Antenatal Care

Routine Care for the healthy pregnant woman

NICE guideline

Draft for consultation, September 2007

If you wish to comment on this version of the guideline, please be aware that all the supporting information and evidence is contained in the full version.

This is the consultation draft of a partial update of NICE clinical guideline 6 (www.nice.org.uk/CG006). New or amended recommendations are indicated by a green bar in the right-hand side of the page, flagged **[NEW]**.

Key recommendations have been selected from the new or amended recommendations.

Please comment on **new or amended** recommendations only. Recommendations that are unchanged from the original guideline are not being consulted on.

A separate consultation will take place on the proposed assessment tool (see Section 14 of the full guideline) between 9 October and 3 December 2007. At this point, further information will be made available on the NICE website.

Contents

This guidance is a partial update of NICE clinical guideline 6 (published October 2003) and will replace it.

Delete the following sentence when the update is published: The original NICE guideline and supporting documents are available from www.nice.org.uk/CG006

Introduction

The original antenatal care guideline was published by NICE in 2003. Since then a number of important pieces of evidence have become available, particularly concerning gestational diabetes, haemoglobinopathy and ultrasound, so that the update has been initiated earlier than planned. This early update has also provided an opportunity to look at a number of aspects of antenatal care and these include:

- the development of a method to assess women for whom additional care is necessary (the 'assessment tool')
- information giving to women
- lifestyle:
  - vitamin D supplementation
  - alcohol use
- screening for the baby:
  - use of ultrasound for gestational age assessment and screening for fetal abnormalities
  - methods for determining normal fetal growth
  - haemoglobinopathy screening
- screening for the mother:
  - gestational diabetes
  - pre-eclampsia and preterm labour

- chlamydia.

Woman-centred care

This guideline offers best practice advice on the care of healthy pregnant women.

Treatment and care should take into account women's needs and preferences. Pregnant women should have the opportunity to make informed decisions about their care and treatment, in partnership with their healthcare professionals. If women do not have the capacity to make decisions, healthcare professionals should follow the Department of Health guidelines – 'Reference guide to consent for examination or treatment' (2001) (available from www.dh.gov.uk). From April 2007 healthcare professionals will need to follow a code of practice accompanying the Mental Capacity Act (summary available from www.dca.gov.uk/menincap/bill-summary.htm).

Good communication between healthcare professionals and women is essential. It should be supported by evidence-based written information tailored to the woman's needs. Treatment and care, and the information women are given about it, should be culturally appropriate. It should also be accessible to people with additional needs such as physical, sensory or learning disabilities, and to people who do not speak or read English.

Key priorities for implementation

Lifestyle considerations

- Oral vitamin D supplement of 10 micrograms per day should be offered to healthy pregnant women at risk of vitamin D deficiency, for example women with dark skin, women who usually cover their skin, women who eat a vegan diet and women in age group 19-24 years. **1.3.2.5**

Screening for haematological conditions

- Screening for haemoglobinopathies should be carried out as soon as possible in pregnancy, in the context of either primary or secondary care. **1.6.2.7**

Screening for fetal anomalies

- Participation in regional congenital anomaly registers is strongly recommended to facilitate the audit of detection rates. **1.7.1.5**
- The screening test for Down's syndrome offered should be the 'combined test' (nuchal translucency, beta-human chorionic gonadotrophin, pregnancy-associated plasma protein-A) between 11 weeks and 13 weeks and 6 days. Between 15 and 20 weeks the most clinically and cost effective serum screening test should be offered (triple or quadruple test). **1.7.2.3**

Screening for clinical conditions

- Screening for gestational diabetes using risk factors is recommended in a normal healthy population. Risk factors which should be used are:
  - body mass index > 30 kg/m^2
  - previous macrosomic baby ≥4.5 kg
  - previous gestational diabetes (see the Diabetes in pregnancy guideline, currently in development)
  - family history of diabetes (first degree relative with type 1 or type 2 diabetes)
  - women from a high-risk ethnic group, which would include:
    - South Asian (Indian, Pakistani, Bangladeshi)

- ◊ Black Caribbean
- ◊ Chinese.

1.9.1.1

1 Guidance

The following guidance is based on the best available evidence. *[Amend the following statement as necessary]* The full guideline ([add hyperlink]) gives details of the methods and the evidence used to develop the guidance (see section 5 for details).

All of the updated recommendations have been highlighted with a green bar on the right hand side.

1.1 Woman-centred care and informed decision making

1.1.1 Antenatal education

1.1.1.1 The following schedule should be used when providing information antenatally:

- At first contact with a healthcare professional:
  - All antenatal screening
  - Signs of miscarriage
  - Nutrition and diet, including folic acid supplementation
  - Food hygiene, including avoidance of mould-ripened cheese and pate
  - How the baby develops during pregnancy
  - Exercise, including pelvic floor exercises
  - Lifestyle advice including smoking cessation; recreational drug use and alcohol consumption

- At booking:
  - Place of birth (for further information on this topic, please refer to the Intrapartum care guideline, due to be published in September 2007)
  - Care pathway
  - Breastfeeding

  - Further discussion of all antenatal screening including the anomaly scan and screening for Down's Syndrome

- Before or at 36 weeks:
  - Breastfeeding technique
  - Preparation for labour and birth
  - Recognition of active labour
  - Care of new baby
  - Postnatal self-care
  - Awareness of baby blues and postnatal depression

- At 38-40 weeks:
  - Options for management of post-dates pregnancy.

