- 14 • previous caesarean section
- 15 • labour after 42 weeks of pregnancy
- 16 • no antenatal care.

- 1 **Table 3 Routine maternal observations for women in labour with any of the**
 2 **following obstetric complications and no other reasons for concern**

	Pulse	Blood pressure	Respiratory rate	Temperature	Level of consciousness (AVPU)	Oxygen saturation	Urine
Breech presentation	Hourly	4-hourly, and hourly in the second stage	4-hourly	4-hourly	-	-	Record output
Suspected small-for-gestational age	Hourly	4-hourly, and hourly in the second stage	4-hourly	4-hourly	-	-	Record output
Suspected large-for-gestational age	Hourly	4-hourly, and hourly in the second stage	4-hourly	4-hourly	-	-	Record output
No antenatal care	Hourly	4-hourly, and hourly in the second stage	4-hourly	4-hourly	-	-	Record output
Previous caesarean section	Hourly	4-hourly, and hourly in the second stage	4-hourly	4-hourly	-	-	Record output
Onset of labour after 42 weeks	Hourly	4-hourly, and hourly in the second stage	4-hourly	4-hourly	-	-	Record output
AVPU; alert, voice, pain, unresponsive.							

3

- 4 1.11.4 For women in labour with fever, a temperature of 38°C or above on a
 5 single reading or 37.5°C or above on 2 consecutive readings (1 hour
 6 apart), carry out maternal observations as shown in table 4.

1 1.11.5 For women in labour with sepsis or suspected sepsis, carry out maternal
2 observations as shown in table 4.

3 1.11.6 For women with intrapartum haemorrhage, continuously monitor vaginal
4 blood loss and carry out maternal observations as shown in table 4.

5 **Table 4 Routine maternal observations for women in labour with fever,**
6 **suspected sepsis, sepsis or intrapartum haemorrhage**

	Pulse	Blood pressure	Respiratory rate	Temperature	Level of consciousness (AVPU)	Oxygen saturation	Urine
Fever	Hourly	4-hourly, and hourly in the second stage	4-hourly	Hourly	-	4-hourly	Record output
Suspected sepsis - concern insufficient for antibiotic treatment	Hourly	4-hourly, and hourly in the second stage	4-hourly	Hourly	-	4-hourly	Record output
Sepsis or suspected sepsis - on antibiotic treatment	Continuous, or at least every 30 minutes	Continuous, or at least every 30 minutes	Continuous, or at least every 30 minutes	Hourly	Use clinical judgement	Continuous, or at least every 30 minutes	Record output, hourly if catheterised
Intrapartum haemorrhage	At least hourly	At least 4-hourly, and at least hourly in the second stage	At least 4-hourly	At least 4-hourly	Use clinical judgement	At least 4-hourly	Record output, hourly if catheterised
AVPU; alert, voice, pain, unresponsive.							

7

To find out why the committee made the recommendations on risk assessment for women with obstetric complications or no antenatal care and how they might affect practice, see [rationale and impact](#)

1 **1.12 Pyrexia**

2 **Fetal blood sampling for women in labour with a fever**

- 3 1.12.1 For women in labour with a fever, a temperature of 38°C or above on a
4 single reading or 37.5°C or above on 2 consecutive readings (1 hour
5 apart), follow the recommendations on fetal blood sampling for women
6 with suspected sepsis.

To find out why the committee made the recommendations on fetal blood sampling for women in labour with a fever and how they might affect practice, see [rationale and impact](#)

7 **Use of antipyretics for women in labour with a fever**

- 8 1.12.2 Consider paracetamol for women in labour with a fever, a temperature of
9 38°C or above on a single reading or 37.5°C or above on 2 consecutive
10 readings (1 hour apart).
- 11 1.12.3 Be aware that paracetamol is not a treatment for sepsis and should not
12 delay investigation if sepsis is suspected.

To find out why the committee made the recommendations on use of antipyretics for women in labour with a fever and how they might affect practice, see [rationale and impact](#)

13 **1.13 Sepsis**

14 **Mode of birth for women with sepsis or suspected sepsis**

- 15 1.13.1 Follow the NICE guideline on [sepsis](#) for the recognition of sepsis in
16 pregnant women.

- 1 1.13.2 Take into account the normal physiological changes in labour when
2 thinking about the possibility of sepsis, for example, increased maternal
3 pulse rate.
- 4 1.13.3 Recognise that women in labour with sepsis (see the NICE guideline on
5 [sepsis](#)) are at higher risk of severe illness or death.
- 6 1.13.4 For women in labour with suspected sepsis, ensure ongoing
7 multidisciplinary review from a team with a named lead, including:
- 8 • a senior obstetrician
 - 9 • a senior obstetric anaesthetist
 - 10 • a senior midwife
 - 11 • a labour ward coordinator.
- 12 1.13.5 For women in labour with sepsis, ensure ongoing multidisciplinary review
13 from a team with a named lead, including:
- 14 • a senior obstetrician
 - 15 • a senior obstetric anaesthetist
 - 16 • a senior neonatologist
 - 17 • a senior microbiologist
 - 18 • a senior midwife
 - 19 • a labour ward coordinator.
- 20 1.13.6 Include a senior intensivist (critical care specialist), if a woman in labour
21 with sepsis has any of the following signs of organ dysfunction:
- 22 • altered consciousness
 - 23 • hypotension (systolic blood pressure less than 90 mmHg)
 - 24 • reduced urine output (less than 0.5 ml/kg per hour)
 - 25 • need for 40% oxygen to maintain oxygen saturation above 92%
 - 26 • tympanic temperature of less than 36°C.
- 27 1.13.7 For women with sepsis or suspected sepsis in the intrapartum period,
28 document a clear multidisciplinary management plan and review it

1 regularly, taking account of the whole clinical picture including the
2 response to treatment.

3 1.13.8 Involve the woman with sepsis or suspected sepsis and her birth
4 companion(s) in shared decision-making about management, including
5 the following options:

- 6 • induction of labour
- 7 • continuing labour
- 8 • augmenting labour
- 9 • instrumental birth
- 10 • caesarean section.

11 1.13.9 When deciding on timing and mode of birth, take into account the whole
12 clinical picture including:

- 13 • the woman's preferences, concerns and expectations
- 14 • the source and severity of sepsis, if known
- 15 • weeks of pregnancy
- 16 • fetal wellbeing
- 17 • stage and progress of labour
- 18 • parity
- 19 • response to treatment.

20 1.13.10 If the source of sepsis is thought to be the genital tract, expedite the birth.

To find out why the committee made the recommendations on mode of birth for women with sepsis or suspected sepsis and how they might affect practice, see [rationale and impact](#)

21 **Anaesthesia and analgesia for women in labour with sepsis or suspected** 22 **sepsis**

23 1.13.11 For women in labour with sepsis and any of the signs of organ dysfunction
24 in recommendation 1.13.6, regional anaesthesia should be used with
25 caution and with a consultant obstetric anaesthetist present.

- 1 1.13.12 For women in labour with suspected sepsis where concern is insufficient
2 for antibiotic treatment, consider the birthing pool only after discussion
3 with a senior midwife and a senior obstetrician.
- 4 1.13.13 For women in labour with sepsis and any of the signs of organ dysfunction
5 in recommendation 1.13.6, regional analgesia should be used with caution
6 and advice from a consultant obstetric anaesthetist.
- 7 1.13.14 For women in labour who need antibiotics for suspected sepsis (see the
8 NICE guideline on [sepsis](#)), start the antibiotics before inserting the needle
9 for regional analgesia.
- 10 1.13.15 For women in labour with suspected sepsis, carry out a multidisciplinary
11 review of options for pain relief at least every 4 hours.
- 12 1.13.16 If there are concerns about providing a woman's choice of regional
13 analgesia, this should be discussed with the consultant obstetric
14 anaesthetist.

To find out why the committee made the recommendations on anaesthesia and analgesia for women in labour with sepsis or suspected sepsis and how they might affect practice, see [rationale and impact](#)

15 **Fetal monitoring for women in labour with sepsis or suspected sepsis**

- 16 1.13.17 Follow recommendation 1.10.4 in the NICE guideline on [intrapartum care](#)
17 [for healthy women and babies](#) regarding fetal monitoring during labour for
18 women with sepsis or suspected sepsis.
- 19 1.13.18 Be aware that for women in labour with sepsis or suspected sepsis, fetal
20 blood sample results may be falsely reassuring, and always discuss with a
21 consultant obstetrician:
- 22 • whether fetal blood sampling is needed
 - 23 • the results of any fetal blood sampling carried out.

1 [This recommendation is adapted from the NICE guideline on [intrapartum](#)
2 [care for healthy women and babies.](#)]

3 1.13.19 For women in labour with sepsis or suspected sepsis and an abnormal
4 cardiotocograph trace, think about the whole clinical picture and take
5 account of the following before performing any fetal blood sampling and
6 when interpreting the results:

- 7 • stage and progress of labour
- 8 • parity
- 9 • likelihood of chorioamnionitis
- 10 • the woman's preferences.

11 1.13.20 Explain to the woman and her birth companion(s) what fetal blood
12 sampling involves and the uncertainty of the significance of the results,
13 and support her choice to accept or decline testing.

14 1.13.21 If sepsis continues to be suspected, only repeat fetal blood sampling with
15 caution and in discussion with a consultant obstetrician.

To find out why the committee made the recommendations on fetal monitoring for women in labour with sepsis or suspected sepsis and how they might affect practice, see [rationale and impact](#)

16 **Antimicrobial treatment for women in labour with sepsis or suspected sepsis**

17 1.13.22 When thinking about antimicrobial treatment for women in labour with
18 sepsis or suspected sepsis, take into account the whole clinical picture.
19 Document the rationale for any decision to start antimicrobial treatment
20 and the choice of antimicrobial.

21 1.13.23 For women in labour with sepsis or suspected sepsis and a clear source
22 of infection, use existing local antimicrobial guidance when offering an
23 antimicrobial. [This recommendation is adapted from the NICE guideline
24 on [sepsis.](#)]

- 1 1.13.24 For women in labour with sepsis or suspected sepsis and an unclear
2 source of infection, offer a broad-spectrum intravenous antimicrobial from
3 the agreed local formulary and in line with local (where available) or
4 national guidelines. [This recommendation is adapted from the NICE
5 guideline on [sepsis](#).]
- 6 1.13.25 Explain to the woman and her birth companion(s) that there is no
7 evidence to support the use of one broad-spectrum antimicrobial over
8 another for women in labour with sepsis or suspected sepsis and that the
9 choice will be guided by local antimicrobial guidelines.

To find out why the committee made the recommendations on antimicrobial treatment for women in labour with sepsis or suspected sepsis and how they might affect practice, see [rationale and impact](#)

10 **Management for women with sepsis or suspected sepsis immediately after the**
11 **birth**

- 12 1.13.26 For women with sepsis or suspected sepsis, ensure that there is ongoing
13 multidisciplinary review (see recommendations 1.13.4, 1.13.5 and 1.13.6)
14 in the first 24 hours after the birth. This should include a discussion about
15 the need for:
- 16 • antimicrobial treatment
 - 17 • increased frequency of monitoring
 - 18 • an enhanced level of care and monitoring
 - 19 • further investigations such as imaging
 - 20 • support to enable the woman to feed her baby as she chooses
21 (including keeping the woman and baby together wherever possible
22 and maintaining skin-to-skin contact)
 - 23 • additional support for the woman and her family.

To find out why the committee made the recommendations on management for women with sepsis or suspected sepsis immediately after the birth and how they might affect practice, see [rationale and impact](#)

1 **1.14 Intrapartum haemorrhage**

2 **Management of intrapartum haemorrhage**

3 1.14.1 If there are signs of shock in a woman with intrapartum haemorrhage,
4 proceed with immediate resuscitation.

5 1.14.2 If a woman in labour has any vaginal blood loss other than a 'show',
6 transfer her to obstetric-led care, in line with the NICE guideline on
7 [intrapartum care for healthy women and babies](#).

