ANTENATAL CARE

Definition:

Antenatal care describes the standard schedule of appointments, investigations and interventions offered to all pregnant women from healthcare services.

- **The aims of antenatal care are:**
- To optimize pregnancy outcomes for women and babies.
- To prevent, detect and manage those factors that adversely affect the health of mother and baby.
- To provide advice, reassurance, education and support for the woman and her family.
- To deal with the ‘minor ailments’ of pregnancy.
- To provide general health screening.

First contact with healthcare professional

At their initial appointment with a healthcare professional, women should receive information regarding food hygiene and lifestyle advice, including smoking cessation, and the implications of recreational drug use and alcohol consumption in pregnancy.

Women should also be advised to take folic acid supplementation and, if at increased risk (previous neural tube anomaly, maternal epilepsy or diabetes), offered a prescription for high-dose folic acid (5 mg).

Information on the risks and benefits of antenatal screening tests and advice on who is likely to provide care and schedule of next appointments should also be given.

Antenatal information:

Routine antenatal appointments/visits provide multiple opportunities for sharing information with women and their families. Subjects to be discussed include the following:

1- Nutrition and dietary advice:

The Royal College of Obstetricians and Gynaecologists (RCOG) provides the following dietary

advice for optimal weight control in pregnancy:

* Do not eat for two; maintain your normal portion size and try and avoid snacks.

* Eat fibre-rich foods such as oats, beans, lentils, grains, seeds, fruit and vegetables

vegetables as well as whole grain bread, brown rice and pasta.

* Base your meals on starchy foods such as potatoes, bread, rice and pasta, choosing whole grain where possible.

* Restrict intake of fried food, drinks and confectionary high in added sugars, and other foods high in fat and sugar.

* Eat at least five portions of a variety of fruit and vegetables each day.

* Dieting in pregnancy is not recommended but controlling weight gain in pregnancy is advocated.

2- Exercise:

Aerobic and strength conditioning exercise in pregnancy is considered safe and beneficial. It may help recovery following delivery, reduce back and pelvic pain during pregnancy and contribute to overall wellness. The aim of exercise during pregnancy is to stay fit, rather than to reach peak fitness. Women can maintain walking, swimming, cycling but certain physical activity should be avoided such as contact sports which may cause unexpected abdominal trauma. Scuba diving should also be avoided because of the risk of fetal decompression disease and an increased risk of birth defects.

Body mass index and weight assessment

Height and weight should be measured at the booking visit, body mass index (BMI) calculated and assessed and women counselled accordingly. If the BMI is more than 35 kg/m2, it is recommended that the woman is reviewed by an obstetric consultant or other healthcare professional who can provide appropriate advice on the increased pregnancy risks and interventions to minimize excessive gestational weight gain.

Fig. 1.1: Weight and height measurement tools

For normal weight women (BMI 18.5–24.9 kg/m2) the recommended total weight gain in pregnancy is 11–16 kg (25–35 lb);
for overweight women (BMI 25–29.9 kg/m2) 7–11 kg (15–25 lb);
and for obese (≥30 kg/m2) women 5–9 kg (11–20 lb).
Women with raised BMI should be counselled regarding appropriate weight in pregnancy and counselled regarding the risks. In general, the risks increase as BMI rises

Maternal	Fetal
Antenatal	
Difficulty accurately assessing growth and anatomy of fetus	Increased congenital malformations; if BMI >40 kg/m^2, risk of neural tube defects is three times that of a woman with a BMI <30 kg/m^2 If BMI >30 kg/m^2, high-dose folic acid (5 mg once daily) is recommended prepregnancy and for first 12 weeks' gestation
Increased risk of GDM: three times more likely to develop GDM than women whose BMI <30 kg/m^2	Macrosomia and associated complications
Hypertensive disorders of pregnancy: increased risk of chronic hypertension, gestational hypertension and pre-eclampsia	Fetal growth restriction and associated complications
Increased risk of VTE	
	Miscarriage; overall miscarriage risk is 20%, which increases to 1 in 4 (25%) if BMI >30 kg/m^2
	Stillbirth: doubling of stillbirth risk from 0.5% to 1 in 100 (1%)
Intrapartum	
Difficulty with analgesia (epidurals and spinal) and general anaesthesia if needed	
Difficulty with monitoring in labour	
Increased instrumental delivery rate	
Increased caesarean section rate	
	Macrosomia and shoulder dystocia: risk of macrosomia (neonatal weight >4 kg) increases from 7% to 14% compared to women with a BMI of between 20 and 30 kg/m^2
Postnatal	
VTE risk	
Wound breakdown and infection	
Postnatal depression	
	Increased risk of childhood obesity and diabetes in later life