This can be achieved by providing a pregnancy book such as 'The Pregnancy Book' (Department of Health 2007). **[NEW]**

1.1.1.2 Communication and information should be provided in a form that is accessible to pregnant women who have additional needs, such as those with physical, cognitive or sensory disabilities and those who do not speak or read English. **[NEW]**

1.1.1.3 Information can also be provided using media such as video or touch screen technology and should be supported by written information. **[NEW]**

1.1.1.4 Pregnant women should be offered evidence-based information and support to enable them to make informed decisions regarding their care. Information should include details of where they will be seen and who will undertake their care. **[NEW]**

1.1.1.5 At each antenatal appointment, midwives and doctors should offer consistent information and clear explanations and should provide pregnant women with an opportunity to discuss issues and ask questions. **[NEW]**

1.1.1.6 Pregnant women should be offered opportunities to attend participant-led antenatal classes, including breastfeeding workshops. **[NEW]**

1.1.1.7 Women's decisions should be respected, even when this is contrary to the views of the health care provider. **[NEW]**

1.1.1.8 Pregnant women should be informed about the purpose of any screening test before it is performed. The health care professional should ensure the woman has understood this information and has sufficient time to make an informed decision. The right of a woman to accept or decline a test should be made clear. **[NEW]**

1.1.1.9 Information about antenatal screening should be provided in a setting where discussion can take place; this may be in a group setting or on a one-to-one basis. This should be carried out before booking. **[NEW]**

1.1.1.10 Any information about screening should include balanced and accurate information about the condition being screened for. **[NEW]**

1.2 Provision and organisation of care

1.2.1 Who provides care?

1.2.1.1 Midwife and GP-led models of care should be offered to women with an uncomplicated pregnancy. Routine involvement of obstetricians in the care of women with an uncomplicated pregnancy at scheduled times does not appear to improve perinatal outcomes compared with involving obstetricians when complications arise.

1.2.2 Continuity of care

1.2.2.1 Antenatal care should be provided by a small group of carers with whom the woman feels comfortable. There should be continuity of care throughout the antenatal period.

1.2.2.2 A system of clear referral paths should be established so that pregnant women who require additional care are managed and treated by the appropriate specialist teams when problems are identified.

1.2.3 Where should antenatal appointments take place?

1.2.3.1 Antenatal care should be readily and easily accessible to all women and should be sensitive to the needs of individual women and the local community.

1.2.3.2 The environment in which antenatal appointments take place should enable women to discuss sensitive issues such as domestic violence, sexual abuse, psychiatric illness and illicit drug use.

1.2.4 Documentation of care

1.2.4.1 Structured maternity records should be used for antenatal care.

1.2.4.2 Maternity services should have a system in place whereby women carry their own case notes.

1.2.4.3 A standardised, national maternity record with an agreed minimum data set should be developed and used. This will help carers to provide the recommended evidence-based care to pregnant women.

1.2.5 Frequency of antenatal appointments

1.2.5.1 A schedule of antenatal appointments should be determined by the function of the appointments. For a woman who is nulliparous with an uncomplicated pregnancy, a schedule of ten appointments should be adequate. For a woman who is parous with an uncomplicated pregnancy, a schedule of seven appointments should be adequate.

1.2.5.2 Early in pregnancy, all women should receive appropriate written information about the likely number, timing and content of antenatal

appointments associated with different options of care and be given an opportunity to discuss this schedule with their midwife or doctor.

1.2.5.3 Each antenatal appointment should be structured and have focused content. Longer appointments are needed early in pregnancy to allow comprehensive assessment and discussion. Wherever possible, appointments should incorporate routine tests and investigations to minimise inconvenience to women.

1.2.6 Gestational age assessment: LMP and ultrasound

1.2.6.1 Pregnant women should be offered an early ultrasound scan to determine gestational age and to detect multiple pregnancies. This will ensure consistency of gestational age assessment, and reduce the incidence of induction of labour for post-date pregnancies. **[NEW]**

1.2.6.2 Ideally, the early ultrasound scan should be undertaken between 10 and 13 weeks 6 days and use crown – rump length (CRL) measurement to determine gestational age. If the CRL is greater than 84 mm, gestational age should be estimated using head circumference. **[NEW]**

1.2.7 What should happen at antenatal appointments?

1.2.7.1 The assessment of women who may or may not need additional clinical care during pregnancy is based on identifying those in whom there are any maternal or fetal conditions associated with an excess of maternal or perinatal death or morbidity. While this approach may not identify many of the women who go on to require extra care and will also categorise many women who go on to have normal uneventful births as ‘high risk’, ascertainment of risk in pregnancy remains important as it may facilitate early detection to allow time to plan for appropriate management.

1.2.7.2 The needs of each pregnant woman should be assessed at the first appointment and reassessed at each appointment throughout

pregnancy because new problems can arise at any time. Additional appointments should be determined by the needs of the pregnant woman, as assessed by her and her care givers, and the environment in which appointments take place should enable women to discuss sensitive issues. Reducing the number of routine appointments will enable more time per appointment for care, information giving and support for pregnant women.

1.2.7.3 The schedule below, which has been determined by the purpose of each appointment, presents the recommended number of antenatal care appointments for women who are healthy and whose pregnancies remain uncomplicated in the antenatal period; ten appointments for nulliparous women and seven for parous women.

First appointment

The first appointment needs to be earlier in pregnancy (prior to 12 weeks) than may have traditionally occurred and, because of the large volume of information needs in early pregnancy, two appointments may be required. At the first (and second) antenatal appointment:

- give information, with an opportunity to discuss issues and ask questions; offer verbal information supported by written information (on topics such as diet and lifestyle considerations, pregnancy care services available, maternity benefits and sufficient information to enable informed decision making about screening tests)
- identify women who may need additional care (see Algorithm and Section 1.2 in the full guideline) and plan pattern of care for the pregnancy
- check blood group and rhesus D (RhD) status
- offer screening for anaemia, red-cell alloantibodies, hepatitis B virus, HIV, rubella susceptibility and syphilis
- offer screening for asymptomatic bacteriuria (ASB)
- offering screening for Down's syndrome

- offer early ultrasound scan for gestational age assessment
- offer ultrasound screening for structural anomalies (20 weeks)
- measure BMI and blood pressure (BP) and test urine for proteinuria.

After the first (and possibly second) appointment, for women who choose to have screening, the following test should be arranged before 16 weeks of gestation (except serum screening for Down's syndrome, which may occur up to 20 weeks of gestation):

- blood tests (for checking blood group and RhD status and screening for anaemia, red-cell alloantibodies, hepatitis B virus, HIV, rubella susceptibility and syphilis)
- urine tests (to check for proteinuria and screen for ASB)
- ultrasound scan to determine gestational age using:
  - crown–rump measurement if performed at 10 to 13 weeks
  - biparietal diameter or head circumference at or beyond 14 weeks

- Down's syndrome screening using:
  - nuchal translucency at 11 to 14 weeks
  - serum screening at 14 to 20 weeks.