8 1.14.3 If a woman in labour has any vaginal blood loss other than a 'show':

- 9
- 10 • Take a history of the bleeding, asking about:
 - 11 – any associated symptoms, including pain
 - 12 – any specific concerns the woman may have
 - 13 – any previous uterine surgery.
 - 14 • Check previous scans for placental position.
 - 15 • Assess the volume of blood loss and characteristics of the blood, such
16 as colour, and presence of clots or amniotic fluid.
 - 17 • Carry out a physical examination, including:
 - 18 – vital signs
 - 19 – abdominal palpation
 - 20 – speculum examination
 - 21 – vaginal examination if placenta praevia has been excluded
 - 22 – fetal heart auscultation.
 - 23 • Start continuous cardiotocography.
 - 24 • Take a blood sample to determine full blood count and blood group.

24 1.14.4 Think about the possible causes of bleeding, including, for example:

- 25
- 26 • placental abruption
 - 27 • placenta praevia
 - 28 • uterine rupture
 - vasa praevia.

- 1 Recognise that in many cases no cause will be identifiable.
- 2 1.14.5 If a woman in labour has any vaginal blood loss other than a 'show', agree
3 and document a management plan, with multidisciplinary involvement,
4 including:
- 5 • a senior obstetrician
 - 6 • a senior obstetric anaesthetist
 - 7 • a senior midwife
 - 8 • a labour ward coordinator.
- 9 1.14.6 If a woman has intrapartum bleeding and her condition appears stable,
10 management should include:
- 11 • establishing venous access
 - 12 • maternal monitoring (see recommendation 1.11.6 and table 4)
 - 13 • monitoring the fetal heart rate with continuous cardiotocography.
- 14 1.14.7 If a woman with intrapartum bleeding has a large blood loss or her
15 condition causes concern, management should be in line with
16 recommendation 1.14.6 and include:
- 17 • giving intravenous fluids urgently
 - 18 • seeking medical advice from a more experienced healthcare
19 professional.
- 20 Additionally management may include:
- 21 • triggering the local major haemorrhage protocol
 - 22 • taking blood for clotting studies and blood gases
 - 23 • expediting the birth
 - 24 • use of amniotomy or oxytocin.
- 25 1.14.8 If a woman in labour has any vaginal blood loss other than a 'show',
26 explain to her and her birth companion(s) what is happening.
- 27 1.14.9 The maternity service and ambulance service should have strategies in
28 place to respond quickly and appropriately if a woman has an intrapartum

1 haemorrhage in any setting. [This recommendation is adapted from the
2 NICE guideline on [intrapartum care for healthy women and babies.](#)]

3 1.14.10 If a woman in labour has vaginal blood loss typical of a 'show', follow the
4 NICE guideline on [intrapartum care for healthy women and babies.](#)

To find out why the committee made the recommendations on management of intrapartum haemorrhage and how they might affect practice, see [rationale and impact](#)

5 **1.15 Breech presenting in labour**

6 **Mode of birth for women presenting with a breech position in labour**

7 1.15.1 Discuss with women in labour with breech presentation the possible
8 benefits and risks of vaginal birth and caesarean section, including:

- 9 • an increase in the chance of serious medical problems for the woman
10 with caesarean section, and
- 11 • an increase in the chance of serious medical problems for the baby
12 with vaginal birth
- 13 • what it might mean for them and the baby if such problems did occur.

14 1.15.2 Offer women in labour with breech presentation a choice between
15 continuing labour and caesarean section.

16 1.15.3 Advise women in labour with breech presentation that any benefit of
17 caesarean section in reducing the chance of complications for the baby
18 may be greater in early labour.

19 1.15.4 Assess progress of labour in line with the NICE guideline on [intrapartum](#)
20 [care for healthy women and babies.](#)

To find out why the committee made the recommendations on mode of birth for women presenting with a breech position in labour and how they might affect practice, see [rationale and impact](#)

1 **1.16 *Small-for-gestational-age baby***

2 **Fetal monitoring in labour for babies suspected to be small for gestational age**

3 1.16.1 Discuss with a woman whose baby is suspected to be small for
4 gestational age:

- 5
- the chance of serious medical problems for her baby, and
 - what it might mean for her and her baby if such problems did occur.
- 6

7 1.16.2 When discussing risk, explain that when a baby is suspected to be small
8 for gestational age:

- 9
- it is sometimes difficult to be certain the suspicion is correct until the
10 baby is born
 - the chance of serious medical problems for the baby is greater with:
11
 - growth restriction
 - additional risk factors, such as preterm birth, and complications
12 during labour or birth.
- 13
- 14

15 1.16.3 Consider continuous cardiotocography for all women whose babies are
16 suspected to be small for gestational age.

17 1.16.4 Offer continuous cardiotocography to women whose babies are suspected
18 to be small for gestational age if there is concern about the baby's
19 wellbeing.

To find out why the committee made the recommendations on fetal monitoring in labour for babies suspected to be small for gestational age and how they might affect practice, see [rationale and impact](#)

20 **1.17 *Large-for-gestational-age baby***

21 **Mode of birth for babies suspected to be large for gestational age**

22 1.17.1 Explain to women in labour whose babies are suspected to be large for
23 gestational age that:

- 1 • it is sometimes difficult to be certain the suspicion is correct until the
2 baby is born
- 3 • when making choices about mode of birth (for example, vaginal birth or
4 caesarean section) this uncertainty needs to be taken into account.

5 1.17.2 Discuss with women in labour whose babies are suspected to be large for
6 gestational age the implications and possible benefits and risks of vaginal
7 birth and caesarean section, including:

- 8 • a higher chance of maternal medical problems such as infection with
9 emergency caesarean section
- 10 • a higher chance of shoulder dystocia and brachial plexus injury with
11 vaginal birth
- 12 • a higher chance of instrumental birth and perineal trauma with vaginal
13 birth.

14 Explain to the woman and her birth companions(s) what it might mean for
15 her and her baby if such problems did occur.

16 1.17.3 Offer women in labour whose babies are suspected to be large for
17 gestational age a choice between continuing labour, including augmented
18 labour, and caesarean section.

To find out why the committee made the recommendations on mode of birth for babies suspected to be large for gestational age and how they might affect practice, see [rationale and impact](#)

19 **1.18 No antenatal care**

20 **Risk assessment and management of labour for women with no antenatal care**

21 1.18.1 For women who have had no antenatal care, be aware of the particular
22 importance of following the recommendations on establishing rapport and
23 treating with respect in the NICE guideline on [intrapartum care for healthy](#)
24 [women and babies](#).

- 1 1.18.2 Provide obstetric-led intrapartum care for women who have had no
2 antenatal care, and alert the neonatal team and, if relevant, the
3 anaesthetic team.
- 4 1.18.3 For a woman with no antenatal care who has difficulty understanding,
5 speaking and reading English, provide an interpreter (who may be a link
6 worker or advocate and should not be a member of her family, her legal
7 guardian or her partner), who can communicate with her in her preferred
8 language. [This recommendation is adapted from the NICE guideline on
9 [pregnancy and complex social factors](#)].
- 10 1.18.4 If possible, take a full medical, psychological and social history from
11 women who have had no antenatal care.
- 12 • Try to find out why there has been no care during pregnancy.
 - 13 • Ask the woman who, if anyone, she would like to support her as her
14 birth companion(s) during labour.
 - 15 • Explore sensitively any possible vulnerability or safeguarding concerns,
16 including:
 - 17 – young maternal age
 - 18 – maternal mental health
 - 19 – maternal learning disability
 - 20 – maternal substance misuse
 - 21 – domestic or sexual abuse
 - 22 – homelessness
 - 23 – human trafficking
 - 24 – female genital mutilation
 - 25 – the woman or family members being known to children’s services.
- 26 1.18.5 Carry out an obstetric and general medical examination of a woman with
27 no antenatal care as soon as she presents.
- 28 1.18.6 Carry out an assessment of the unborn baby, including ultrasound if
29 possible, to determine:
- 30 • viability

- 1 • the presentation
- 2 • the possibility of multiple pregnancy
- 3 • the placental site.
- 4 1.18.7 Offer women who have had no antenatal care, tests for:
- 5 • full blood count for anaemia
- 6 • blood group and rhesus D status
- 7 • atypical red cell alloantibodies.
- 8 • random blood glucose
- 9 • asymptomatic bacteriuria.
- 10 1.18.8 Offer rapid HIV testing to women thought to be at high risk of infection,
- 11 which might include:
- 12 • recent migrants from countries with high rates of HIV infection
- 13 • women who misuse substances intravenously
- 14 • suspected sexual abuse.
- 15 1.18.9 Explain to a woman who has had no antenatal care why and when
- 16 information about her pregnancy may need to be shared with other
- 17 agencies. [This recommendation is adapted from the NICE guideline on
- 18 [pregnancy and complex social factors](#)].
- 19 1.18.10 Contact the woman's GP and, if appropriate, other health or social care
- 20 professionals for more information about the woman's history and to plan
- 21 ongoing care.
- 22 1.18.11 If there are safeguarding concerns, refer the woman to safeguarding
- 23 services, document the referral and inform healthcare professionals such
- 24 as the GP, health visitor and paediatric teams, and social care
- 25 professionals (see the NICE guidelines on [pregnancy and complex social](#)
- 26 [factors](#), [child maltreatment](#) and [child abuse and neglect](#)).
- 27 1.18.12 Follow the recommendations in the NICE guideline on [intrapartum care for](#)
- 28 [healthy women and babies](#) when no medical conditions or obstetric

1 complications are identified in women who present in labour with no
2 antenatal care.

To find out why the committee made the recommendations on risk assessment and management of labour for women with no antenatal care and how they might affect practice, see [rationale and impact](#)

3 **1.19 Previous caesarean section**

4 **Management of the first and second stages of labour for women with a** 5 **previous caesarean section**

6 1.19.1 Do not routinely insert an intravenous cannula for women in labour who
7 have had a previous caesarean section.

8 1.19.2 Advise women in labour who have had a previous caesarean section that:

- 9
- 10 • a vaginal birth is associated with a small chance of uterine rupture
 - 11 • an emergency caesarean section may mean a higher chance of:
 - 12 – heavy bleeding needing a blood transfusion
 - 13 – infection, for example, intrauterine infection
 - 14 – a longer hospital stay
 - 15 – complications in a future pregnancy, for example, placenta praevia
and placenta accreta (see the NICE guideline on [caesarean section](#)).

16 1.19.3 Advise women in labour who have had a previous caesarean section that
17 there is little evidence of a difference in outcomes for the baby between a
18 vaginal birth or another caesarean section.

19 1.19.4 Advise women who have had a previous caesarean section that they are
20 likely to have a lower chance of complications in labour if they have also
21 had a previous vaginal birth.

22 1.19.5 When offering oxytocin for delay in the first or second stage of labour,
23 advise women who have had a previous caesarean section that this:

- 24
- increases the chance of uterine rupture

- 1 • reduces the chance of needing another caesarean section
2 • increases the chance of needing an instrumental birth.
- 3 1.19.6 Support informed choice of a full range of options for pain relief for women
4 who have had a previous caesarean section, including labour and birth in
5 water.
- 6 1.19.7 Advise women in labour who have had a previous caesarean section that
7 regional analgesia is associated with:
- 8 • a reduced chance of needing another caesarean section
9 • an increased chance of needing an instrumental birth.
- 10 1.19.8 Do not routinely offer amniotomy to women in labour who have had a
11 previous caesarean section.
- 12 1.19.9 For women who have had a previous caesarean section, be aware of the
13 particular importance of following the recommendations from the NICE
14 guideline on [intrapartum care for healthy women and babies](#) on:
- 15 • food and drink in labour
16 • controlling gastric acidity
17 • position in labour, including the latent first stage, and birth.

To find out why the committee made the recommendations on management of the first and second stages of labour for women with a previous caesarean section and how they might affect practice, see [rationale and impact](#)

18 **1.20 Labour after 42 weeks of pregnancy**

19 **Fetal and maternal monitoring for women in labour after 42 weeks of** 20 **pregnancy**

- 21 1.20.1 Offer continuous cardiotocography to women in labour after 42 weeks of
22 pregnancy, explaining that there is an increased chance of stillbirth after
23 42 weeks, although there is no evidence to guide the choice of continuous
24 cardiotocography compared with intermittent auscultation.