3- Working:

Most pregnant women can be reassured that it is safe to continue working during Pregnancy but physically demanding work, particularly those jobs with prolonged periods of standing, may be associated with poorer outcomes such as preterm birth, hypertension and pre-eclampsia, and small-for-gestational-age babies but the evidence is weak and employment per se has not been associated with increased risks in pregnancy. Identification of potential occupational hazards (e.g. ionising radiation) for pregnancy need to be explored. There is some evidence that employment that involves heavy lifting may be associated with a small increased risk of preterm birth.

4- Smoking

Smoking in pregnancy is associated with increased risk ofmiscarriage, preterm premature rupture of membranes, preterm birth, small for gestational age (SGA), low birthweight, placental abruption, perinatal mortality and sudden infant death.

Studies show a reduction in smoking rates associated with lower rates of low birthweights and preterm birth. A 50% reduction can significantly reduce the fetal nicotine concentration and is associated with an increase in the birthweight.

5- Travel:

There is no clear evidence that air travel increases the risk of pregnancy complications such as preterm labour, rupture of membranes or abruption.

However, flights of more than 4 hours' duration are associated with a small increased risk of venous thrombosis, and the paper states that graduated elastic compression stockings for all women, and low-molecular-weight heparin

(LMWH) for those with significant risk factors, are likely to be of benefit, but that low-dose aspirin should not be used for thromboprophylaxis.

It is suggested to avoid air travel from 37 weeks' gestation in a singleton pregnancy and from 32 weeks' gestation if there are significant risk factors for preterm birth.

Who gives antenatal care?

Maternity care for an individual woman is provided by a community-based team of midwives and family practitioners (such as GPs), a hospital consultant team or a combination of the two.

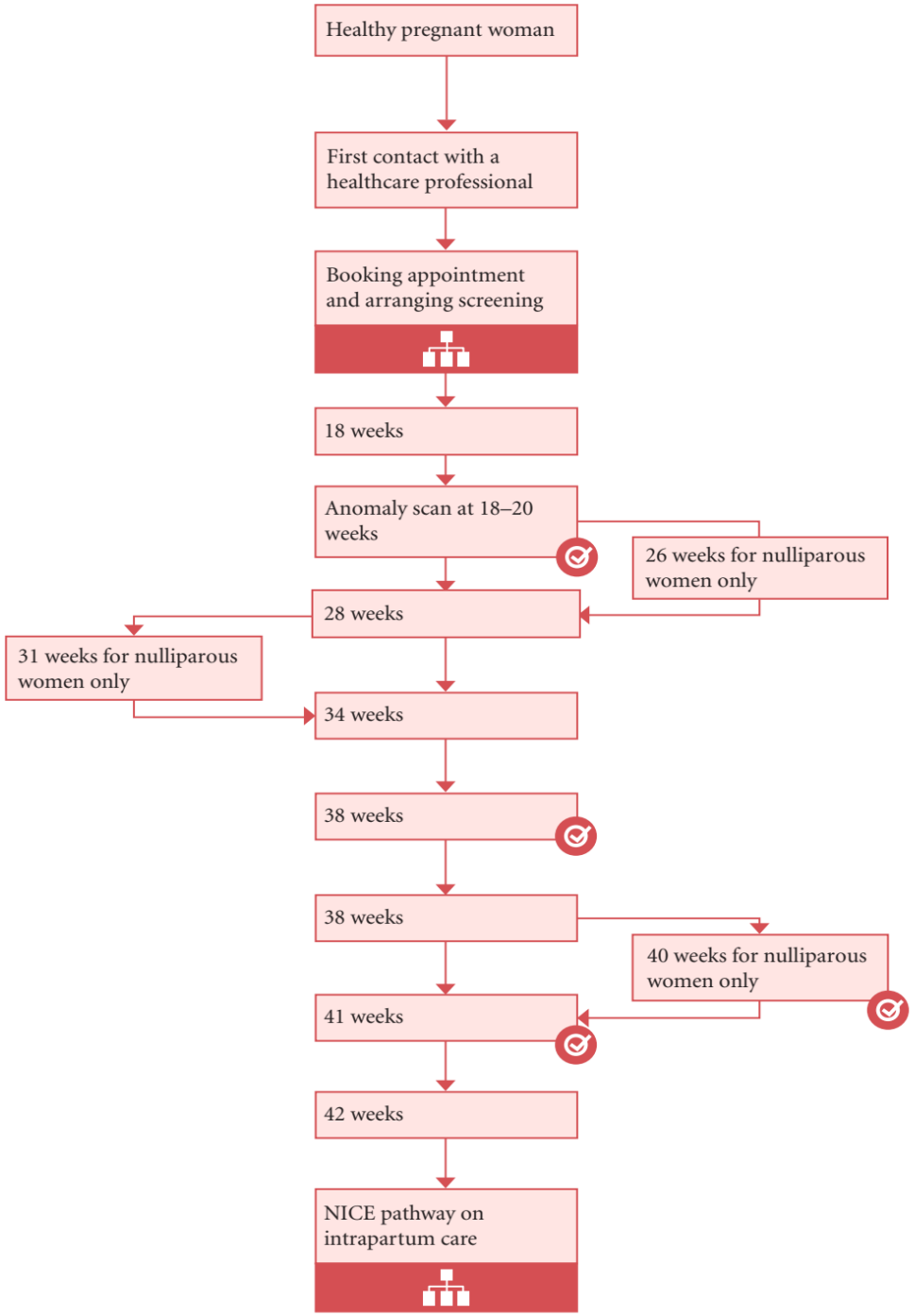
Some women have complex pregnancies and in these instances a hospital based obstetric team leads their antenatal care and they are in need of consultant care.