16 weeks

The next appointment should be scheduled at 16 weeks to:

- review, discuss and record the results of all screening tests undertaken; reassess planned pattern of care for the pregnancy and identify women who need additional care (see Algorithm and Section 1.2 in the full guideline)
- investigate a haemoglobin level of less than 11g/dl and consider iron supplementation if indicated
- measure BP and test urine for proteinuria
- give information, with an opportunity to discuss issues and ask questions; offer verbal information supported by antenatal classes and written information.

18-20 weeks

At 18–20 weeks, if the woman chooses, an ultrasound scan should be performed for the detection of structural anomalies. For a woman whose placenta is found to extend across the internal cervical os at this time, another scan at 36 weeks should be offered and the results of this scan reviewed at the 36-week appointment.

25 weeks

At 25 weeks of gestation, another appointment should be scheduled for nulliparous women. At this appointment:

- measure and plot symphysis–fundal height
- measure BP and test urine for proteinuria
- give information, with an opportunity to discuss issues and ask questions; offer verbal information supported by antenatal classes and written information.

28 weeks

The next appointment for all pregnant women should occur at 28 weeks. At this appointment:

- offer a second screening for anaemia and atypical red-cell alloantibodies
- investigate a haemoglobin level of less than 10.5 g/dl and consider iron supplementation, if indicated
- offer anti-D to rhesus-negative women
- measure BP and test urine for proteinuria
- measure and plot symphysis–fundal height
- give information, with an opportunity to discuss issues and ask questions; offer verbal information supported by antenatal classes and written information.

31 weeks

Nulliparous women should have an appointment scheduled at 31 weeks to:

- measure BP and test urine for proteinuria
- measure and plot symphysis–fundal height

- give information, with an opportunity to discuss issues and ask questions; offer verbal information supported by antenatal classes and written information
- review, discuss and record the results of screening tests undertaken at 28 weeks; reassess planned pattern of care for the pregnancy and identify women who need additional care (see Algorithm and Section 1.2 in the full guideline).

34 weeks

At 34 weeks, all pregnant women should be seen in order to:

- offer a second dose of anti-D to rhesus-negative women
- measure BP and test urine for proteinuria
- measure and plot symphysis–fundal height
- give information, with an opportunity to discuss issues and ask questions; offer verbal information supported by antenatal classes and written information
- review, discuss and record the results of screening tests undertaken at 28 weeks; reassess planned pattern of care for the pregnancy and identify women who need additional care (see Algorithm and Section 1.2 in the full guideline).

36 weeks

At 36 weeks, all pregnant women should be seen again to:

- measure BP and test urine for proteinuria
- measure and plot symphysis–fundal height
- check position of baby
- for women whose babies are in the breech presentation, offer external cephalic version (ECV)
- review ultrasound scan report if placenta extended over the internal cervical os at previous scan
- give information, with an opportunity to discuss issues and ask questions; offer verbal information supported by antenatal classes and written information.

38 weeks

Another appointment at 38 weeks will allow for:

- measurement of BP and urine testing for proteinuria
- measurement and plotting of symphysis–fundal height
- information giving, with an opportunity to discuss issues and ask questions; verbal information supported by antenatal classes and written information.

40 weeks

For nulliparous women, an appointment at 40 weeks should be scheduled to:

- measure BP and test urine for proteinuria
- measure and plot symphysis–fundal height
- give information, with an opportunity to discuss issues and ask questions; offer verbal information supported by antenatal classes and written information.

41 weeks

For women who have not given birth by 41 weeks:

- a membrane sweep should be offered
- induction of labour should be offered
- BP should be measured and urine tested for proteinuria
- symphysis–fundal height should be measured and plotted
- information should be given, with an opportunity to discuss issues and ask questions; verbal information supported by written information.

General

Throughout the entire antenatal period, healthcare providers should remain alert to signs or symptoms of conditions which affect the health of the mother and fetus, such as domestic violence, pre-eclampsia and diabetes.

For an outline of care at each appointment see the Algorithm (Section 2.3 of the full guideline).

1.3 Lifestyle considerations

1.3.1 Working during pregnancy

1.3.1.1 Pregnant women should be informed of their maternity rights and benefits.

1.3.1.2 The majority of women can be reassured that it is safe to continue working during pregnancy. Further information about possible occupational hazards during pregnancy is available from the Health and Safety Executive.

1.3.1.3 A woman's occupation during pregnancy should be ascertained to identify those at increased risk through occupational exposure.

1.3.2 Nutritional supplements

1.3.2.1 Pregnant women (and those intending to become pregnant) should be informed that dietary supplementation with folic acid, before conception and up to 12 weeks of gestation, reduces the risk of having a baby with neural tube defects (anencephaly, spina bifida). The recommended dose is 400 micrograms per day.

1.3.2.2 Iron supplementation should not be offered routinely to all pregnant women. It does not benefit the mother's or the fetus's health and may have unpleasant maternal side effects.

1.3.2.3 Pregnant women should be informed that vitamin A supplementation (intake greater than 700 micrograms) might be teratogenic and therefore it should be avoided. Pregnant women should be informed that as liver and liver products may also contain high levels of vitamin A, consumption of these products should also be avoided.

1.3.2.4 Normal healthy women should not be routinely offered vitamin D supplementation during pregnancy. **[NEW]**

1.3.2.5 Oral vitamin D supplement of 10 micrograms per day should be offered to healthy pregnant women at risk of vitamin D deficiency, for example women with dark skin, women who usually cover their skin, women who eat a vegan diet and women in age group 19-24 years. **[NEW]**

1.3.3 Food-acquired infections

1.3.3.1 Pregnant women should be offered information on how to reduce the risk of listeriosis by:

- drinking only pasteurised or UHT milk
- not eating ripened soft cheese such as Camembert, Brie and blue-veined cheese (there is no risk with hard cheeses, such as Cheddar, or cottage cheese and processed cheese)
- not eating pâté (of any sort, including vegetable)
- not eating uncooked or undercooked ready-prepared meals.