- 1 1.20.2 If a woman in labour after 42 weeks of pregnancy declines continuous
2 cardiocography, offer intermittent auscultation in line with the NICE
3 guideline on [intrapartum care for healthy women and babies](#).
- 4 1.20.3 Explain to women in labour after 42 weeks of pregnancy that they have an
5 increased risk of instrumental birth and caesarean section.

To find out why the committee made the recommendations on fetal and maternal monitoring for women in labour after 42 weeks of pregnancy and how they might affect practice, see [rationale and impact](#)

6 ***Terms used in this guideline***

7 **Intrapartum period**

8 The intrapartum period is from the onset of labour (spontaneous or induced) to
9 24 hours after birth.

10 **Mechanical heart valves**

11 A mechanical heart valve refers to a prosthetic heart valve that requires long-term
12 anticoagulation to prevent heart valve thrombosis. This is different from a
13 bioprosthetic heart valve which does not require long-term anticoagulation.

14 **Regional anaesthesia**

15 Regional anaesthesia includes spinal, epidurals and combined spinal–epidural
16 techniques.

17 **Regional analgesia**

18 Regional analgesia includes spinal, epidurals and combined spinal–epidural
19 techniques.

20 ***Recommendations for research***

21 The guideline committee has made the following high-priority recommendations for
22 research. For details of all the committee’s recommendations for research, see the
23 [evidence reviews](#).

1 **1 Subarachnoid haemorrhage or arteriovenous malformation of the brain**

2 Does caesarean section protect against cerebral haemorrhage in women with a
3 history of subarachnoid haemorrhage or cerebrovascular malformation?

4 **2 Needle siting in pregnant women who are obese**

5 Does the use of ultrasound of the lumbar spine improve siting of regional anaesthetic
6 needles in pregnant women with a BMI over 30 kg/m² at the booking appointment?

7 **3 Obesity as a risk factor for morbidity and mortality**

8 Is obesity an independent risk factor for perinatal morbidity and mortality?

9 **4 Risk assessment for women in labour with signs of sepsis**

10 What clinical features and laboratory investigations can be used to better stratify risk
11 for women in labour with signs of sepsis (including fever and tachycardia)?

12 **5 Previous caesarean section**

13 What is the clinical and cost effectiveness of intermittent auscultation compared with
14 continuous cardiotocography for women in labour who have had a previous
15 caesarean section?

16 **Rationale and impact**

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

20 ***Information for women with existing medical conditions***

21 Recommendations [1.1.1 to 1.1.4](#)

22 **Why the committee made the recommendations**

23 Evidence was very limited, but the committee knew from their experience that
24 providing information is extremely important for pregnant women with medical
25 conditions. They agreed that women would need the general information outlined in
26 the NICE guideline on [intrapartum care for healthy women and babies](#) as well as
27 additional information related to the medical condition. Extra time may be needed in
28 a consultation to discuss how the medical condition may affect intrapartum care. It

1 was agreed that information should be delivered by a healthcare professional from
2 the multidisciplinary team (MDT) who can answer questions the woman may have
3 about the intrapartum period and the medical condition.

4 **How the recommendations might affect practice**

5 The committee did not expect a significant change in practice as the
6 recommendations are in line with what is generally happening in most centres.
7 However, in centres where this is not happening, consultations will take longer.

8 Full details of the evidence and the committee's discussion are in [evidence review A:
9 information for women with existing medical conditions.](#)

10 [Return to recommendations](#)

11 ***Antenatal care planning involving a multidisciplinary team for 12 women with existing medical conditions***

13 Recommendations [1.2.1 to 1.2.2](#)

14 **Why the committee made the recommendations**

15 Evidence did not show a difference in outcomes for women with a BMI over 40 or
16 their babies when care was given by a specialist antenatal MDT. However, the
17 committee recognised that women with medical conditions have an increased risk of
18 adverse outcomes and a lack of multidisciplinary working has been repeatedly cited
19 in the confidential enquiries as contributing to maternal deaths. To minimise risk, the
20 committee recommended that a standard obstetric team be extended (when
21 appropriate) by involving healthcare professionals with expertise in managing the
22 woman's medical condition.

23 **How the recommendations might affect practice**

24 Multidisciplinary teams are not currently in place in all settings, including settings
25 where care is delivered to women at high risk because of medical conditions.
26 However, multidisciplinary working with other medical or surgical specialties is
27 currently expected within the intermediate and intensive pathways for more complex
28 pregnancies. The recommendations are expected to result in a relatively modest
29 change in practice because most modern MDTs are 'virtual' (communicating by

1 telephone or email rather than in person). Obstetric teams and specialists will be
2 seeing the same women that they would see anyway, but multidisciplinary working
3 will give them the opportunity to deliver more holistic care. However, establishing the
4 relationships and ways of working may involve extra organisation and increase the
5 antenatal involvement of obstetric anaesthetists.

6 Full details of the evidence and the committee's discussion are in [evidence review B:
7 antenatal care planning involving a multidisciplinary team for women with existing
8 medical conditions.](#)

9 [Return to recommendations](#)

10 ***Heart disease***

11 **Why the committee made the recommendations**

12 ***Risk assessment for women with heart disease***

13 Recommendations [1.3.1 to 1.3.5](#)

14 The committee drew on their knowledge and experience to recommend that
15 intrapartum care planning should start early in pregnancy for women with heart
16 disease. Pregnancy and birth are associated with dramatic changes in the
17 performance of the heart and the circulation. Early risk assessment is needed to plan
18 for birth and agree any additional management. When an elective caesarean section
19 is proposed, emergency plans should still be made and shared with the intrapartum
20 care team in case the woman presents in early labour, with new symptoms or with
21 an obstetric complication. Women who present in the intrapartum period with a
22 previously unrecognised heart problem pose a particular challenge. Urgent
23 multidisciplinary discussions are needed to ensure that they are offered comparable
24 intrapartum care to women with an existing diagnosis.

25 The committee agreed that multidisciplinary care should include a cardiologist with
26 expertise in managing heart conditions during pregnancy because they were
27 concerned that not all pregnant women with heart disease have appropriate cardiac
28 referrals. Only a few cardiologists in the UK have an interest in managing heart
29 disease in pregnancy and the MBBRACE-UK report identified deficient care when

1 non-specialist cardiologists had given inappropriate advice. The benefit of specialist
2 cardiology advice also includes encouraging women with low-risk conditions towards
3 vaginal birth with no medical intervention, in line with the NICE guideline on
4 [intrapartum care for healthy women and babies](#) .

5 Based on the available evidence and their knowledge and experience, the committee
6 agreed that risk assessment should include diagnostic classification, cardiac
7 functional capacity and clinical assessment. For some women this can mean
8 reassurance that no additional precautions are needed, for others a full discussion of
9 the risks and a comprehensive plan will be required. The committee recognised the
10 importance of thorough clinical assessment as raised in the CEMACH reports and
11 the need to provide prompt investigation identified in the 2016 MBBRACE-UK report.

12 Based on their knowledge and experience, the committee recommended that the
13 woman's clinical condition is reassessed regularly during pregnancy and the
14 intrapartum period. Many changes in performance of the heart and circulation occur
15 gradually during pregnancy, but the intrapartum period and early postpartum period
16 (including the first hours and days after birth) sees changes that can trigger a
17 deterioration in cardiac function and therefore it is vital that investigations are
18 undertaken and acted upon promptly.

19 ***Management of anticoagulation for valvular disease***

20 Recommendations [1.3.6 to 1.3.13](#)

21 The evidence looked at the effects of different anticoagulants throughout pregnancy
22 on maternal and neonatal outcomes rather than their effects during labour. The
23 evidence was also limited to women with mechanical heart valves. Therefore, the
24 committee based recommendations on their experience and advice from a cardiac
25 specialist.

26 They noted that a woman with a mechanical heart valve is prone to thrombosis if she
27 has inadequate anticoagulation, but is vulnerable to excessive bleeding with too
28 much anticoagulation. Either can lead to devastating fatal incidents for the woman
29 and her baby. It is therefore important that planning for the management of
30 anticoagulation during the intrapartum period starts when pregnancy is confirmed.
31 The committee agreed that a woman with a mechanical heart valve should be

1 switched to low-molecular-weight heparin by 36 weeks of pregnancy, or 2 weeks
2 before planned birth, because heparin has a shorter half-life than warfarin and
3 reduces the risk of serious medical problems for the baby.

4 The committee acknowledged that continuous infusion of unfractionated heparin
5 continues to be used in some centres. However, they did not make a
6 recommendation on this because use of unfractionated heparin has declined in the
7 UK, with fewer professionals being familiar with how to achieve and maintain
8 adequate anticoagulation. They agreed, based on the once daily dosing of warfarin,
9 that low-molecular-weight heparin should be started 24 hours after stopping warfarin.
10 Monitoring of anti-Xa level and dose adjustments are needed to ensure that an
11 appropriate level of anticoagulation is achieved. Anti-Xa levels should not be
12 checked until after at least the third dose because stable anti-Xa levels are unlikely
13 before this. For women who have a planned caesarean section, the risk of an
14 epidural haematoma can be reduced by stopping low-molecular-weight heparin 24
15 hours before. For women having an induction of labour, the decision of when to stop
16 low-molecular-weight heparin should balance the risk of valve thrombosis against the
17 possibility of having regional analgesia. A senior obstetrician should be involved in
18 this decision and review the progress of induction.

19 For a woman presenting in labour on warfarin, the committee agreed that
20 anticoagulation be stopped immediately to minimise the risks of excessive bleeding
21 for the woman and baby during labour. The committee recommended that obstetric
22 assessment should occur within 2 hours, recognising that although assessment was
23 urgent it would not always be possible to do this immediately. The committee agreed
24 that the international normalised ratio (INR) be checked immediately and a
25 haematologist consulted. The INR determines the degree of anticoagulation in the
26 woman and baby and indicates how they should be managed. A haematologist
27 would advise how to reverse anticoagulation if this was needed. Senior review,
28 involving a senior obstetrician, haematologist and consultant obstetric anaesthetist,
29 should ensure the safest birth for the woman and baby.

30 ***Mode of birth for women with heart disease***

31 Recommendations [1.3.14 to 1.3.18](#)

1 Evidence was very limited so the committee drew on their knowledge and
2 experience to make recommendations. They agreed that risk assessment is
3 necessary to understand how well the woman's heart is functioning and is likely to
4 cope with the exertion of labour and the circulatory changes that take place after
5 birth. Women should have advice from a team with experience of intrapartum care
6 for women with heart conditions. This will usually involve doctors from at least 3
7 specialties (obstetrics, cardiology and anaesthesia) in formulating an individualised
8 birth plan. In this way the woman's wishes for labour and birth can be discussed in
9 relation to the specific risks of her condition.

10 In order to minimise the time without anticoagulation, elective caesarean section or
11 induction of labour should be offered for women with mechanical heart valves. The
12 risks of valve thrombosis cannot be overstated but this needs to be balanced against
13 the risks of bleeding around the time of birth.

14 Planned caesarean section should be considered for women with high-risk aortic
15 disease or the most severe cardiac conditions, but the committee recognised that
16 some of these woman may prefer to plan for a vaginal birth. When this is the
17 woman's preference she should be fully informed of the risks and be offered an
18 assisted second stage of labour without active pushing to try and reduce the risk of
19 aortic dissection, aortic rupture or acute heart failure.

20 In the UK, the management of pulmonary arterial hypertension is concentrated in a
21 small number of specialist centres. Pulmonary arterial hypertension is a life-
22 threatening condition that requires expert management. The MDT planning for a
23 woman with pulmonary hypertension must include a respiratory physician from one
24 of these centres.

25 Although the exertion of labour and the fluid shifts at birth may be detrimental to
26 some heart conditions this is not true for all women. The committee considered that
27 many women with mild heart disease can be reassured that a normal vaginal birth is
28 safe.