Many more women have pregnancies where there are no overtly complicating factors and these women usually have community-based care and are said to be under midwifery care.

How many visits during pregnancy?

Women in their first pregnancy, with no complications arising, should receive ten appointments and those in subsequent pregnancies require seven appointments.

An individualized schedule of appointments may need to include additional visit if complications arise within the pregnancy or other risk factors are identified.


Healthy pregnant woman
First contact with a healthcare professional
Booking appointment and arranging screening
18 weeks
Anomaly scan at 18–20 weeks
26 weeks for nulliparous women only
28 weeks
31 weeks for nulliparous women only
34 weeks
38 weeks
38 weeks
40 weeks for nulliparous women only
41 weeks
42 weeks
NICE pathway on intrapartum care

Booking visit

This antenatal appointment should occur ideally between 10 and 12 weeks of gestation and should include:

- **Gestational age assessment.**

A-Dating by LMP(last menstrual period):

Pregnancy has been historically dated from the last menstrual period (LMP), not the date of conception. The median duration of pregnancy is 280 days (40 weeks) and this gives the estimated date of delivery (EDD). This assumes that:

* The cycle length is 28 days.
* Ovulation occurs generally on the 14th day of the cycle.
* The cycle was a normal cycle (i.e. not straight after stopping the oral contraceptive pill or soon after a previous pregnancy).

The EDD is calculated by taking the date of the LMP, counting forward by 9 months and adding 7 days. If the cycle is longer than 28 days, add the difference between the cycle length and 28 to compensate.(Naegele's rule).

In most antenatal clinics, there are pregnancy calculators (wheels) that do this for you .Pregnancy-calculating wheels do differ a little and may give dates that are a day or two different from those previously calculated.

B- Dating by Ultrasound:

Dating with ultrasound scan offered between 11+0 weeks and 13+6 weeks, to determine gestational age, detect multiple pregnancies and offer nuchal translucency (NT) measurement for screening;

It has been shown that ultrasound-defined dates are more accurate than those based on a certain LMP.

This may be because the actual time of ovulation in any cycle is much less fixed than was previously thought.

Therefore, the National Institute for Health and Care Excellence (NICE) guideline on Antenatal Care recommends that that pregnancy dates are set only by ultrasound using the crown–rump measurement between 10 weeks 0 days and 13 weeks 6 days, and the head circumference from 14 to 20 weeks. Regardless of the date of the LMP this EDD is used.