1.3.3.2 Pregnant women should be offered information on how to reduce the risk of salmonella infection by:

- avoiding raw or partially cooked eggs or food that may contain them (such as mayonnaise)
- avoiding raw or partially cooked meat, especially poultry.

1.3.4 Prescribed medicines

1.3.4.1 Few medicines have been established as safe to use in pregnancy. Prescription medicines should be used as little as possible during pregnancy and should be limited to circumstances where the benefit outweighs the risk.

1.3.5 Over-the-counter medicines

1.3.5.1 Pregnant women should be informed that few over-the-counter (OTC) medicines have been established as being safe to take in pregnancy. OTC medicines should be used as little as possible during pregnancy.

1.3.6 Complementary therapies

1.3.6.1 Pregnant women should be informed that few complementary therapies have been established as being safe and effective during pregnancy. Women should not assume that such therapies are safe and they should be used as little as possible during pregnancy.

1.3.7 Exercise in pregnancy

1.3.7.1 Pregnant women should be informed that beginning or continuing a moderate course of exercise during pregnancy is not associated with adverse outcomes.

1.3.7.2 Pregnant women should be informed of the potential dangers of certain activities during pregnancy, for example, contact sports, high-impact sports and vigorous racquet sports that may involve the risk of abdominal trauma, falls or excessive joint stress, and scuba diving, which may result in fetal birth defects and fetal decompression disease.

1.3.8 Sexual intercourse in pregnancy

1.3.8.1 Pregnant woman should be informed that sexual intercourse in pregnancy is not known to be associated with any adverse outcomes.

1.3.9 Alcohol and smoking in pregnancy

1.3.9.1 Pregnant women should limit their alcohol intake to less than one standard drink (1.5 UK units or 12g of alcohol) per day and if possible avoid alcohol in the first 3 months of pregnancy. **[NEW]**

1.3.9.2 Women should be informed that binge drinking (defined as more than 5 standard drinks on a single occasion) may be particularly harmful during pregnancy. **[NEW]**

1.3.9.3 Pregnant women should be informed about the specific risks of smoking during pregnancy (such as the risk of having a baby with

low birthweight and preterm). The benefits of quitting at any stage should be emphasised.

1.3.9.4 Women who smoke or who have recently stopped should be offered smoking cessation interventions. Interventions that appear to be effective in reducing smoking include advice by physician, group sessions and behavioural therapy (based on self-help manuals).

1.3.9.5 Women who are unable to quit smoking during pregnancy should be encouraged to reduce smoking.

1.3.10 Cannabis use in pregnancy

1.3.10.1 The direct effects of cannabis on the fetus are uncertain but may be harmful. Cannabis use is associated with smoking, which is known to be harmful; therefore women should be discouraged from using cannabis during pregnancy.

1.3.11 Air travel during pregnancy

1.3.11.1 Pregnant women should be informed that long-haul air travel is associated with an increased risk of venous thrombosis, although whether or not there is additional risk during pregnancy is unclear. In the general population, wearing correctly fitted compression stockings is effective at reducing the risk.

1.3.12 Car travel during pregnancy

1.3.12.1 Pregnant women should be informed about the correct use of seatbelts (that is, three-point seatbelts ‘above and below the bump, not over it’).

1.3.13 Travelling abroad during pregnancy

1.3.13.1 Pregnant women should be informed that, if they are planning to travel abroad, they should discuss considerations such as flying, vaccinations and travel insurance with their midwife or doctor.

1.4 Management of common symptoms of pregnancy

1.4.1 Nausea and vomiting in early pregnancy

1.4.1.1 Women should be informed that most cases of nausea and vomiting in pregnancy will resolve spontaneously within 16 to 20 weeks of gestation and that nausea and vomiting are not usually associated with a poor pregnancy outcome. If a woman requests or would like to consider treatment, the following interventions appear to be effective in reducing symptoms:

- nonpharmacological:
  - ginger
  - P6 acupressure
- pharmacological:
  - antihistamines.

1.4.1.2 Information about all forms of self-help and nonpharmacological treatments should be made available for pregnant women who have nausea and vomiting.

1.4.2 Heartburn

1.4.2.1 Women who present with symptoms of heartburn in pregnancy should be offered information regarding lifestyle and diet modification.

1.4.2.2 Antacids may be offered to women whose heartburn remains troublesome despite lifestyle and diet modification.

1.4.3 Constipation

1.4.3.1 Women who present with constipation in pregnancy should be offered information regarding diet modification, such as bran or wheat fibre supplementation.

1.4.4 Haemorrhoids

1.4.4.1 In the absence of evidence of the effectiveness of treatments for haemorrhoids in pregnancy, women should be offered information concerning diet modification. If clinical symptoms remain troublesome, standard haemorrhoid creams should be considered.

1.4.5 Varicose veins

1.4.5.1 Women should be informed that varicose veins are a common symptom of pregnancy that will not cause harm and that compression stockings can improve the symptoms but will not prevent varicose veins from emerging.

1.4.6 Vaginal discharge

1.4.6.1 Women should be informed that an increase in vaginal discharge is a common physiological change that occurs during pregnancy. If this is associated with itch, soreness, offensive smell or pain on passing urine there may be an infective cause and investigation should be considered.

1.4.6.2 A 1-week course of a topical imidazole is an effective treatment and should be considered for vaginal candidiasis infections in pregnant women.

1.4.6.3 The effectiveness and safety of oral treatments for vaginal candidiasis in pregnancy is uncertain and these should not be offered.

1.4.7 Backache

1.4.7.1 Women should be informed that exercising in water, massage therapy and group or individual back care classes might help to ease backache during pregnancy.

1.5 Clinical examination of pregnant women

1.5.1 Measurement of weight and body mass index

1.5.1.1 Maternal weight and height should be measured at the first antenatal appointment, and the woman's body mass index (BMI) calculated (weight [kg]/height[m]^2).

1.5.1.2 Repeated weighing during pregnancy should be confined to circumstances where clinical management is likely to be influenced.