29 ***Fluid management for women with heart disease***

30 Recommendations [1.3.19 to 1.3.23](#)

1 In the absence of evidence, the committee used their knowledge and experience to
2 make recommendations for haemodynamic monitoring for women with heart disease
3 during birth. Risk assessment and planning of intrapartum monitoring needs
4 specialist multidisciplinary input. Discussions should take place during pregnancy
5 and involve the woman so that she knows how her condition might be affected by
6 changes in blood pressure, and blood volume, and fluid shifts during labour and birth
7 and the type of monitoring needed to manage this. For women with mild heart
8 disease, management of fluid balance does not mean a change from standard care.
9 For those with more severe conditions standard care may still be suitable but
10 decisions need to be based on specialist assessment of the type and severity of the
11 condition and the woman's views. There are some heart conditions in which fluid
12 balance is critical to cardiac function and frequent monitoring and assessment by an
13 experienced clinician are needed as a minimum. For these conditions more invasive
14 monitoring may also be needed.

15 ***Diagnosis and management of heart failure in the intrapartum period***

16 Recommendations [1.3.24 to 1.3.31](#)

17 Although most of recommendations were based on the committee's experience
18 because of the limited evidence, there was some evidence to inform the
19 recommendations on heart rate and using NT-proBNP levels. The committee agreed
20 that symptoms and signs suggesting heart failure should be assessed initially by a
21 member of the obstetric team and if present, confirmed by a consultant. When
22 clinical examination raises the suspicion of heart failure, imaging and blood tests are
23 required to assist review by a cardiologist or the most senior available physician to
24 make a definitive diagnosis. This recommendation arises from evidence from the
25 confidential enquiry into maternal mortality in the UK, that the diagnosis may be
26 missed or delayed.

27 The committee made recommendations to support prompt and accurate diagnosis of
28 heart failure because it is difficult to distinguish between the symptoms and signs of
29 the normal physiological changes of late pregnancy and the pathological symptoms
30 and signs of heart failure. A basic but thorough history and examination are key to
31 identifying women who are at risk and the committee wanted to stress the
32 importance of these.

1 Although heart failure in the intrapartum period is rare, it is an important cause of
2 maternal mortality. Prompt medical management is needed to stabilise the woman's
3 immediate condition but a change to the obstetric management may also be
4 necessary to improve or limit worsening of her heart condition.

5 ***Anaesthesia and analgesia for women with heart disease***

6 Recommendations [1.3.32 to 1.3.39](#)

7 Evidence identified was very limited so the committee made recommendations
8 based on their knowledge and experience. The committee wanted to promote the
9 best medical opinion while also taking into account women's needs and wishes.
10 Regional anaesthesia offers several benefits over general anaesthesia that are still
11 relevant even when a woman has a heart condition.

12 The committee was aware that the type of anaesthesia that women with heart
13 conditions receive can vary according to the attending anaesthetist's experience and
14 technical expertise. Therefore obstetric anaesthetists and cardiac anaesthetists
15 should collaborate to provide the most cardio-stable anaesthetic option for the
16 women. They agreed that information and advice should be shared with the woman
17 so the best outcomes can be achieved. Women with WHO 1 or WHO 2 heart
18 disease should be given the same advice as described in the NICE guideline on
19 [intrapartum care for healthy women and babies](#).

20 Based on knowledge of the physiological consequences of pain and the evidence
21 that regional anaesthesia provides the most complete pain relief in labour, the
22 committee agreed that to minimise the risks of labour without adversely affecting the
23 woman's heart condition, women with WHO 3 and WHO 4 heart disease should be
24 offered regional anaesthesia for labour. These women have critical heart failure and
25 life threatening heart disease and need to be carefully monitored to avoid serious
26 mortality and morbidity.

27 Women who have not had a prophylactic dose of low-molecular-weight heparin for
28 12 hours or a therapeutic dose for at least 24 hours could be considered for regional
29 analgesia as, the committee agreed, after this time the risk of bleeding from regional
30 analgesia is considered to be very low.

1 ***Management of the third stage of labour for women with heart disease***

2 Recommendations [1.3.40 to 1.3.44](#)

3 The committee agreed that heart disease covers a spectrum of pathologies which
4 have different risks associated with management of the third stage of labour. The
5 only evidence was limited, came from a single study and was not helpful in
6 determining management options for women with various heart conditions. Therefore
7 the committee made recommendations based on their knowledge and experience. A
8 management plan developed with multidisciplinary expertise is needed for each
9 woman. Women with less severe heart conditions have similar risks to normal
10 healthy women in the third stage of labour and can be managed accordingly. As the
11 physiological management of the third stage is associated with a higher risk of
12 postpartum haemorrhage, women with WHO 2 heart disease should have the third
13 stage actively managed. Active management is also needed for all women with more
14 severe disease. Oxytocin is the uterotonic of first choice. Second-line options
15 depend on the specific condition. Women with preload dependent circulation are
16 particularly vulnerable to falls in blood pressure and there is some evidence to
17 suggest that oxytocin should be given as an infusion rather than bolus to avoid
18 sudden drops in blood pressure.

19 Ergometrine and oxytocin, two of the most commonly administered uterotonic
20 agents, are known to have significant cardiovascular side effects and may be
21 contraindicated in some women with heart disease. However, management of the
22 third stage of labour should not put women with heart disease at increased risk of
23 postpartum haemorrhage as some of these women will tolerate even minor
24 haemorrhage very poorly. The women at potential risk of adverse effects from
25 oxytocin are also those who are at greatest risk if they have a postpartum
26 haemorrhage. The committee took all these factors into account when developing
27 recommendations.

28 **How the recommendations might affect practice**

29 ***Risk assessment for women with heart disease***

30 Recommendations [1.3.1 to 1.3.5](#)

1 The committee agreed that the recommendations will reduce variation in practice
2 and encourage best practice that already exists in many areas of the country. In
3 some areas there may be more referrals to tertiary level services for specialist advice
4 from a cardiologist with expertise in managing heart conditions during pregnancy.
5 However, specialist advice should better determine which women need additional
6 intervention and provide reassurance for those women whose heart condition would
7 not affect their birth plans.

8 The committee believed that cardiac investigations are not rapidly available in all
9 areas of the UK and this is reinforced by delays to investigations being identified by
10 MBRRACE-UK in some cases of maternal death. There is variation in access to
11 echocardiography, an investigation that can be crucial to making a diagnosis when
12 symptoms of heart disease develop in the intrapartum period. A plan to ensure
13 urgent access to echocardiography (including out of hours) for pregnant women with
14 heart disease should be considered.

15 The recommendation that vaginal birth is safe for women with mild heart disease
16 may reduce unnecessary medical intervention.

17 ***Management of anticoagulation for valvular disease***

18 Recommendations [1.3.6 to 1.3.13](#)

19 The committee believed that these recommendations reflect modern UK practice and
20 the growing clinical confidence in low-molecular-weight heparin over unfractionated
21 heparin. Anti Xa assays are essential for the monitoring and titration of low-
22 molecular-weight heparin and the committee recognised that access to this test may
23 need to be improved.

24 ***Mode of birth for women with heart disease***

25 Recommendations [1.3.14 to 1.3.18](#)

26 It is thought that the recommendations largely reflect current UK practice. The
27 committee recognised that most women with more severe heart disease are already
28 managed in large obstetric-led units by clinical teams with experience in this area. By
29 attempting to define the conditions which pose the highest risk, the
30 recommendations may result in further centralisation of specialist services.

1 Women with pulmonary hypertension are already offered care in specialist centres.
2 Pregnancy and childbirth hold such serious risks for women with this condition and
3 the committee agreed that liaison with specialist respiratory physicians was
4 essential.

5 ***Fluid management for women with heart disease***

6 Recommendations [1.3.19 to 1.3.23](#)

7 The committee agreed that specialist planning for intrapartum monitoring to identify
8 the monitoring needs of women with different heart conditions together with stepped
9 escalation of monitoring intensity would reduce variation in practice. It would allow
10 NHS resources to be directed more effectively to reduce morbidity and mortality
11 associated with fluid management during the intrapartum period for women with
12 cardiac conditions and their babies. Women's experience of labour and birth would
13 be improved through their involvement in management discussions and because
14 they would receive a level of intervention appropriate to their needs taking their
15 priorities for birth into account where possible.

16 ***Diagnosis and management of heart failure in the intrapartum period***

17 Recommendations [1.3.24 to 1.3.31](#)

18 The recommendations largely reflect current best practice. The committee agreed
19 they should reinforce practice as well as improving postnatal prescribing and
20 encouraging these women to breastfeed.

21 ***Anaesthesia and analgesia for women with heart disease***

22 Recommendations [1.3.32 to 1.3.39](#)

23 Most pregnant women with severe heart disease are already offered care in large
24 obstetric-led units with links to cardiac centres. Therefore, these recommendations
25 reinforce current practice and are unlikely to lead to a change. The recommendation
26 that women with WHO 1 and WHO 2 heart disease should be treated as healthy
27 women may reduce unnecessary change in routine intrapartum practice.

28 ***Management of the third stage of labour for women with heart disease***

29 Recommendations [1.3.40 to 1.3.44](#)

1 The recommendations largely reflect current practice. The committee agreed there
2 should be little change, with the exception of reducing the use of long-acting forms of
3 oxytocin.

4 Full details of the evidence and the committee's discussion are in [evidence review C:
5 heart disease](#).

6 [Return to the recommendations](#)

7 ***Asthma***

8 **Why the committee made the recommendations**

9 ***Analgesia for women with asthma***

10 Recommendation [1.4.1](#)

11 No evidence was found on harm from any form of pain relief during labour for women
12 with asthma. In the absence of evidence, the committee drew on their knowledge
13 and experience to agree that the risk of harm was theoretical, and women with
14 asthma should have the same options for pain relief as women without asthma.

15 ***Prostaglandins for women with asthma***

16 Recommendations [1.4.2 to 1.4.4](#)

17 Very limited evidence indicated that prostaglandins E1 and E2 did not worsen
18 asthma and this was in line with the committee's experience. The committee agreed
19 to recommend prostaglandins E1 and E2 as options for inducing labour in women
20 with asthma, and prostaglandin E1 for postpartum haemorrhage, because these are
21 the options for women without asthma. However, the committee was concerned
22 about a risk of bronchospasm with prostaglandin F2 alpha and so recommended
23 against it even though it would normally be offered to women without asthma.

24 **How the recommendations might affect practice**

25 ***Analgesia for women with asthma***

26 Recommendation [1.4.1](#)

1 The recommendation should not significantly alter practice, because many hospitals
2 already offer all types of pain relief to women with asthma. Those that do not will
3 have all the options available for women without asthma and so will be able to
4 quickly implement the recommendation.

5 ***Prostaglandins for women with asthma***

6 Recommendations [1.4.2 to 1.4.4](#)

7 Current use of prostaglandins in the intrapartum period is not well documented, but it
8 is thought that practice varies. These recommendations are expected to represent a
9 change in practice, but not a significant resource impact because prostaglandins are
10 already given to women without asthma. Prostaglandin use in women with asthma
11 might increase intensive monitoring of respiratory function during labour or after
12 birth. This would have a resource impact, but would be offset by the reduction in
13 extremely prolonged labour or failed induction, and the impact of postpartum
14 haemorrhage.

15 Full details of the evidence and the committee's discussion are in [evidence review D:
16 asthma](#).

17 [Return to the recommendations](#)

18 ***Long-term systemic steroids***

19 **Why the committee made the recommendations**

20 ***Steroid replacement regimens***

21 Recommendations [1.5.1 to 1.5.4](#)

22 No evidence was found so the committee used their knowledge and experience to
23 make recommendations. They agreed that women who have been taking long-term
24 steroids (equivalent to 5 mg or more prednisolone daily for more than 3 weeks) are
25 at risk of adrenal crisis when under the physiological stress of labour and birth. The
26 committee recommended that these women continued their regular steroid dose
27 during labour and birth, since the effects of stopping are uncertain and there could
28 be problems restarting the dose in the postpartum period.