- Assessment of maternal and obstetric risk factors to identify women who may require additional antenatal care;
- Ask about any past or present severe mental illness or psychiatric treatment;
- Ask about the woman's occupation, to identify potential risk
- Plan lead care professional (midwife or obstetrician);
- Plan pattern of care for pregnancy;
- Discussion on antenatal screening;
- Offer blood tests to check blood group and rhesus D status, and screening for anaemia, haemoglobinopathies, red-cell alloantibodies, hepatitis B virus, HIV, rubella susceptibility and syphilis;

- Measure height and weight and calculate BMI;
- Measure blood pressure and test urine for proteinuria;
- Offer screening for asymptomatic bacteriuria;
- Information on how the baby develops during pregnancy,

nutrition, diet (including vitamin D supplements if necessary) and exercise;

- Monitor smoking status and offer smoking cessation advice

and information on the specific risks of smoking during

pregnancy (such as low birthweight and preterm birth);

SUMMERY FOR INVESTIGATIONS DONE IN THE BOOKING VISIT

Investigation	Indication
FBC	Haemoglobin, platelet count, mean cell volume
MSU	Asymptomatic bacteriuria
Blood group and antibody screen	Rhesus status and atypical antibodies
Haemoglobinopathy screening	Screening is based on the FOQ and blood test results
Infection screen	Hepatitis B, syphilis, HIV, (and rubella status)
Dating scan and first trimester screening	Accurate pregnancy dating with provision of risk assessment for trisomy 21, 18 and 13 and identification of major congenital anomalies

FBC, full blood count; FOQ, Family Origin Questionnaire; HIV, human immunodeficiency virus; MSU, mid-stream urine.

Blood pressure assessment:

Blood pressure falls by a small amount (a few mmHg) in the first trimester and increases to prepregnancy levels by the end of the second trimester. First trimester blood pressure assessment also allows the detection of previously unrecognized chronic hypertension; this enables early initiation of treatment including antihypertensive agents (to reduce episodes of severe hypertension in the mother) and low-dose aspirin, which improves maternal (reduced pre-eclampsia) and fetal (decreased perinatal mortality) outcomes in women with chronic hypertension.

Antenatal urine tests:

Asymptomatic bacteriuria is associated with increased risk of preterm delivery and the development of pyelonephritis during pregnancy. A mid-stream specimen of urine **(MSU)** should be sent for culture and sensitivity at the booking visit to screen for asymptomatic bacteriuria. Urinalysis is performed every antenatal visit. Urine is screened for protein (to detect renal disease or pre-eclampsia), persistent glycosuria (to detect pre-existing diabetes or gestational diabetes [GDM]) and nitrites (to detect urinary tract infections). If nitrites are detected on urine dipstick testing, a MSU is sent for microscopy, culture and sensitivity to detect asymptomatic bacteria and appropriate treatment initiated if a positive culture is identified.

Full blood count

Full blood count (FBC) measurement allows identification of women with anaemia, to allow early initiation of treatment. Anaemia in pregnancy is defined as a haemoglobin (Hb) <110 g/l in first trimester, <105 g/l in second and third trimesters and <100 g/l in the postpartum period. The detection of anaemia should prompt examination of the mean cell volume to identify likely iron deficiency anaemia (microcytic anaemia) or folate or vitamin B12 deficiency (macrocytic anaemia). Further investigations may include B12, folate or iron (ferritin) studies. Appropriate treatment should be initiated.

A FBC also allows the identification of low platelets, which may rarely represent de-novo immune thrombocytopaenic purpura. Gestational thrombocytopaenia (a fall in platelet count in pregnancy) rarely presents in the first trimester and is more commonly detected beyond 28 weeks' gestation. Hence a low platelet count in the first trimester warrants further investigation and haematological input; in many settings the threshold for referral is <100 × 109/l. A baseline platelet count is also useful later in pregnancy if there are concerns regarding conditions such as pre-eclampsia or haemolysis, elevated liver enzymes and low platelets (HELLP) syndrome, which may present with thrombocytopenia.

Blood group

A blood group is checked at booking to identify rhesus D-negative women so that they may be informed regarding the risks of rhesus isoimmunization and sensitization from a rhesus D-positive fetus. Anti-D is administered to rhesus D negative women in instances of potential sensitizing events such as post chorionic villous sampling, amniocentesis or trauma to the maternal abdomen.

following potentially sensitizing events, anti-D immunoglobulin should be administered as soon as possible and always within 72 hours of the event. In pregnancies less than 12 weeks' gestation, anti-D immunoglobulin prophylaxis is only indicated following ectopic pregnancy, molar pregnancy, therapeutic termination of pregnancy and in cases of uterine bleeding where this is repeated, heavy or associated with abdominal pain.