1.5.2 Breast examination

1.5.2.1 Routine breast examination during antenatal care is not recommended for the promotion of postnatal breastfeeding.

1.5.3 Pelvic examination

1.5.3.1 Routine antenatal pelvic examination does not accurately assess gestational age, nor does it accurately predict preterm birth or cephalopelvic disproportion. It is not recommended.

1.5.4 Female genital mutilation

1.5.4.1 Pregnant women who have had female genital mutilation should be identified early in antenatal care through sensitive enquiry. Antenatal examination will then allow planning of intrapartum care.

1.5.5 Domestic violence

1.5.5.1 Health care professionals need to be alert to the symptoms or signs of domestic violence and women should be given the opportunity to disclose domestic violence in an environment in which they feel secure.

1.5.6 Psychiatric screening

1.5.6.1 Women should be asked early in pregnancy if they have had any previous psychiatric illnesses. Women who have had a past history of serious psychiatric disorder should be referred for a psychiatric assessment during the antenatal period.

1.5.6.2 Pregnant women should not be offered routine screening, such as with the Edinburgh Postnatal Depression Scale, in the antenatal period to predict the development of postnatal depression.

1.5.6.3 Pregnant women should not be offered antenatal education interventions to reduce perinatal or postnatal depression, as these interventions have not been shown to be effective.

1.6 Screening for haematological conditions

1.6.1 Anaemia

1.6.1.1 Pregnant women should be offered screening for anaemia. Screening should take place early in pregnancy (at the first appointment) and at 28 weeks when other blood screening tests are being performed. This allows enough time for treatment if anaemia is detected.

1.6.1.2 Haemoglobin levels outside the normal UK range for pregnancy (that is, 11 g/dl at first contact and 10.5 g/dl at 28 weeks) should be investigated and iron supplementation considered if indicated.

1.6.2 Blood grouping and red cell alloantibodies

1.6.2.1 Women should be offered testing for blood group and RhD status in early pregnancy.

1.6.2.2 It is recommended that routine antenatal anti-D prophylaxis is offered to all non-sensitised pregnant women who are RhD negative. (See 'Guidance on the use of routine antenatal anti-D prophylaxis for RhD-negative women' [NICE technology appraisal 41], currently being updated.)

1.6.2.3 Women should be screened for atypical red cell alloantibodies in early pregnancy and again at 28 weeks regardless of their RhD status.

1.6.2.4 Pregnant women with clinically significant atypical red cell alloantibodies should be offered referral to a specialist centre for further investigation and advice on subsequent antenatal management.

1.6.2.5 If a pregnant woman is RhD-negative, consideration should be given to offering partner testing to determine whether the administration of anti-D prophylaxis is necessary.

1.6.2.6 Pre-conceptual counselling and carrier testing should be available to all women who are identified as being at higher risk of haemoglobinopathies using the Family Origin Questionnaire (NHS Antenatal and Newborn Screening Programmes) (See Appendix F of the full guideline). **[NEW]**

1.6.2.7 Screening for haemoglobinopathies should be carried out as soon as possible in pregnancy, in the context of either primary or secondary care. **[NEW]**

1.6.2.8 Prior to screening, women should be provided with information about sickle cell disorders and thalassaemias, including carrier status, and the implications of each. **[NEW]**

1.6.2.9 Screening for sickle cell disorders and thalassaemias should be offered to all pregnant women (ideally by 10 weeks), and be preceded by counselling. The type of screening depends upon the prevalence. **[NEW]**

1.6.2.10 In high prevalence areas (more than 1.5 cases per 10 000 pregnancies) screening using high performance liquid chromatography should be offered to all women to identify carriers of both sickle cell disease and thalassaemia. **[NEW]**

1.6.2.11 In low prevalence areas (less than or equal to 1.5 cases per 10 000 pregnancies) all women should be offered screening for haemoglobinopathies using the Family Origins Questionnaire (NHS

Antenatal and Newborn Screening Programmes) (See Appendix F of the full guideline).

- If the Family Origins Questionnaire (NHS Antenatal and Newborn Screening Programmes) indicates high risk of sickle cell disorders, screening using high performance liquid chromatography should be offered.
- If the Family Origins Questionnaire (NHS Antenatal and Newborn Screening Programmes) indicates high risk of thalassaemia and mean corpuscular haemoglobin less than 27pg screening using high performance liquid chromatography should be offered). **[NEW]**

1.6.2.12 All partners of identified carriers of haemoglobinopathies should be offered counselling and screening. **[NEW]**

1.7 Screening for fetal anomalies

1.7.1 Screening for structural anomalies

1.7.1.1 Ultrasound screening for fetal abnormalities should be routinely offered between 18 and 20 weeks. **[NEW]**

1.7.1.2 Women should be given information regarding the purpose and implications of the anomaly scan in order to enable them make an informed choice as to whether or not to have the scan. The purpose of the scan is:

- to identify fetal abnormalities and allow:
  - reproductive choice (Termination of pregnancy: TOP)
  - intrauterine therapy
  - managed delivery in specialist centre
  - parents to prepare (for TOP/palliative care/Rx/disability). **[NEW]**

1.7.1.3 Women should be informed of the limitations of routine ultrasound screening including the fact that detection rates vary by the type of fetal abnormality. **[NEW]**

1.7.1.4 Following the anomaly scan women should be given information of the findings to enable them to make an informed choice as to whether they wish to continue with the pregnancy or have a termination of pregnancy. **[NEW]**

1.7.1.5 Participation in regional congenital anomaly registers is strongly recommended to facilitate the audit of detection rates. **[NEW]**

1.7.1.6 Fetal echocardiography involving four chamber and outflow tract view is recommended as part of the routine ultrasound scan at 18-20 weeks for fetal abnormalities. **[NEW]**

1.7.1.7 Routine screening for cardiac anomaly by nuchal translucency is not recommended. **[NEW]**

1.7.1.8 When routine ultrasound screening is performed at 18-20 weeks for neural tube defects, alpha-feto protein testing is not required. **[NEW]**

1.7.2 Screening for Down's syndrome

1.7.2.1 All pregnant women should be offered screening for Down's syndrome. Women should understand that it is their choice to embark on screening for Down's syndrome. **[NEW]**