1 They agreed that additional steroids (on top of the normal dose) would be needed to
2 protect against an adrenal crisis. These extra steroids should be given intravenously
3 or intramuscularly because this allows better estimation of the dose absorbed, and
4 avoids the risk of vomiting. The committee recommended a higher dose of
5 additional steroids for a caesarean section, because this is more physiologically
6 stressful than labour.

7 Women taking inhaled or topical steroids would not normally be at risk of adrenal
8 crisis because of the lower doses. These women should not be offered additional
9 steroids during labour and birth unless a specialist agrees this may be needed.

10 **How the recommendations might affect practice**

11 ***Steroid replacement regimens***

12 Recommendations [1.5.1 to 1.5.4](#)

13 The committee believe that steroids are likely overprescribed for women in labour.
14 Therefore these recommendations might reduce the amount of steroids given,
15 particularly for women taking inhaled or topical steroids. However, because steroids
16 are inexpensive, this is unlikely to have a significant impact on resource use within
17 the NHS in England.

18 Full details of the evidence and the committee's discussion are in [evidence review E:
19 long-term systemic steroids](#).

20 ***Bleeding disorders***

21 **Why the committee made the recommendations**

22 ***Regional anaesthesia and analgesia for women with bleeding disorders***

23 Recommendations [1.6.1 to 1.6.2](#)

24 The limited available evidence was not able to show at which level of platelet count
25 or platelet function the risk of complications, such as epidural haematoma, starts to
26 increase. Evidence reported no serious harm (such as epidural haematoma) from
27 regional analgesia or anaesthesia even with a platelet count below $50 \times 10^9/l$.

28 Bleeding complications are more likely with epidural rather than spinal techniques

1 (because smaller needles are used for the latter). The committee agreed that
2 sometimes they would consider regional analgesia and anaesthesia (especially
3 spinal techniques) for women with low platelet counts. Because serious maternal
4 complications are so rare, the evidence did not allow a definite conclusion that there
5 was no significant risk associated with epidural analgesia when platelet count was
6 low. The committee decided not to set a definitive platelet threshold below which
7 epidural or spinal analgesia should not be considered, but agreed that overall
8 bleeding risk (including, but not limited to, platelet count) should be taken into
9 account. Risks and benefits should be discussed with women, because the risk-
10 benefit ratio will be highly individual and could change in the intrapartum period.

11 ***Modifying the birth plan according to platelet count or function***

12 Recommendations [1.6.3 to 1.6.6](#)

13 No evidence was identified on platelet count and level of platelet function at which
14 risks for either the woman or her baby would increase. Therefore the committee
15 made recommendations based on their knowledge and expertise. Women with
16 gestational thrombocytopenia are generally considered at low risk of bleeding
17 complications during birth whereas women with immune thrombocytopenic purpura
18 are regarded as high risk. So the committee recommended significant changes to
19 the birth plan only if the woman had immune thrombocytopenic purpura, or
20 gestational thrombocytopenia with a low platelet count.

21 Women with immune thrombocytopenic purpura may have a low platelet count and
22 high risk of bleeding whilst the baby has a normal platelet count and low risk of
23 bleeding. Conversely, a woman with immune thrombocytopenic purpura may have a
24 normal platelet count and a baby with a low platelet count and high risk of bleeding.
25 In other words, for women with immune thrombocytopenic purpura the bleeding risk
26 of the woman does not correspond to the bleeding risk of the baby. Consequently if
27 the woman has immune thrombocytopenic purpura, it is safest to treat the baby as
28 being at high risk of bleeding, and modify the birth plan to reduce the bleeding risk to
29 the baby wherever possible, for example, by not carrying out any fetal blood
30 sampling.

1 Women with gestational thrombocytopenia do not have an alloantibody that affects
2 the fetal platelet count. Gestational thrombocytopenia therefore only puts the woman
3 at risk of bleeding, and not her baby.

4 ***Management of the third stage of labour for women with bleeding disorders***

5 Recommendations [1.6.7 to 1.6.9](#)

6 The committee based the recommendations on their knowledge and experience as
7 the evidence was very limited. A number of bleeding disorders can affect the third
8 stage of labour but evidence was not found for all these conditions. In addition, it was
9 not always possible to tell whether an outcome was linked to a treatment or a
10 specific condition because conditions were sometimes grouped together according
11 to severity.

12 The risk to a woman's life from postpartum haemorrhage is greater if she has a
13 bleeding disorder. To reduce postpartum haemorrhage, the committee
14 recommended active management of labour (rather than physiological
15 management), which includes intramuscular oxytocin, early clamping of the cord and
16 controlled cord traction, as described in the NICE guideline on [intrapartum care for](#)
17 [healthy women and babies](#).

18 Women with bleeding disorders may need some adjustments to active management
19 of labour. For example, there may be risks associated with intramuscular injections
20 in these women. These considerations will need oversight from a senior
21 haematologist, more frequent and possibly extended monitoring, and discussion of
22 any changes in clinical condition.

23 **How the recommendations might affect practice**

24 ***Use of regional anaesthesia and analgesia***

25 The recommendations are in line with current NHS practice.

26 ***Modifying the birth plan according to platelet count or function***

27 Women with immune thrombocytopenic purpura are at high risk of bleeding and so
28 should give birth in an obstetric unit with a neonatal unit that routinely provides high
29 dependency care. However, the committee was aware that this does not always

1 happen in practice, and so the recommendation could create more demand for high
2 dependency neonatal units. However, this might be offset by women at lower risk
3 (for example, with gestational thrombocytopenia and a high platelet count) not being
4 referred to these units.

5 ***Management of the third stage of labour***

6 These recommendations should lead to fewer attempts at physiological management
7 of the third stage in women with bleeding disorders, with fewer postpartum
8 haemorrhages and reduced maternal morbidity. The recommendations will apply to a
9 small number of women, so implementing them is unlikely to cause staffing or
10 resource issues for hospitals.

11 Full details of the evidence and the committee's discussion are in [evidence review F:
12 bleeding disorders](#).

13 [Return to the recommendations](#)

14 ***Subarachnoid haemorrhage or arteriovenous malformation of the 15 brain***

16 **Why the committee made the recommendations**

17 ***Mode of birth and management of the second stage of labour for women with 18 subarachnoid haemorrhage or arteriovenous malformation of the brain***

19 Recommendations [1.7.1 to 1.7.9](#)

20 Although the available evidence showed that there were no maternal or neonatal
21 deaths or morbidities related to maternal cerebrovascular malformation or a history
22 of intracranial bleeding, the committee agreed that there was not enough evidence to
23 justify changing practice for women at high risk of an intracranial bleed. Current
24 practice is to manage the bleeding risk as conservatively as possible.

25 Although vaginal birth is an option for women at low risk of intracranial bleeding, the
26 committee acknowledged that some women would choose a caesarean section
27 because of the theoretical risk of a bleed. The committee agreed that mode of birth
28 should be based on the woman's preference as well as obstetric indications.

1 In women at high risk, or unknown risk (for example, because they have presented in
2 labour with no antenatal care), the committee decided that in theory a caesarean
3 section reduces the risk of intracranial bleeding as it should reduce the risks of
4 raised intracranial pressure. This theoretical reduction in risk justified caesarean
5 section for this group. They added that if a woman at high risk wanted to go into
6 labour, steps should be taken to reduce the risk of intracranial bleeding, such as
7 offering a forceps birth without active pushing following a passive descent.

8 The committee knew that there was sometimes a reluctance to offer regional
9 analgesia and anaesthesia to women with a history of subarachnoid haemorrhage or
10 arteriovenous malformation of the brain because of the possibility of provoking a
11 bleed. They discussed that this was extremely unlikely unless there was a genetic
12 predisposition to multiple cerebrovascular malformations. They agreed that most
13 women should be able to choose regional analgesia if they wished.

14 The committee was aware that cerebrovascular malformations affect more than 3%
15 of the population and that women with cerebrovascular malformations or a previous
16 subarachnoid haemorrhage are at risk of a potentially life-threatening cerebral
17 haemorrhage. In current practice many women with cerebrovascular malformations
18 will be offered a caesarean section. However, it is uncertain whether vaginal birth
19 increases the risk of cerebral haemorrhage in these women and the committee
20 agreed to make a research recommendation to inform future guidance.

21 **How the recommendations might affect practice**

22 The recommendations are in line with current practice for women at high risk, but
23 many healthcare professionals would currently offer an elective caesarean section to
24 women at low risk. So these recommendations could lead to a major change in
25 practice for these women, with fewer caesarean sections. This assumes that their
26 obstetric indications and personal preferences are similar to those of the general
27 population of women.

28 Full details of the evidence and the committee's discussion are in [evidence review G:
29 subarachnoid haemorrhage or arterio-venous malformation of the brain.](#)

30 [Return to the recommendations](#)

1 ***Acute kidney injury or chronic kidney disease***

2 **Why the committee made the recommendations**

3 ***Fluid management for women with kidney disease***

4 Recommendations [1.8.1 to 1.8.10](#)

5 Managing fluid balance in women with renal impairment during pregnancy is
6 extremely difficult – dehydration can cause acute kidney injury, especially in those
7 with underlying chronic kidney disease, but fluid overload can rapidly lead to
8 pulmonary oedema, especially in women with superimposed pre-eclampsia.

9 Although there was limited evidence on fluid management, its importance has been
10 emphasised by successive confidential enquiries. The committee agreed that fluid
11 management would vary, depending on the clinical condition of the woman and her
12 baby.

13 The committee knew from their experience that action could often be taken to
14 improve outcomes if the issue was identified in time. Therefore they recommended
15 regular frequent monitoring every 4 hours during the intrapartum period, including
16 monitoring after birth. As oliguria is very common in healthy women in the
17 postpartum period, the assessment of urine output more frequently than every 4
18 hours can be misleading. Exactly what should be monitored would depend on the
19 clinical condition of the woman, but would include observations to assess fluid
20 status, including blood pressure, chest sounds, fluid intake and output, oxygen
21 saturation and jugular venous pressure.

22 The committee agreed that it was important to remind professionals caring for
23 women in labour and during birth that commonly used drugs that are known to be
24 nephrotoxic (for example, non-steroidal anti-inflammatory drugs) should not be
25 offered to women with chronic kidney disease or acute kidney injury.

26 ***Timing and mode of birth for women with kidney disease***

27 Recommendations [1.8.11 to 1.8.17](#)

1 No evidence was found for timing of birth for women with renal impairment but the
2 committee agreed that this would depend on the extent of the impairment. Longer
3 gestation leads to better outcomes for the baby but may lead to worse outcomes for
4 the woman's kidney function. Therefore, when renal impairment is less severe
5 (chronic kidney disease stage 1 or stages 2 to 4 with stable renal function), the
6 balance of benefits and harms favours allowing the baby as long as possible to
7 develop without becoming overdue. The committee agreed that when there is a
8 significant risk to the mother's life in allowing the pregnancy to continue, dialysis
9 should be attempted to prolong the pregnancy until at least 34⁺⁰ weeks', with a
10 planned birth after this. In the committee's experience, this offers the least risk to
11 mother and baby, and allows as many women as possible to have the birth of their
12 choice.

13 There was no evidence that any particular mode of birth was better or worse for
14 women with renal impairment and this was in line with the committee's experience,
15 and so decisions about the mode of birth should be based on obstetric indications
16 and the woman's preference. However, the committee recommended that a
17 transplant surgeon be involved if a caesarean section is being considered for a
18 woman with a renal transplant. This is because the transplanted kidney will often be
19 positioned near the usual site of caesarean incision and is therefore at risk of
20 damage. The committee agreed that access to a transplant surgeon, if the
21 caesarean section was complicated, should be recommended.

22 **How the recommendations might affect practice**

23 ***Fluid management for women with kidney disease***

24 Recommendations [1.8.1 to 1.8.10](#)

25 Current practice is highly variable. The recommendations will mean more
26 observation of women with renal impairment, with increased work for healthcare
27 professionals. But they should lead to significantly fewer instances of morbidity.