The minimum dose of anti-D should be 250 IU and a test for feto-maternal haemorrhage is not required.

For potentially sensitizing events between 12 and 20 weeks' gestation, a minimum dose of 250 IU should be administered within 72 hours of the event and a test for feto-maternal haemorrhage is not required.

Women who are rhesus D negative are now offered prophylactic anti-D administration at 28 weeks' gestation.

Antenatal anti-D immunoglobulin prophylaxis using either a single large dose at 28 weeks' gestation or two doses, given at 28 and 34 weeks' gestation, achieves a significant reduction in the incidence of maternal sensitization to rhesus D due to occult sensitizing events.

Rhesus D-negative women also receive anti-D postpartum once a baby is confirmed as being rhesus D positive on testing of a cord blood sample.

Newer techniques such as non-invasive prenatal testing of maternal blood for fetal rhesus status (determined by analysis of cell-free fetal deoxyribonucleic acid [cffDNA]) may limit the need for anti-D prophylaxis to mothers whose fetuses are known to be rhesus D positive.

First trimester

If the booking appointment occurs prior to 11 weeks'gestation, offer an additional appointment for ultrasound examination between 11+0 and 13+6 weeks to determine gestational age, detect multiple pregnancies and offer NT measurement for screening with the combined serum screening for Down's syndrome.

If ultrasound measurement of NT is not possible at ultrasound, or a woman presents after 13+6 weeks, then serum screening test (triple or quadruple test) between 15+0 and 20+0 weeks can be offered

.

Second trimester

Routine antenatal appointment at 16 weeks' gestation for all women should include:

- Review, discuss and record the results of screening tests;
- Measure blood pressure and test urine for proteinuria;
- Investigate a haemoglobin level below 11 g/100 mL and consider iron supplements;
- Information on the routine anomaly scan

An ultrasound scan should be offered to all women and, if accepted, be performed between 18+0 weeks and 20+6 weeks to detect structural anomalies.

If structural differences are identified, appropriate information should be given and potential referral to a fetal medicine specialist considered.

If ultrasound examination identifies a low-lying placenta, an additional scan at 32 weeks should be offered.

Routine appointment at 24–25 weeks' gestation is recommended only for women in their first pregnancy. This appointment should include:

- Measure blood pressure and test urine for proteinuria;
- Measure and plot symphysis–fundal height

Third trimester

Routine antenatal appointment at 28 weeks' gestation for all women should include:

- Measure blood pressure and test urine for proteinuria;
- Offer blood tests to check for anaemia and atypical red cell alloantibodies;
- Investigate a haemoglobin level below 10.5 g/100 mL and consider iron supplements;
- Offer anti-D prophylaxis to women who are rhesus D negative;
- Measure and plot symphysis–fundal height.

Routine appointment at 31 weeks' gestation is recommended only for women in their first pregnancy. This appointment should include:

- Review, discuss and record the results of blood tests undertaken at 28 weeks;
- Measure blood pressure and test urine for proteinuria;
- Measure and plot symphysis–fundal height

Routine antenatal appointment at 34 weeks' gestation for all women should include:

- Review, discuss and record the results of blood tests undertaken at 28 weeks;
- Measure blood pressure and test urine for proteinuria;
- Measure and plot symphysis–fundal height;
- Give information on preparation for labour and birth, including the birth plan, recognising active labour and coping with pain

Routine antenatal appointment at 36 weeks' gestation for all women should include:

- Measure blood pressure and test urine for proteinuria;
- Measure and plot symphysis–fundal height;
- Check the presentation of the baby (refer if breech presentation suspected);
- Give information on infant feeding, care of the new baby, vitamin K prophylaxis, newborn screening tests, and postnatal self-care.

Routine antenatal appointment at 38 weeks' gestation for all women should include:

- Measure blood pressure and test urine for proteinuria;
- Measure and plot symphysis–fundal height;
- Give information on options for management of prolonged pregnancy

Routine antenatal appointment at 41 weeks' gestation for all women should include:

- Measure blood pressure and test urine for proteinuria;
- Measure and plot symphysis–fundal height;
- Further discussion of management of prolonged pregnancy and offer membrane sweep and date for admission for induction of labour.