1.7.2.2 Screening for Down's syndrome should be performed by the end of first trimester (13 weeks and 6 days gestation), but provision should be made to allow later screening (up to 20 weeks gestation) for women booking later in the pregnancy. **[NEW]**

1.7.2.3 The screening test for Down's syndrome offered should be the 'combined test' (nuchal translucency, beta-human chorionic gonadotrophin, pregnancy-associated plasma protein-A) between 11 weeks and 13 weeks and 6 days. Between 15 and 20 weeks the

most clinically and cost effective serum screening test should be offered (triple or quadruple test). **[NEW]**

1.7.2.4 The integrated test should not be routinely used as a screening test for Down's syndrome. **[NEW]**

1.7.2.5 Information about the screening options for Down's syndrome which can be understood by all women, including those whose first language is not English, should be given to women as early as possible and ideally before the booking visit, allowing the opportunity for further discussion before embarking on screening. It should include:

- the screening pathway for both screen positive and screen negative
- the decisions needing to be made at each point along the pathway and their consequences
- the fact that screening does not provide a definitive diagnosis
- information about chorionic villus sampling and amniocentesis
- balanced and accurate information about Down's syndrome. **[NEW]**

1.7.2.6 If a woman receives a screen positive result, she should have rapid access to appropriate counselling by trained staff. **[NEW]**

1.7.2.7 The second trimester ultrasound scan (at 18-20 weeks) should not be routinely used for Down's syndrome screening using soft markers. **[NEW]**

1.7.2.8 The presence of an isolated soft marker with an exception of increased nuchal fold noted on the routine anomaly scan (at 18-20weeks gestation), should not be used to adjust the a priori risk for Down's syndrome. **[NEW]**

1.7.2.9 The presence of an increased nuchal fold or two or more soft markers should prompt the offer of fetal medicine referral. **[NEW]**

1.8 Screening for infections

1.8.1 Asymptomatic bacteriuria

1.8.1.1 Pregnant women should be offered routine screening for asymptomatic bacteriuria by midstream urine culture early in pregnancy. Identification and treatment of asymptomatic bacteriuria reduces the risk of preterm birth.

1.8.2 Asymptomatic bacterial vaginosis

1.8.2.1 Pregnant women should not be offered routine screening for bacterial vaginosis because the evidence suggests that the identification and treatment of asymptomatic bacterial vaginosis does not lower the risk for preterm birth and other adverse reproductive outcomes.

1.8.3 Chlamydia trachomatis

1.8.3.1 Chlamydia screening should not be offered as part of routine antenatal care. **[NEW]**

1.8.3.2 Health care professionals need to inform pregnant women under the age of 25 about the high prevalence of chlamydia infection in their age group, and give details of their local National Chlamydia Screening Programme provision. **[NEW]**

1.8.4 Cytomegalovirus

1.8.4.1 The available evidence does not support routine cytomegalovirus screening in pregnant women and it should not be offered.

1.8.5 Hepatitis B virus

1.8.5.1 Serological screening for hepatitis B virus should be offered to pregnant women so that effective postnatal intervention can be offered to infected women to decrease the risk of mother-to-child transmission.

1.8.6 Hepatitis C virus

1.8.6.1 Pregnant women should not be offered routine screening for hepatitis C virus because there is insufficient evidence on its effectiveness and cost effectiveness.

1.8.7 HIV

1.8.7.1 Pregnant women should be offered screening for HIV infection early in antenatal care because appropriate antenatal interventions can reduce mother-to-child transmission of HIV infection.

1.8.7.2 A system of clear referral paths should be established in each unit or department so that pregnant women who are diagnosed with an HIV infection are managed and treated by the appropriate specialist teams.

1.8.8 Rubella

1.8.8.1 Rubella susceptibility screening should be offered early in antenatal care to identify women at risk of contracting rubella infection and to enable vaccination in the postnatal period for the protection of future pregnancies.

1.8.9 Streptococcus Group B

1.8.9.1 Pregnant women should not be offered routine antenatal screening for group B streptococcus (GBS) because evidence of its clinical effectiveness and cost effectiveness remains uncertain.

1.8.10 Syphilis

1.8.10.1 Screening for syphilis should be offered to all pregnant women at an early stage in antenatal care because treatment of syphilis is beneficial to the mother and fetus.

1.8.10.2 Because syphilis is a rare condition in the UK and a positive result does not necessarily mean that a woman has syphilis, clear paths of referral for the management of women testing positive for syphilis should be established.

1.8.11 Toxoplasmosis

1.8.11.1 Routine antenatal serological screening for toxoplasmosis should not be offered because the harms of screening may outweigh the potential benefits.

1.8.11.2 Pregnant women should be informed of primary prevention measures to avoid toxoplasmosis infection such as:

- washing hands before handling food
- thoroughly washing all fruit and vegetables, including ready-prepared salads, before eating
- thoroughly cooking raw meats and ready-prepared chilled meals
- wearing gloves and thoroughly washing hands after handling soil and gardening
- avoiding cat faeces in cat litter or in soil.

1.9 Screening for clinical conditions

1.9.1 Gestational diabetes mellitus

1.9.1.1 Screening for gestational diabetes using risk factors is recommended in a normal healthy population. Risk factors which should be used are:

- body mass index > 30 kg/m^2
- previous macrosomic baby ≥4.5 kg
- previous gestational diabetes (see the Diabetes in pregnancy guideline, currently in development)
- family history of diabetes (first degree relative with type 1 or type 2 diabetes)
- women from a high-risk ethnic group, which would include:
  - South Asian (Indian, Pakistani, Bangladeshi)
  - Black Caribbean
  - Chinese.