28 The committee agreed that women with pre-existing chronic kidney disease are
29 particularly vulnerable to both acute kidney injury and pre-eclampsia. By managing
30 fluid balance more effectively, the risk of acute kidney injury in women with chronic

1 kidney disease can be reduced. This will improve short and longer term outcomes for
2 women and benefit healthcare systems with reduced length of stay.

3 ***Timing and mode of birth for women with kidney disease***

4 Recommendations [1.8.11 to 1.8.17](#)

5 The recommendations are likely to lead to a change in practice in many areas. This
6 is because currently some healthcare professionals only offer early birth to women
7 with the most significant renal impairment. However, others recommend early birth to
8 women who could safely carry the pregnancy a few weeks longer.

9 Full details of the evidence and the committee's discussion are in [evidence review H:
10 acute kidney injury or chronic kidney disease.](#)

11 [Return to the recommendations](#)

12 ***Obesity***

13 **Why the committee made the recommendations**

14 ***Assessing fetal presentation early in labour for women with a BMI over 30***

15 Recommendation [1.9.1](#)

16 The NICE guideline on [intrapartum care for healthy women and babies](#) recommends
17 that women with a BMI under 35 kg/m² can give birth in a midwifery unit or at home.
18 The committee agreed, based on their experience, that identifying the fetal position
19 by palpation can be difficult in women who are obese, particularly when the BMI is
20 over 35 kg/m². The degree of confidence in palpation often decreases with
21 increasing body weight.

22 Ultrasound scanning at the start of established labour can help with decision-making
23 when the baby's presentation is uncertain. The consequences of missing a
24 malpresentation are more serious in women who are obese, who are already at a
25 higher risk of operative interventions in labour. The committee agreed that
26 healthcare professionals should consider ultrasound scanning at the start of
27 established labour when presentation is uncertain and a woman is obese. This
28 should reduce the likelihood of adverse outcomes for the woman and her baby.

1 ***Anaesthesia and analgesia for women with a BMI over 30***

2 The committee was aware that women who are obese are more likely to need
3 anaesthesia during labour and birth because the rates of operative birth are much
4 higher in this group. Needle siting for anaesthesia is potentially more difficult in
5 women who are obese because the surface landmark anatomy of the lumbar spine
6 can be more difficult to identify. It is thought that there are more unsuccessful
7 attempts to site regional analgesia, and ultrasound might be cost effective for needle
8 siting in this group. The use of ultrasound for needle siting is increasing with
9 resource implications for the NHS. The committee could not make a
10 recommendation on the most appropriate technique for needle siting because the
11 evidence was uncertain, but they agreed to make a research recommendation to
12 inform future guidance.

13 ***Fetal monitoring for women with a BMI over 30***

14 Recommendation [1.9.2](#)

15 It is more difficult to monitor fetal heart rate, uterine contractions and fetal position in
16 women who are obese. These women are likely to have more complications. Growth
17 restriction is more likely to have been missed from earlier scans, making it even
18 more important to monitor frequently in the intrapartum period.

19 However, there was no evidence that continuous cardiotocography improves
20 outcomes compared with intermittent auscultation. So the committee agreed to
21 recommend monitoring based on obstetric indications and the woman's preference
22 in line with the NICE guideline on [intrapartum care for health women and babies](#).

23 There is variation in management during the intrapartum period for women who are
24 obese. This is because of a lack of agreement on whether women with
25 uncomplicated obesity should be offered continuous fetal monitoring in
26 labour, receive further antenatal ultrasound scanning, including amniotic fluid volume
27 assessment and umbilical artery Doppler scans, or be offered early induction.

28 Research to date has not established the effect of stratified BMI on perinatal
29 outcomes. Current research is mainly retrospective, using data dating back to the
30 1970s and 1980s when BMI was usually self-reported and not stratified according to

1 WHO categorisation. The committee agreed to make a research recommendation to
2 inform future guidance.

3 ***Position in labour for women with a BMI over 30***

4 Recommendations [1.9.3 to 1.9.5](#)

5 Based on their experience, the committee agreed that there was no reason to alter
6 the advice on the position in the second stage of labour just because a woman is
7 obese. But it is important that she has enough mobility to allow healthcare
8 professionals access in an emergency (for example, the ability to get into the lateral
9 position). For women who have significantly reduced mobility, the committee
10 recommended the lateral position to begin with, because this allows good access
11 and so reduces the risk of adverse events. The committee agreed that these
12 decisions should be made in the third trimester after a risk assessment, to ensure
13 that everyone is aware of the plans for managing the second stage.

14 ***Equipment needs for women in labour with a BMI over 30***

15 Recommendations [1.9.6 to 1.9.8](#)

16 The committee agreed that women who are obese need specialist equipment for a
17 safe birth. They described all the specialist equipment required; not just beds and
18 wheelchairs but specialist surgical tools and monitoring equipment. The committee
19 did not believe that every hospital would have all this equipment, particularly to deal
20 with women with a BMI over 50 kg/m². They agreed that referral to another obstetric
21 unit should be considered when this is the case to ensure that the needs of the
22 women are adequately met.

23 **How the recommendations might affect practice**

24 ***Assessing fetal presentation early in labour for women with a BMI over 30***

25 Recommendation [1.9.1](#)

26 The recommendation reflects current practice.

27 ***Fetal monitoring for women with a BMI over 30***

28 Recommendation [1.9.2](#)

1 There is a wide variation in the use of continuous cardiotocography and intermittent
2 auscultation for women who are obese. However, the recommendation is unlikely to
3 mean a large change in current practice.

4 ***Position in labour for women with a BMI over 30***

5 Recommendations [1.9.3 to 1.9.5](#)

6 Most midwives know that the lateral position is the safest for women with reduced
7 mobility in labour. Therefore the recommendations are unlikely to lead to a change in
8 practice. The recommendations for women with sufficient mobility are the same as
9 those in the NICE guideline on [intrapartum care for healthy women and babies](#). They
10 should not change practice unless healthcare professionals are unaware that the
11 recommendations in this NICE guideline also apply to women who are obese.

12 ***Equipment needs for women in labour with a BMI over 30***

13 Recommendations [1.9.6 to 1.9.8](#)

14 A 2010 report from the Confidential Enquiry into Maternal and Child Health (CMACE)
15 and the Royal College of Obstetrics and Gynaecologists identified major gaps in the
16 provision of hospital equipment for pregnant women who are obese. The committee
17 believed that this has significantly improved and therefore that – for the most part –
18 the recommendations should not affect practice. They should, however, reinforce
19 what hospitals should already be providing.

20 Full details of the evidence and the committee’s discussion are in [evidence review I:
21 obesity](#).

22 [Return to the recommendations](#)

23 ***Information for women with obstetric complications or no antenatal 24 care***

25 Recommendations [1.10.1 to 1.10.5](#)

26 **Why the committee made the recommendations**

27 Evidence was limited but the committee agreed that good quality information is
28 important for women who are at increased risk of serious medical problems for

1 themselves or their babies. These women are likely to be more anxious than other
2 women in labour and need information that presents risk in way that they can
3 understand. The information should be based on local and national data where
4 possible to allow women to make informed choices. Healthcare professionals should
5 recognise that individuals have their own views of risk and they should support
6 women to make informed decisions about their care. The committee recognised that
7 the evidence base was limited but showed that women felt they may be given biased
8 information and that some options were not offered or were actively opposed.
9 Women described having to search out information themselves. The evidence also
10 suggested that there may be inequalities between women when it comes to making
11 an informed decision and being in control of their care. Women who were not able to
12 seek information could be disadvantaged in making informed choices. The
13 committee noted that these themes were reflected by their own experiences and
14 agreed that it is very important that information about all options is offered to women.

15 **How the recommendations might affect practice**

16 The committee noted that there was variability in current practice relating to care of
17 women in labour who have a higher chance of serious medical problems. The
18 recommendations may result in a change in practice in some areas, with a change in
19 focus from a risk-based approach to supporting informed decision-making for all
20 women.

21 Full details of the evidence and the committee's discussion are in [evidence review J:
22 information for women with obstetric complications or no antenatal care](#)

23 [Return to recommendations](#)

24 ***Risk assessment for women with obstetric complications or no 25 antenatal care***

26 Recommendations [1.11.1 to 1.11.6](#)

27 **Why the committee made the recommendations**

28 No evidence was found on observations for women in labour with obstetric
29 complications so the committee made recommendations based on their expertise
30 and knowledge of good practice. They agreed that in order to understand the whole

1 clinical picture, it is important to listen to the woman's concerns and her own account
2 of her symptoms. The committee acknowledged that women in the following groups
3 would only need routine maternal observations during labour if there were no other
4 concerns:

- 5 • breech presentation
- 6 • suspected small-for-gestational age baby
- 7 • suspected large-for-gestational age baby
- 8 • previous caesarean section
- 9 • labour after 42 weeks of pregnancy
- 10 • no antenatal care.

11 The committee did not want to medicalise care for women with fever in labour and
12 agreed that many of these women do not need additional maternal observations
13 apart from hourly monitoring of temperature. However, if other symptoms or signs
14 develop, the possibility of sepsis should be considered.

15 The committee did not want to medicalise care for women with slight concerns about
16 possible sepsis, but they agreed that if concerns are enough to warrant antibiotic
17 treatment more frequent observations are needed because of the risk of sudden
18 deterioration. The committee recommended continuous or half-hourly measurement
19 of pulse, blood pressure and respiratory rate in line with the NICE guideline on
20 sepsis. Hourly monitoring of temperature is sufficient, but monitoring of urine output,
21 level of consciousness (AVPU) and oxygen saturation might also be needed,
22 depending on the whole clinical picture and according to clinical judgement.

23 The committee agreed that for women with intrapartum haemorrhage, continuous
24 monitoring of vaginal blood loss is important because this is often underestimated
25 and it can be difficult to decide when more action is needed. Therefore the
26 committee recommended more frequent observations to detect possible changes in
27 a woman's condition. They also recommended other observations such as
28 respiratory rate, volume of urine output, AVPU and oxygen saturation should be
29 considered as needed to prompt transfer to an obstetric-led unit and involvement of
30 a senior obstetrician.

1 Because of the increased risk of serious medical problems in women with obstetric
2 complications or no antenatal care and the need for timely action when indicated, it
3 is important that the woman's condition is comprehensively reviewed by an
4 experienced healthcare professional who should be responsible for deciding if there
5 is a need to escalate care.

6 The lack of evidence on maternal observations for women in labour with suspected
7 sepsis prompted the committee to make a research recommendation to inform future
8 guidance.

9 **How the recommendations might affect practice**

10 The committee agreed that the recommendations reflect current best practice, but
11 this may result in changing practice in some units.

12 Full details of the evidence and the committee's discussion are in [evidence review K:
13 risk assessment for women with obstetric complications or no antenatal care](#)

14 [Return to recommendations](#)

15 ***Pyrexia***

16 **Why the committee made the recommendations**

17 ***Fetal blood sampling for women in labour with a fever***

18 [Recommendation 1.12.1](#)

19 No evidence was found on fetal blood sampling for women in labour with a fever so
20 the committee made recommendations based on their expertise and knowledge of
21 good practice. Their view was that women with fever in labour should be treated as if
22 they have suspected sepsis for the purpose of fetal blood sampling and so the
23 recommendations in this section mirror those for sepsis and suspected sepsis.

24 ***Use of antipyretics for women in labour with a fever***

25 [Recommendations 1.12.2 to 1.12.3](#)

26 Very limited evidence showed no difference in the rate of caesarean section or
27 admission to neonatal intensive care when women had paracetamol for fever.

1 However, the committee agreed that paracetamol is safe and can reduce discomfort
2 when a woman has a temperature. They noted that fever can be a sign of sepsis and
3 agreed that recognising and treating sepsis is a clinical priority. Because
4 paracetamol may mask a worsening fever, they recommended that healthcare
5 professionals should remember that paracetamol is not a treatment for sepsis and
6 should not delay investigation and treatment when sepsis is suspected.

7 **How the recommendations might affect practice**

8 ***Fetal blood sampling for women in labour with a fever***

9 The recommendations should harmonise practice, potentially increasing use of fetal
10 blood sampling in areas where healthcare professionals are overly cautious and
11 decreasing use in places where multiple fetal blood samples are taken.