This plan of care relates to uncomplicated singleton pregnancies. In multiple pregnancy, NICE guidelines outline a regimen of care.

MANAGEMENT OF COMMON SYMPTOMS IN PREGNANCY

Multiple symptoms occur in a healthy uncomplicated pregnancy; most can be managed with conservative treatments and maternal reassurance.

However, further investigation may

be required to exclude unusual or insidious presentations of other pathologies.

Nausea and vomiting

It is estimated that nausea is experienced in 80–85% of all pregnancies

and associated with vomiting in approximately 50%. despite common usage of the term ‘morning sickness’, in only a minority of cases are the symptoms solely confined to the morning. Nausea and vomiting in pregnancy tends to be mild and self-limited and is not associated with adverse pregnancy outcome.

For the majority of women symptoms of nausea and vomiting in pregnancy

resolve spontaneously within 16 to 20 weeks of gestation .

It has been shown that dietary ginger, wrist acupressure and prescribed antihistamines appear to be effective in reducing symptoms.

The condition of hyperemesis gravidarum can be diagnosed if these symptoms lead to fluid, electrolyte or nutritional imbalance requiring hospital treatment

.

Heartburn

Symptoms of heartburn are caused by gastro-oesophageal acid reflux due to relaxation of the distal oesophageal sphincter and reduced gastric motility in pregnancy,

and are not associated with any adverse outcomes in pregnancy, but generally worsen with gestation.

Symptoms of heartburn should be differentiated from presenting epigastric pain in pre-eclampsia by checking maternal blood pressure and urinalysis.

Current guidance recommends that women should be offered information regarding lifestyle and diet modification (timing of meals, portion size and posture).

If symptoms remain, RCT data show that antacids are safe and effective at relieving heartburn.

Constipation

Constipation is common in pregnancy and usually results from a combination of hormonal and mechanical factors that slow gut motility. Concomitantly administered iron tablets may exacerbate the condition. Women should be given clear explanations, reassurance and advice regarding the adoption of a high-fibre diet. Medications are best avoided but if necessary, mild (non-stimulant) laxatives such as lactulose may be suggested

Haemorrhoids:

Observational studies estimate the incidence of haemorrhoids in the third trimester as 8%. There is currently no evidence for the safety or effectiveness of topical treatments in pregnancy.

Women should be offered information concerning dietary changes (to increase fibre content) and advised that, if symptoms remain, standard haemorrhoid creams may be considered.

Varicose veins

Varicose veins are caused by the pooling of blood in the surface veins, commonly in the legs, due to inefficient valves and relative pelvic obstruction.

RCT evidence shows that compression stockings do not prevent varicose veins occurring, but appear to improve leg symptoms for women in pregnancy.

Backache:

Back pain affects 30–60% of pregnant women and worsen with gestation. It is caused by:

* Hormone induced laxity of spinal ligaments.
* A shifting in the centre of gravity as the uterus grows.
* Additional weight gain.

They cause an exaggerated lumbar lordosis. Pregnancy can exacerbate the symptoms of a prolapsed intervertebral disc, occasionally leading to complete immobility. Advice should include maintenance of correct posture, avoiding lifting heavy objects (including children), avoiding high-heels, regular physiotherapy and simple analgesia (paracetamol or paracetamol–codeine combinations).

Symphysis pubis dysfunction:

This is an excruciatingly painful condition most common in the third trimester, although it can occur at any time during pregnancy. The symphysis pubis joint becomes 'loose', causing the two halves of the pelvis to rub on one another when walking or moving. The condition improves after delivery and the management revolves around simple analgesia. Under a physiotherapist's direction, a low stability belt may be worn.

Oedema:

This is common, occurring to some degree in approximately 80% of all pregnancies. There is generalized soft-tissue swelling and increased capillary permeability, which allows intravascular fluid to leak into the extravascular compartment. The fingers, toes and ankles are usually worst affected and the symptoms are aggravated by hot weather. Oedema is best dealt with by frequent periods of rest with leg elevation; occasionally, support stockings are indicated. Excessively swollen fingers may necessitate removal of rings and jewellery before they get stuck. It is important to remember that generalized (rather than lower limb) oedema may be a feature of pre-eclampsia, so remember to check the woman's blood pressure and urine for protein. More rarely, severe oedema may suggest underlying cardiac impairment or nephrotic syndrome.