Screening via fasting plasma glucose, random blood glucose, glucose challenge test and urinalysis for glucose should not be undertaken. **[NEW]**

1.9.1.2 Diagnosis of gestational diabetes should be made using a 75g 2hr oral glucose tolerance test at 24-28 weeks of gestation using the World Health Organization (WHO) criteria (see the Diabetes in pregnancy guideline, currently in development). **[NEW]**

1.9.1.3 In order to make an informed decision about gestational diabetes (GD) screening and testing, women should be informed that:

- in most women GD will respond to changes in diet and exercise
- a small number of women may need insulin therapy or tablets if diet and exercise is not effective in controlling GD
- if GD is not controlled there is a small risk of birth complications such as shoulder dystocia
- a diagnosis of GD may lead to increased monitoring during both pregnancy and labour. **[NEW]**

1.9.2 Pre-eclampsia

1.9.2.1 Pregnant women should be made aware of the need to seek immediate advice from a health care professional if they experience symptoms of pre-eclampsia. Symptoms include: severe headache; problems with vision, such as blurring or flashing before the eyes; severe pain just below the ribs; vomiting and sudden swelling of face, hands or feet. **[NEW]**

1.9.2.2 The presence of significant hypertension and/or proteinuria should alert the healthcare professional of the need for increased surveillance. **[NEW]**

1.9.2.3 At the first antenatal appointment the following risk factors should be determined:

- age 40 or over

- nulliparity
- pregnancy interval of more than 10 years
- family history of pre-eclampsia
- previous history of pre-eclampsia
- body mass index of 35 kg/m^2 or over
- pre-existing vascular disease such as hypertension
- pre-existing renal disease
- multiple pregnancy.

More frequent blood pressure measurements should be considered for women who have any of the above factors. **[NEW]**

1.9.2.4 Blood pressure measurement and urinalysis for protein should be carried out at each antenatal visit to screen for pre-eclampsia. **[NEW]**

1.9.2.5 Blood pressure should be measured by standard mercury sphygmomanometer or semi automatic device as outlined below: **[NEW]**

Remove tight clothing, ensure arm is relaxed and supported at heart level	
Use cuff of appropriate size	
Inflate cuff to 20-30 mmHg above palpated systolic blood pressure	Only devices using auscultation (mercury/hybrid)
Lower column slowly, by 2 mm per second or per beat	Only devices using auscultation (mercury/hybrid)
Read blood pressure to the nearest 2 mmHg	
Measure diastolic as disappearance of sounds (phase V)	

[NEW]

1.9.2.6 Hypertension in which there is a single diastolic blood pressure of 110 mmHg or two consecutive readings of 90mmHg at least 4 hours apart and/or significant proteinuria (1+) should prompt increased surveillance. **[NEW]**

1.9.2.7 Although there is a great deal published on alternative screening methods for pre eclampsia, none has satisfactory sensitivity and specificity, and therefore are not recommended. **[NEW]**

1.9.3 Preterm birth

1.9.3.1 Routine screening of low risk women for preterm labour should not be offered. **[NEW]**

1.9.4 Placenta praevia

1.9.4.1 Because most low-lying placentas detected at a 20-week anomaly scan will resolve by the time the baby is born, only a woman whose placenta extends over the internal cervical os should be offered another transabdominal scan at 36 weeks. If the transabdominal scan is unclear, a transvaginal scan should be offered.

1.10 Fetal growth and wellbeing

1.10.1.1 Symphysio-fundal height should be measured and recorded at each antenatal appointment from 24 weeks gestation. **[NEW]**

1.10.1.2 A fetal growth scan to detect small-for-gestational-age unborn babies should be offered to women if the symphysio-fundal height measurement is 3 centimetres greater or less than the gestational age in weeks. **[NEW]**

1.10.1.3 Ultrasound estimation of fetal size for suspected large-for-gestational-age unborn babies should not be undertaken in a low-risk population. **[NEW]**

1.10.1.4 Doppler ultrasound should not be used to monitor fetal growth during pregnancy. **[NEW]**

1.10.1.5 Customized fetal growth charts should not be used for screening for small-for-gestational-age babies. **[NEW]**

1.11 Management of specific clinical conditions

1.11.1 Pregnancy after 41 weeks (see also Chapter 4.6 of the full guideline on gestational age assessment)

1.11.1.1 Prior to formal induction of labour, women should be offered a vaginal examination for membrane sweeping.

1.11.1.2 Women with uncomplicated pregnancies should be offered induction of labour beyond 41 weeks.

1.11.1.3 From 42 weeks, women who decline induction of labour should be offered increased antenatal monitoring consisting of at least twice-weekly cardiotocography and ultrasound estimation of maximum amniotic pool depth.

1.11.2 Breech presentation at term

1.11.2.1 All women who have an uncomplicated singleton breech pregnancy at 36 weeks of gestation should be offered external cephalic version (ECV). Exceptions include women in labour and women with a uterine scar or abnormality, fetal compromise, ruptured membranes, vaginal bleeding and medical conditions.

1.11.2.2 Where it is not possible to schedule an appointment for ECV at 37 weeks of gestation, it should be scheduled at 36 weeks.

2 Notes on the scope of the guidance

NICE guidelines are developed in accordance with a scope that defines what the guideline will and will not cover. The scope of this guideline is available from http://guidance.nice.org.uk/page.aspx?o=363774

How this guideline was developed

NICE commissioned the National Collaborating Centre for Women's and Children's Health to develop this guideline. The Centre established a Guideline Development Group (see appendix A), which reviewed the evidence

and developed the recommendations. An independent Guideline Review Panel oversaw the development of the guideline (see appendix B).

There is more information in the booklet: 'The guideline development process: an overview for stakeholders, the public and the NHS' (third edition, published April 2007), which is available from www.nice.org.uk/guidelinesprocess or by telephoning 0870 1555 455 (quote reference N1233).

3 Implementation

The Healthcare Commission assesses the performance of NHS organisations in meeting core and developmental standards set by the Department of Health in 'Standards for better health', issued in July 2004. Implementation of clinical guidelines forms part of the developmental standard D2. Core standard C5 says that national agreed guidance should be taken into account when NHS organisations are planning and delivering care.

NICE has developed tools to help organisations implement this guidance (listed below). These are available on our website (www.nice.org.uk/CGXXX). *[NICE to amend list as needed at time of publication]*

- Slides highlighting key messages for local discussion.
- Costing tools
  - Costing report to estimate the national savings and costs associated with implementation.
  - Costing template to estimate the local costs and savings involved.
- Implementation advice on how to put the guidance into practice and national initiatives which support this locally.
- Audit criteria to monitor local practice.