12 ***Use of antipyretics for women in labour with a fever***

13 The recommendations could reduce the inappropriate use of paracetamol and
14 promote the prompt management of sepsis.

15 Full details of the evidence and the committee's discussion are in [evidence review L:
16 pyrexia](#)

17 [Return to recommendations](#)

18 **Sepsis**

19 **Why the committee made the recommendations**

20 ***Mode of birth for women with sepsis or suspected sepsis***

21 [Recommendations 1.13.1 to 1.13.10](#)

22 No evidence was found on mode of birth for women in labour with sepsis or
23 suspected sepsis so the committee made recommendations based on their expertise
24 and knowledge of good practice. They recognised that sepsis is an important cause
25 of maternal mortality and that physiological changes during labour may mask the
26 early signs of sepsis. There is no agreed definition of normal physiological
27 adjustments occurring during pregnancy and labour and these can vary as labour
28 progresses.

1 The committee agreed that the NICE guideline on sepsis should be followed for the
2 recognition of sepsis in pregnant women and that normal physiological changes in
3 labour (such as increased maternal pulse rate) should also be taken into account.

4 The committee agreed that there should be ongoing multidisciplinary review by a
5 senior team with a named lead. Ongoing review means the team is prepared to react
6 to a changing situation, which may alter very quickly. The committee agreed that
7 inadequate or delayed maternal resuscitation may worsen organ dysfunction and
8 have an impact on the safety of anaesthesia, so they recommended that a senior
9 obstetric anaesthetist should be included in the team.

10 When a woman in labour has sepsis (rather than suspected sepsis), the team should
11 be expanded to include a neonatologist and microbiologist, and for women with
12 sepsis and manifestations of organ dysfunction the team should be further expanded
13 to include a senior intensivist (critical care specialist).

14 The committee noted that a clear management plan should be documented and
15 reviewed on a regular basis because it is important not only for the multidisciplinary
16 team but also for the woman to know what is happening.

17 The committee emphasised that the woman and her birth companion(s) should be
18 involved in shared decision-making about management because they need to be
19 involved in decisions and choices about how to proceed.

20 All options for timing and mode of birth should be considered in discussion with the
21 woman and it should not be assumed that caesarean section is the only option for
22 women with sepsis or suspected sepsis. The committee agreed that when the
23 source of sepsis is thought to be the genital tract healthcare professionals should
24 expedite the birth because there is an increased risk of adverse outcomes for the
25 baby.

26 ***Anaesthesia for women in labour with sepsis or suspected sepsis***

27 [Recommendation 1.13.11](#)

28 No evidence was found on anaesthesia for women in labour with sepsis or
29 suspected sepsis so the committee made recommendations based on their expertise

1 and knowledge of good practice. They wanted to ensure that women in labour with
2 sepsis and signs of organ dysfunction were offered anaesthesia appropriate to their
3 clinical condition and noted that the default practice of using regional anaesthesia
4 may not be appropriate for these women. The committee agreed that regional
5 anaesthesia may be associated with cardiovascular instability when there is sepsis
6 with signs of organ dysfunction. Other adverse outcomes may include epidural
7 abscess and haematoma due to coagulopathy. This led the committee to
8 recommend that regional anaesthesia should be used only with caution and in the
9 presence of a consultant obstetric anaesthetist.

10 ***Analgesia for women in labour with sepsis or suspected sepsis***

11 [Recommendations 1.13.12 to 1.13.16](#)

12 No evidence was found to recommend one form of pain relief over another for
13 women in labour with sepsis or suspected sepsis. Although there was also no
14 evidence that the use of the birthing pool is contraindicated for women in labour with
15 suspected sepsis where concern is insufficient for antibiotic treatment, the committee
16 used their clinical experience and expertise to recommend that for these women the
17 birthing pool should be considered only after discussion with a senior midwife and a
18 senior obstetrician. The committee was aware that women with sepsis and signs of
19 organ dysfunction may have bacteraemia and an increased risk of local infection or
20 meningitis when a needle is inserted for regional analgesia. Therefore they
21 recommended that this should only be used with caution and only with advice from a
22 consultant obstetric anaesthetist. Advice rather than the presence of a consultant
23 obstetric anaesthetist is needed because of the lower dose of local anaesthetic used
24 for a woman who is not having surgery. The committee also made a
25 recommendation that for women needing antibiotics for suspected sepsis the
26 treatment should begin before inserting the needle for regional analgesia.

27 A multidisciplinary review of options for pain relief is recommended at least every
28 4 hours because usually the multidisciplinary team would not be involved this often.

29 ***Fetal monitoring for women in labour with sepsis or suspected sepsis***

30 [Recommendations 1.13.17 to 1.13.21](#)

1 No evidence was found on fetal monitoring for women in labour with sepsis or
2 suspected sepsis so the committee made recommendations based on their expertise
3 and knowledge of good practice. The committee agreed that fetal blood sampling
4 can be falsely reassuring when a woman has sepsis. They wished to emphasise that
5 the whole clinical picture should influence the decision to perform sampling and
6 should be taken into account when interpreting the results. The committee also
7 wanted healthcare professionals to explain to women with sepsis that there is
8 uncertainty about the usefulness of fetal blood sampling so that women have more
9 information when deciding whether to accept or decline testing.

10 There is no evidence to support repeat fetal blood sampling so the committee
11 wanted to highlight the need for caution and consultant obstetric input to guide
12 decision-making.

13 ***Antimicrobial treatment for women in labour with sepsis or suspected sepsis***

14 [Recommendations 1.13.22 to 1.13.25](#)

15 No evidence was found on when to start antimicrobial treatment for women in labour
16 with sepsis or suspected sepsis so the committee made recommendations based on
17 their expertise and knowledge of good practice. The committee was aware that
18 intrapartum sepsis presents unique diagnostic difficulties, including difficulties
19 identifying the source of the infection, which can lead to under or over diagnosis of
20 sepsis. The choice of antibiotics is influenced by concerns about safety for the baby.

21 No evidence was found to support the use of specific antimicrobials in labour when
22 the source of infection is clear and therefore the committee decided to follow the
23 NICE guideline on sepsis and recommend referring to local antimicrobial guidance.

24 When the source of infection is unclear, a broad-spectrum intravenous antimicrobial
25 from the local formulary should be offered because intrauterine infection is the most
26 likely source of the infection and is often due to multiple organisms (polymicrobial).

27 The committee was aware that local antimicrobial resistance patterns vary and that
28 the choice of antimicrobial would be guided by this. The committee was keen to
29 support shared decision-making and to ensure that the woman and her birth
30 companion(s) understood the reasons for the choice of antimicrobial.

1 ***Management for woman with sepsis or suspected sepsis immediately after the***
2 ***birth***

3 [Recommendation 1.13.26](#)

4 No evidence was found on management for women with sepsis or suspected sepsis
5 in the first 24 hours after the birth so the committee made recommendations based
6 on their expertise and knowledge of good practice. They agreed that a team with a
7 named lead should provide care. The committee felt that determining the need for
8 antibiotics, frequency of monitoring and level of care were important both for the
9 safety of the woman and avoiding separation from her baby. The committee was
10 aware that the woman and baby are often separated if the woman is transferred to a
11 general intensive care unit or high-dependency unit, and this can impact negatively
12 on the developing relationship between the woman and her baby, and consequently
13 on maternal emotional wellbeing and postnatal mental health.

14 Families expect women who have given birth to be discharged home in full health
15 soon after the birth. If the woman develops intrapartum sepsis, additional practical
16 and emotional support will be needed during the recovery from critical illness.

17 **How the recommendations might affect practice**

18 ***Mode of birth for women with sepsis or suspected sepsis***

19 The committee agreed that the recommendations reflect current best practice. This
20 may result in changing practice in some units.

21 ***Anaesthesia for women in labour with sepsis or suspected sepsis***

22 The committee agreed that the recommendations reflect current best practice so
23 there should be no change in practice.

24 ***Analgesia for women in labour with sepsis or suspected sepsis***

25 The committee was aware that currently the birthing pool would not be considered
26 for some women with suspected sepsis where concern is insufficient for antibiotic
27 treatment. The committee noted that there is variation in practice not only between
28 units but also within obstetric units. Therefore the extent of change in practice will
29 vary according to current practice.

1 The committee noted that use of prophylactic antibiotics in women with suspected
2 sepsis before central neuraxial block is not currently universal practice in the UK.

3 The committee's recommendation would reinforce current best practice.

4 Regular reviews with a minimum 4-hour frequency are a change to current practice.

5 Currently reviews are performed as and when needed. The committee agreed that
6 recommending a minimum review frequency was a more proactive approach to
7 supporting women's ongoing needs.

8 The committee was aware that a discussion with a senior anaesthetist did not always
9 happen in current practice, and their recommendations would reinforce current best
10 practice.

11 ***Fetal monitoring for women in labour with sepsis or suspected sepsis***

12 The committee hoped the recommendations would harmonise practice, potentially
13 increasing use of fetal blood sampling in areas where clinicians are overly cautious
14 and decreasing use in places where multiple fetal blood samples are taken.

15 ***Antimicrobial treatment for women in labour with sepsis or suspected sepsis***

16 The recommendations reflect current best practice.

17 ***Management for women with sepsis or suspected sepsis immediately after the*** 18 ***birth***

19 The recommendations reflect current best practice and should improve practice in
20 some areas, particularly around reducing separation of women and their babies.

21 Full details of the evidence and the committee's discussion are in [evidence review](#)
22 [M: sepsis](#)

23 [Return to recommendations](#)

24 ***Intrapartum haemorrhage***

25 [Recommendations 1.14.1 to 1.14.10](#)

1 **Why the committee made the recommendations**

2 ***Management of intrapartum haemorrhage***

3 No evidence was found on management of intrapartum haemorrhage so the
4 committee based recommendations on their expertise and knowledge of good
5 practice and the recommendations for postpartum haemorrhage in the NICE
6 guideline on intrapartum care for healthy women and babies. They agreed that a
7 large blood loss may result in major shock, and this would be the first priority for
8 treatment.

9 The committee agreed that when vaginal blood loss is more than a show it is
10 important to transfer the woman to obstetric-led care. It is also important to
11 determine the likely causes of the blood loss, and how the woman's health may
12 deteriorate or stabilise. The committee agreed that speaking with the woman to gain
13 the history, including any associated events, may help to determine the cause of
14 bleeding.

15 The committee agreed that it was essential to talk with the woman and her birth
16 companion(s) to explain what is happening, what may happen and understand her
17 preferences.

18 The committee agreed that if a woman in labour has vaginal blood loss typical of a
19 'show' this is not detrimental to the woman or baby and for these women the NICE
20 guideline on intrapartum care for healthy women and babies should be followed.

21 The committee agreed that it is good practice that all maternity settings are equipped
22 to manage intrapartum haemorrhage.

23 **How the recommendations might affect practice**

24 The recommendations reflect current best practice but this may mean a change
25 practice in some units.

26 Full details of the evidence and the committee's discussion are in [evidence review N:
27 intrapartum haemorrhage](#)

28 [Return to recommendations](#)

1 ***Breech presenting in labour***

2 [Recommendations 1.15.1 to 1.15.4](#)

3 **Why the committee made the recommendations**

4 ***Mode of birth for women presenting with a breech position in labour***

5 Evidence showed an increase in maternal infection and other maternal complications
6 during the first 6 weeks after caesarean section in labour for breech presentation
7 compared with vaginal breech birth.

8 Evidence showed fewer adverse outcomes for the baby after caesarean section in
9 early labour for breech presentation compared with vaginal birth, but the benefit was
10 less clear when caesarean section was performed in the later stages of labour.

11 The committee acknowledged that offering a choice between continuing labour and
12 emergency caesarean section may differ from the advice that women with breech
13 presentation have received during pregnancy. This is because the balance of risks to
14 the woman and baby have changed, with different considerations coming into play
15 when the woman is in labour. For example, considerations will be different when
16 breech presentation is first identified in labour, or when labour is more advanced.
17 The committee wished to ensure that healthcare professionals give women the
18 opportunity to make an informed choice about mode of birth in this situation. They
19 agreed not to recommend one mode of birth over another, but that following
20 discussion of the likely risks and benefits a woman should be able to decide what is
21 right for her.