Carpal tunnel syndrome

Compression neuropathies occur in pregnancy due to increased soft-tissue swelling. The most common of these is carpal tunnel syndrome. The median nerve, where it passes through the fibrous canal at the wrist before entering the hand, is most susceptible to compression. The symptoms include numbness, tingling and weakness of the thumb and forefinger, and often quite severe pain at night. Simple analgesia and splinting of the affected hand usually help, although there is no realistic prospect of cure until after delivery. Surgical decompression is very rarely performed in pregnancy

Identification of high-risk women:

1-Women at high risk of developing pre-eclampsia

NICE currently recommends that women considered to be at high risk of preeclampsia should have low-dose aspirin (75 mg) treatment initiated early in pregnancy until delivery. Women considered to be high risk include:

* Hypertensive disease during a previous pregnancy.
* Chronic kidney disease.
* Autoimmune disease such as systemic lupus erythematosus or antiphospholipid syndrome.
* Type 1 or type 2 diabetes.
* Chronic hypertension.

Furthermore, women with two or more moderate risk factors for pre-eclampsia are also recommended to commence aspirin early in pregnancy until delivery.

Moderate risk factors for the development of pre-eclampsia include:

* Primiparity.
* Advanced maternal age (>40 years).
* Pregnancy interval of more than 10 years.
* BMI ≥35 kg/m2 at booking visit.
* Family history of pre-eclampsia.
* Multifetal pregnancy.

All women should be screened at every antenatal visit for pre-eclampsia by measurement of blood pressure and urinalysis for protein.

2-Women at high risk of preterm birth

Women considered to be at high risk of preterm birth include those with previous preterm birth, late miscarriage, multifetal pregnancies and cervical surgery such as previous cone biopsy. These women may be offered serial cervical length screening with or without the use of fetal fibronectin to detect increased risk of preterm birth. Note: no agreed screening protocol for preterm birth is available

3-Fetal growth restriction

NICE guidelines recommend that symphysis–fundal height (SFH) measurements should be performed at every antenatal appointment from 24 weeks' gestation. Concerns that fetal growth may be slow, or has stopped altogether, should prompt ultrasound scanning.

There is no consensus on the recommended 'routine' use of ultrasound in pregnancy.

The majority of units offer dating scans (at end of first trimester) and anomaly scans (at around 20–22 weeks' gestation) but no further growth assessment unless clinically indicated.

Some units offer an additional third trimester growth scan but this is still being evaluated in research studies.

4-Vitamin D deficiency

The RCOG advises that there are no data to support routine screening for vitamin D deficiency in pregnancy in terms of health benefits or cost effectiveness. Women thought to be at increased risk of vitamin D deficiency on the basis of skin colour or coverage, obesity, risk of pre-eclampsia or gastroenterological conditions limiting fat absorption may be screened, but this testing is expensive.

Daily vitamin D supplementation with oral cholecalciferol or ergocalciferol is safe in pregnancy. NICE guidance states that all pregnant and breastfeeding women should be advised to take 10 μg of vitamin D supplements daily. Severe vitamin D deficiency in pregnancy results in increased risk of neonatal rickets.

5-Gestational diabetes:

Women who have had previous GDM should be offered a glucose tolerance test or random blood glucose in the first trimester, with the aim of detecting preexisting diabetes that may have developed since a preceding pregnancy. Some countries in fact recommends universal screening.

GDM diagnosed if a woman has a fasting plasma glucose level of 5.6 mmol/l or above, or a 2-hour plasma glucose level of 7.8 mmol/l or above.

Risk factors for the development of GDM include:

* Women with previous gestational diabetes,
* Previous macrosomia (≥4.5 kg),
* Raised BMI (≥30 kg/m2),
* First-degree relative with diabetes,
* Women of Asian, black Caribbean or Middle Eastern origin.

If risk factors are present, the woman should be offered a 2-hour 75 g oral glucose tolerance test (OGTT) at 24–28 weeks' gestation. Women with a previous history of GDM should have an oral glucose tolerance test at 16–18 weeks' gestation. The test should be repeated at 24–28 weeks of pregnancy.