4 Research recommendations

The Guideline Development Group has made the following recommendations for research, based on its review of evidence, to improve NICE guidance and patient care in the future. The Guideline Development Group's full set of research recommendations is detailed in the full guideline (see section 5).

4.1 Information for women

Alternative ways of helping health professionals to support pregnant women in making informed decisions should be investigated

Why this is important

Providing women with relevant information to allow them to make an informed decision remains a challenge to all HCPs. The use of media other than leaflets needs to be systematically studied and the current available evidence is limited.

4.2 Chlamydia screening

Further research needs to be undertaken to assess the effectiveness, practicality and acceptability of chlamydia screening in an antenatal setting

Why this is important

Chlamydia is an important health care issue especially amongst the young, but the current level of evidence provides an insufficient basis for a recommendation. Of particular importance is the possibility that treatment might reduce the incidence of preterm birth and neonatal complications and studies should be directed to these areas.

4.3 Fetal Growth and wellbeing

Further prospective research is required to evaluate the diagnostic value and effectiveness (both clinical and cost-effectiveness) of:

- customized fetal growth charts,
- Symphysio-fundal height measurement
- routine ultrasound in the third trimester in predicting small or large for gestational age babies.

Why this is important

Poor fetal growth is undoubtedly a cause of serious perinatal mortality and morbidity. Unfortunately the methods by which the condition can be identified antenatally are poorly developed or not tested by rigorous methodology. However the evidence that exists may suggest that there are ways in which

babies at risk can be identified and appropriately managed to improve outcome and this should form the basis for the study.

4.4 Assessment tool

Multi-centred validation studies are required in the UK to assess the use of the Antenatal care assessment tool. Using structured questions the tool aims to support the routine antenatal care of all women by identifying women who may require additional care. The tool identifies women who:

- can remain within or return to the routine antenatal pathway of care
- may need additional obstetric care for medical reasons
- may need social support and/or medical care for a variety of socially complex reasons.

Why this is important

The idea of some form of assessment tool to help group women into low risk (midwifery only care) and increased risk (midwifery and obstetric care) is not new but this tool has been developed using a consensus approach. Once the tool is finally completed (and it will be sent for consultation separate to the antenatal care guideline update) it should have the potential to also identify a third group of women who are particularly vulnerable and at increased risk of maternal and perinatal death. Once developed it will be essential to subject the tool to a multi-centred validation study.

4.5 Vitamin D

There is need for future research into the effectiveness of routine Vitamin D supplementation for pregnant and breastfeeding women.

Why this is important

Although there is some evidence of benefit for the use of Vitamin D supplementation to women at risk of deficiency it is less good in the case of women currently regarded as of low risk, for example white women with good balanced diets. However there is the possibility of health gains even for them arising from supplementation but further evidence is required.

5 Other versions of this guideline

5.1 Full guideline

The full guideline, 'Antenatal Care: routine care for the healthy pregnant woman' contains details of the methods and evidence used to develop the guideline. It is published by the National Collaborating Centre for Women's and Children's Health, and is available from [NCC website details to be added], our website (www.nice.org.uk/CGXXXfullguideline) and the National Library for Health (www.nlh.nhs.uk). **[Note: these details will apply to the published full guideline.]**

5.2 Quick reference guide

A quick reference guide for healthcare professionals is also available from www.nice.org/CGXXXquickrefguide

For printed copies, phone the NHS Response Line on 0870 1555 455 (quote reference number NXXXX). **[Note: these details will apply when the guideline is published.]**

5.3 Understanding NICE guidance: information for patients and carers

A version of this guideline for people with [condition] and their carers is available from our website (www.nice.org.uk/CGXXXpublicinfo) and the NHS Response Line (0870 1555 455); quote reference number NXXXX). **[Note: these details will apply when the guideline is published.]**

6 Related NICE guidance

[If any, add details; if none, state none.]

[Short title of guideline, then colon, then full title]. NICE clinical guideline [number] ([year]). Available from www.nice.org/CGXXX

[Title of appraisal]. NICE technology appraisal guidance [number] ([year]). Available from www.nice.org/TAXXX

[Title of interventional procedure]. NICE interventional procedure guidance [number] ([year]). Available from www.nice.org/IPGXXX

[Title of public health intervention guidance]. NICE public health intervention guidance [number] ([year]). Available from www.nice.org/PHIXXX

[Title of public health programme]. NICE public health programme guidance [number] ([year]). Available from www.nice.org/PHPXXX

Under development

NICE is developing the following guidance (details available from www.nice.org.uk):

- [Short title of guideline, then colon, then full title]. NICE clinical guideline [number] ([year]). Available from www.nice.org.uk/CGXXX
- [Title of appraisal]. NICE technology appraisal guidance [number] ([year]). Available from www.nice.org.uk/TAXXX
- [Title of interventional procedure]. NICE interventional procedure guidance [number] ([year]). Available from www.nice.org.uk/IPGXXX
- [Title of public health intervention guidance]. NICE public health intervention guidance [number] ([year]). Available from www.nice.org.uk/PHIXXX
- [Title of public health programme]. NICE public health programme guidance [number] ([year]). Available from www.nice.org.uk/PHPXXX

7 Updating the guideline

NICE clinical guidelines are updated as needed so that recommendations take into account important new information. We check for new evidence 2 and 4 years after publication, to decide whether all or part of the guideline should be updated. If important new evidence is published at other times, we may decide to do a more rapid update of some recommendations.

Appendix A: The Guideline Development Group

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Appendix B: The Guideline Review Panel

The Guideline Review Panel is an independent panel that oversees the development of the guideline and takes responsibility for monitoring adherence to NICE guideline development processes. In particular, the panel ensures that stakeholder comments have been adequately considered and responded to. The panel includes members from the following perspectives: primary care, secondary care, lay, public health and industry.

[NICE to add]

[Name; style = Unnumbered bold heading]
[job title and location; style = NICE normal]

Appendix C: The algorithms

The algorithm is available in Section 2.4 of the full guideline.