22 Based on their knowledge and experience, the committee agreed that healthcare
23 professionals should follow recommendations in the NICE guideline on intrapartum
24 care for healthy women and babies to avoid unnecessary intervention when there is
25 a delay in labour.

26 **How the recommendations might affect practice**

27 There is variation in practice regarding counselling in labour for women with breech
28 presentation, following publication of the Term Breech Trial in 2000, which concluded
29 that vaginal birth was associated with higher risks to the baby. The recommendation

1 to offer women in labour with breech presentation a choice between continuing
2 labour and emergency caesarean section will promote a more consistent approach
3 and improved experience for women and their birth companions.

4 The committee was aware that training may be needed to fully implement the
5 recommendations supporting vaginal breech birth.

6 Full details of the evidence and the committee's discussion are in [evidence review O:
7 breech presenting in labour](#)

8 [Return to recommendations](#)

9 ***Small-for-gestational-age baby***

10 [Recommendations 1.16.1 to 1.16.4](#)

11 **Why the committee made the recommendations**

12 ***Fetal monitoring in labour for babies suspected to be small for gestational age***

13 No evidence was found for monitoring in labour for babies suspected to be small for
14 gestational age so the committee used their knowledge and experience to make
15 recommendations. They agreed that babies who are small for gestational age are at
16 risk of adverse outcomes and that this risk is higher when there is growth restriction
17 or problems with birth. However, they acknowledged that it is difficult to be certain
18 about the baby's size before birth and that it is important to avoid unnecessary
19 intervention and monitoring. Healthcare professionals should explain the risks and
20 uncertainties to women who may then consider continuous cardiotocography if their
21 baby is suspected to be small for gestational age. If there is concern about how
22 labour is progressing the woman should be offered continuous monitoring so that
23 any concerns for the baby can be picked up quickly.

24 **How the recommendations might affect practice**

25 The committee agreed that the recommendations reflect current best practice so
26 there should be no change. However, they acknowledged that women are currently
27 often not informed about the uncertainty around diagnosis of small-for-gestational-
28 age babies and the effectiveness of cardiotocography in preventing poor outcomes,
29 so this will be a development in practice.

1 Full details of the evidence and the committee's discussion are in [evidence review P:](#)
2 [small-for-gestational-age baby](#)

3 [Return to recommendations](#)

4 ***Large-for-gestational-age baby***

5 [Recommendations 1.17.1 to 1.17.3](#)

6 **Why the committee made the recommendations**

7 ***Mode of birth for babies suspected to be large for gestational age***

8 There was no convincing evidence for one mode of birth over another for women in
9 labour whose babies are suspected to be large for gestational age. The committee
10 discussed the difficulty of estimating a baby's size when a woman is in labour. They
11 acknowledged that ultrasound is difficult to perform in labour and is less accurate at
12 estimating a baby's weight than in the antenatal period. They agreed that women
13 should be told about this uncertainty. Evidence showed an increased risk of maternal
14 infection when women in labour had an emergency caesarean section. In the
15 committee's experience there was a risk of shoulder dystocia and perineal trauma
16 with vaginal birth. The committee agreed that women should be provided with
17 information so that they can make their own decisions about mode of birth when their
18 baby may be large for gestational age.

19 **How the recommendations might affect practice**

20 The recommendations ensure that woman are offered all the options available to
21 them in labour. It is not anticipated that this will have a large impact on resource
22 utilisation.

23 Full details of the evidence and the committee's discussion are in [evidence review Q:](#)
24 [large-for-gestational-age baby](#)

25 [Return to recommendations](#)

26 ***No antenatal care***

27 [Recommendations 1.18.1 to 1.18.12](#)

1 **Why the committee made the recommendations**

2 ***Risk assessment and management of labour for women with no antenatal care***

3 No evidence was found on intrapartum care for women who have had no antenatal
4 care so the committee agreed to make recommendations based on their expertise
5 and knowledge of good clinical practice.

6 Because of the lack of baseline information and a birth plan, intrapartum care for
7 these women should be led by an obstetrician who will carry out a full assessment of
8 the risks for the woman and her baby. The neonatal team should be alerted because
9 the committee agreed that there is an increased risk of serious medical problems for
10 the baby when a woman has had no antenatal care. Sometimes an anaesthetic team
11 may also be needed.

12 Sensitive enquiry should be made to try to understand the reasons for the lack of
13 antenatal care, as well as to identify any vulnerability and safeguarding issues. It is
14 important to ask the woman who she would like as her birth companion(s) and to
15 identify their relationship with her. If there is a language barrier, an independent
16 interpreter should be used rather than the woman's birth companion(s).

17 Blood and urine tests normally performed as part of routine antenatal care should be
18 offered to check for markers of anaemia and infection. Rapid HIV testing should be
19 offered to women who are thought to be at high risk of HIV because steps can be
20 taken to prevent mother-to-child transmission of known HIV infection during vaginal
21 birth. Evidence suggested that HIV testing would offer a good balance of benefits
22 and costs in women at high risk of infection. The test results would be used to plan
23 care during labour, birth and postnatally.

24 The committee agreed that the woman's GP should be contacted to obtain more
25 information about her history and to plan for her own and the baby's ongoing care.
26 Safeguarding concerns should be considered and if necessary referrals made. The
27 woman should be informed when other healthcare professionals, social care
28 professionals, safeguarding teams or the police need to be contacted. It is also
29 important to document and share information with relevant professionals, such as
30 the paediatric team and local health providers, for continuation of care.

1 **How the recommendations might affect practice**

2 The recommendations largely reflect good clinical practice and therefore will not
3 mean a large change. However, rapid HIV testing is not currently widely available.
4 An assessment of local needs for such services should be done.

5 Full details of the evidence and the committee's discussion are in [evidence review R:
6 no antenatal care](#)

7 [Return to recommendations](#)

8 ***Previous caesarean section***

9 [Recommendations 1.19.1 to 1.19.9](#)

10 **Why the committee made the recommendations**

11 ***Management of the first and second stages of labour for women with a
12 previous caesarean section***

13 No evidence was found for intravenous cannulation for women in labour with a
14 previous caesarean section. The committee agreed that the chance of needing
15 intravenous access for urgent blood transfusion was unlikely to be higher in these
16 women, and so recommended that cannulation should not be routine.

17 The committee noted from the evidence and their expertise that the risk of uterine
18 rupture with vaginal birth was small for women with a previous caesarean section.
19 There was some evidence that performing an emergency caesarean section in
20 labour is associated with an increased risk of heavy bleeding and the need for blood
21 transfusion, infection and a longer hospital stay. The committee recommended that
22 women should be told about this when making decisions about mode of birth.

23 The committee felt it was important that women should be made aware that there is
24 no compelling evidence to recommend one mode of birth over another to improve
25 outcomes for the baby.

26 Evidence indicated that women in labour with a previous caesarean section are likely
27 to be at a lower risk of complications if they have also had a previous vaginal birth.

1 There was evidence that oxytocin and regional analgesia both reduced the chance of
2 another caesarean section for women in labour who have had a caesarean section
3 in the past. The likelihood of an instrumental vaginal birth (forceps or ventouse) was
4 increased with both. The committee agreed that this should be explained to women
5 so that they can make a fully informed decision.

6 No evidence was found to recommend one form of pain relief over another for
7 women with a previous caesarean section. There was also no evidence that the use
8 of the birthing pool for pain relief is contraindicated for these women. Therefore, the
9 committee agreed to recommend that all forms of pain relief, including the birthing
10 pool, should be offered.

11 No evidence was found for routine amniotomy in women in labour with previous
12 caesarean section. The committee used their experience and expertise to
13 recommend that this should not be offered.

14 The committee was aware that continuous cardiotocography is usually advised for
15 women in labour who have had a previous caesarean section, because of an
16 increased risk of serious medical problems for the baby. However, it is uncertain
17 whether continuous cardiotocography in these circumstances allows risk to be
18 identified sooner than if intermittent auscultation is used. The committee agreed to
19 make a research recommendation to inform future guidance.

20 **How the recommendations might affect practice**

21 The committee recognised there was variation in practice and inequity in the choices
22 available to women in labour with a previous caesarean section. The committee
23 wanted to ensure that these women would be offered comprehensive information so
24 that they could make informed decisions about their care and wellbeing, and would
25 not be subjected to unnecessary interventions that may not improve outcomes for
26 the woman or her baby. They noted that the extent of change in practice arising from
27 the recommendations would vary across the UK based on current practice and that
28 the recommendations may result in specific changes in practice around supporting
29 women's' choice of place of birth and routine cannulation in labour, which may in turn
30 lead to cost savings for the healthcare system.

1 Full details of the evidence and the committee's discussion are in [evidence review S:](#)
2 [previous caesarean section](#)

3 [Return to recommendations](#)

4 ***Labour after 42 weeks of pregnancy***

5 [Recommendations 1.20.1 to 1.20.3](#)

6 **Why the committee made the recommendations**

7 ***Fetal and maternal monitoring for women in labour after 42 weeks of*** 8 ***pregnancy***

9 No evidence was found for monitoring in labour after 42 weeks of pregnancy so the
10 committee made recommendations based on their knowledge and experience. The
11 committee was aware of some evidence of an increased risk of stillbirth or neonatal
12 death after 42 weeks and this was consistent with their own experience. Because of
13 this, the committee agreed that continuous cardiotocography should be offered to
14 women in labour after 42 weeks. There should be an explanation of why continuous
15 monitoring is being offered, emphasising the increased risk of stillbirth in these
16 circumstances, while acknowledging that there is no evidence on which to base the
17 choice of continuous cardiotocography compared with intermittent auscultation. If the
18 woman declines continuous monitoring, intermittent auscultation should be offered in
19 line with the NICE guideline on intrapartum care for healthy women and babies.

20 **How the recommendations might affect practice**

21 The recommendation to offer continuous cardiotocography to women in labour after
22 42 weeks is in line with current practice. Because there is no evidence to support or
23 undermine the use of continuous monitoring after 42 weeks, women should be given
24 this information. These choices also influence decisions about place of birth,
25 because cardiotocography is usually only available in obstetric-led care.

26 Full details of the evidence and the committee's discussion are in [evidence review T:](#)
27 [labour after 42 weeks of pregnancy](#)

28 [Return to recommendations](#)

1 **Context**

2 Risk assessment and planning are key components of care for pregnant women, so
3 that any factors likely to have a negative impact on the pregnancy or birth can be
4 identified in a timely manner. Care can then be delivered to maximise the chances of
5 good outcomes for both the woman and her baby. Assessment and planning start at
6 the antenatal booking appointment and continue throughout pregnancy at each
7 antenatal contact. During labour, routine monitoring of the woman and her unborn
8 baby and of the progress of labour is a continuation of the risk-screening process.
9 Findings from these assessments will affect the plan of care for labour, and may
10 result in changes to the plan being made antenatally or during labour if new
11 complications are identified.

12 A pregnancy is 'high risk' when the likelihood of an adverse outcome for the woman
13 or the baby is greater than that of the 'normal population'. A labour is 'high risk' when
14 the likelihood of an adverse outcome related to labour (for the woman or the baby) is
15 greater than that of the 'normal population'.

16 The level of risk may be determined before pregnancy or arise during pregnancy or
17 during labour and can affect the woman or the baby:

- 18 • a woman may have an existing medical condition that can be made worse by
19 physiological changes that occur in labour
- 20 • obstetric (pregnancy-related) problems can develop that increase the risk of
21 adverse labour and/or birth outcomes
- 22 • a woman can enter labour with no identified complications and be considered 'low
23 risk' but problems may arise during labour that can be associated with adverse
24 outcomes.

25 **Finding more information and resources**

26 To find out what NICE has said on topics related to this guideline, see our web page
27 on [intrapartum care](#).

28

29

1 ISBN: