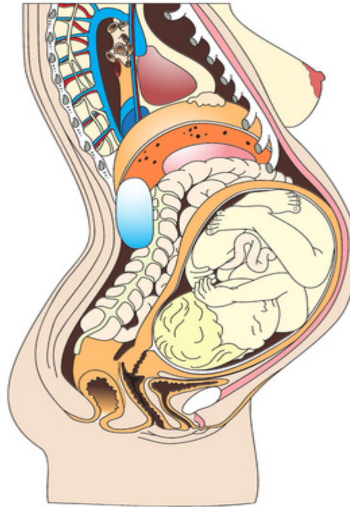
THE NORMAL PREGNANCY AND ASSESSMENT OF FETAL AND MATERNAL WELLBEING

FACT FILE 2B



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For most women and their families, pregnancy and childbirth is an exciting and fulfilling time culminating in the birth of a healthy baby. Most women who give birth worldwide will have healthy pregnancies and deliver normally. This fact file focuses on assessment of healthy pregnancy and the low-risk mother and fetus.

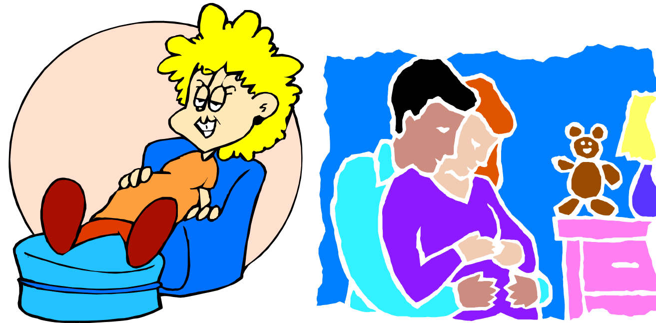
ANTENATAL CARE

The aims of antenatal care include establishing a partnership between the woman and the health professionals who will be providing care and support during her pregnancy. This helps facilitate communication and means that decisions about care can be made jointly in order to meet the needs of the woman. The antenatal period provides health professionals with an opportunity to offer education and advice to promote a healthy lifestyle. This includes information about nutrition, alcohol intake, smoking and if applicable, specific information for target groups such as teenagers. The general health and well being of the woman and baby are monitored regularly.

Estimating the date of delivery

One of the first things the woman usually wants to know is when the baby will be born. Pregnancy lasts approximately 40 weeks, so by adding 9 months and 7 days to the date of the first day of the woman's last normal menstrual period, the estimated date of delivery can be ascertained. Those with longer or shorter cycles require some adjustment to the calculation usually following the first dating scan. The date is known as the estimated date of delivery (EDD). It is important to know the EDD when neonates are admitted to the neonatal unit to plan care most appropriately.

Maternal well-being



Apart from giving information and general health advice, women may be offered a variety of tests to assess their well-being during pregnancy. Many of us will be familiar with the 'routine' schedule of antenatal visits, increasing in frequency towards the end of pregnancy; 'Routine' antenatal screening can be viewed by reading the NICE Guideline on ANTENATAL CARE (See Key Reading).

Pregnant women will also be offered blood tests to establish their health status and the possible effect on the developing fetus.

Blood group and antibody testing

Pregnant women will have their blood group identified and are screened for antibodies. Women who are Rhesus negative and whose babies are Rhesus positive can develop antibodies that cross the placenta and destroy the fetal red blood cells (Rhesus iso – immunisation) leading to severe haemolysis and putting the fetus at risk. It can be prevented by giving Rhesus negative women anti-D immunoglobulin when they are pregnant and again just after delivery. Other antibodies such as anti Kell or anti c antibodies can also cross the placenta.

Haemoglobin; It is common for the haemoglobin level to fall in pregnancy but this is due to the increased volume of plasma in the maternal circulation, rather than a fall in the haemoglobin concentration. Iron supplementation may be given if iron stores are low but not routinely.

Sexually transmitted diseases (STDs); Routine blood testing for STDs includes; Syphilis and in some cases, Chlamydia (under 25's) – if positive, then it is important to treat with antibiotics and prevent long term damage to the fetus and mother.

Human Immunodeficiency Virus (HIV); Women are offered the opportunity to 'opt out' of testing for Human Immunodeficiency Virus (HIV); this virus can cross the placenta and affect the baby. However, the risk of transmission from mother to baby can be reduced by giving Zidovudine (AZT) during pregnancy. If a woman is identified as being infected with HIV, she too, can be offered treatment and appropriate follow up.

Other infections; e.g. Rubella, Hepatitis B; Most women in the UK are immune to rubella because of the immunisation programme in schools. If a woman is found to be non - immune while she is pregnant, she is advised of the risks of coming into contact with someone who is infected with rubella. The virus can cross the placenta and cause severe congenital abnormalities in the developing baby. Women who contract rubella in early pregnancy should have access to screening and counselling services particularly if the baby is affected. Once the woman has delivered she is usually advised to have rubella immunisation. Hepatitis B (HBsAg) testing is routinely offered to all pregnant women. Immunoglobulin can be given to the babies of infected women after delivery.

Haemoglobinopathies; Haemoglobinopathies are single gene inherited disorders. They can be detected by haemoglobin electrophoresis. This will detect Sickle Cell Disorders and Thalassaemia. Women who have a haemoglobinopathy require careful follow - up when they are pregnant. The baby should be screened when they are born.

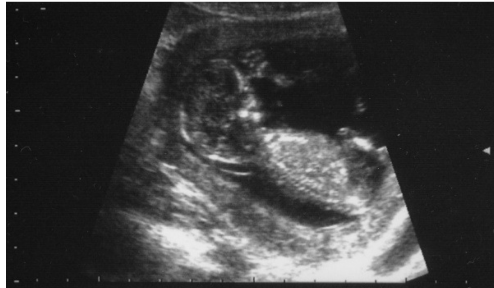
Fetal well being

Fetal well-being can be assessed in different ways

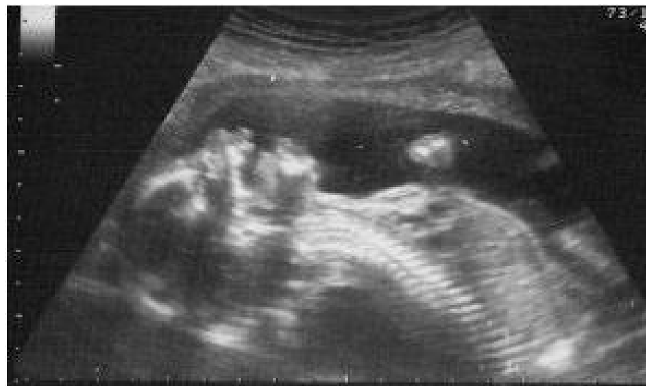
Ultrasound

Ultrasound scans are used to measure growth, assess gestational age and identify fetal abnormalities. The parts of the fetus most commonly measured are the bi-parietal diameters - the widest part of the fetal skull; the abdominal circumference and the crown - rump length; from the crown of the head to the bottom of the spine. Ultrasound can detect small for gestational age neonates.

The most accurate assessment of gestation is by ultrasound between 14 and 24 weeks of pregnancy when the rate of fetal growth is most rapid. The reason for this is that most fetuses grow at the same rate in the first part of pregnancy. Pathological growth retardation is rare at this time. Measuring specific parts of the fetal anatomy during this period allows a precise gestational assessment to be made. The routine 'anomaly scan' is offered at 18-20 weeks to detect any structural problems or conditions that require referral or further management after delivery of the baby.



12 WEEK SCAN (above) AND 20 WEEK SCAN (below)



For Further information on antenatal assessment and range of related issues; refer to the Royal College of Obstetricians and Gynaecologists Guidelines – a link to the full list can be seen in the Key Reading.

Antenatal Screening

An overview of the routine antenatal screening offered to women in pregnancy can be seen in the NICE guidelines on Antenatal care and by viewing the Screening timeline from www.screening.nhs.uk website. Again, the link is found in the Key Reading. This covers all tests on offer such as haemoglobin by 10 weeks, the 'combined' screening test (Nuchal and serum) by 13 weeks and 6 days and later serum testing for alpha-feto protein and other markers after week 15. Screening is carried out to determine the level of 'risk 'of the pregnancy that could potentially affect the fetus and to lead to any further diagnostic testing. It is essential that women receive clear and accurate information in pregnancy about the tests carried out and options available to them. The NHS Screening website above also has booklets for parents that are free to download and the link can also be seen in Key Reading.

Abdominal examination

Abdominal palpation can be used to find out what position the fetus is in. However, it is a very inadequate method of assessing the size of the fetus. Measuring the distance between the top of the uterus (fundus) and the symphisis pubis with a measuring tape has been shown to be an effective way of measuring fetal growth. However, the best results are obtained if the same person does the measuring each time the woman attends the clinic. Fetal heart can also be assessed although this is not recommended as a 'routine' antenatal check.

LABOUR

Preparation for labour and information giving is an important part of antenatal care. Women may consider a birth plan to prepare them emotionally for the pending labour and options available to them.

Place of birth

Some women may choose a home birth, others to give birth in a midwifery led unit while others may opt to deliver in a consultant unit. Decision making is very individual and dependent on many factors. Ideally, women should have choice and in making a decision they are encouraged to discuss their options with their midwife.

Women with high risk pregnancies usually deliver in a hospital /consultant unit but sometimes they can give birth in other places - particularly if labour is very fast or unexpected.

Method of Birth

Women need information on methods of birth; vaginal, lower section caesarean and methods of assisting delivery if applicable.

It is preferred that women give birth naturally by spontaneous vaginal delivery. This is to avoid the risks associated with surgery for the mother and to prevent potential respiratory distress in the newborn if the normal surge of catecholamines and surfactant maturation is prevented by an 'unnatural' mode of delivery such as caesarean surgery. There are clear indications for any method of birth however and ultimately it must be whatever is the safest for both mother and baby. Whatever method a women has and indeed the need for surgery, instrumental assistance (forceps, ventouse) or induction / augmentation, is dependent on many factors both physical and psychological in relation to the mother, fetus or both. Such factors may be parity, previous pregnancies, position / presentation of the fetus, position of the placenta. Any intervention that uses drugs or adjuncts can increase the risk element of birth.

Pain relief in labour

During pregnancy, information should also be given to the woman regarding labour and pain relief options. Non-pharmacological methods to assist women with birthing include:

- Being mobile; this helps some women cope with labour pains and may help to reduce the length of labour without having any adverse effects on the fetus.
- Back rubbing / massage
- Assistance with controlled breathing
- Warm water filled tubs. If the baby is to be born underwater then the water temperature must be carefully controlled as cool water can induce neonatal respirations. As soon as the baby is born they are brought to the surface of the water. It is important not to clamp or cut the cord while the baby is underwater.
- Transcutaneous electrical nerve stimulation (TENS) involves applying small surface electrodes on either side of the lower spine. Pulsed electrical impulses are transmitted via the pads to the peripheral nerve fibres. This appears to block some of the pain of labour in the early stages.

Pharmacological methods include:

- Entonox is a mixture of equal parts of oxygen and nitrous oxide. It is premixed and delivered via a mask or mouthpiece. It provides partial pain relief and is often used towards the end of the first stage of labour. It is not associated with any adverse effects on the mother or the neonate.
- Systemic drugs can be given in labour to assist with pain control. The most commonly used drug is Pethidine. It is usually given intramuscularly, acts within 15 - 20 minutes and its' effects last for 3 - 4 hours.
- Pethidine is associated with drowsiness and nausea in the mother and it can cause changes in the fetal heart rate pattern. It can also cause significant respiratory depression in the neonate. This can be reversed with naloxone hydrochloride administered to the baby after birth.
- Epidural analgesia involves introducing a local anaesthetic into the epidural space. Usually a catheter is left in situ so that analgesia can be given continuously or topped up throughout labour. Epidurals are a highly effective form of pain relief but can be associated with a number of risks to the mother and these can affect the fetus (e.g. hypotension, increased risk of a forceps delivery)

Delivering the baby

Labour moves forward in three clear stages:

- First stage: when contractions gradually open up the cervix. The first stage consists of early labour, active labour and the transitional phase.
- Second stage: when the baby is pushed out.
- Third stage: when the placenta is delivered.

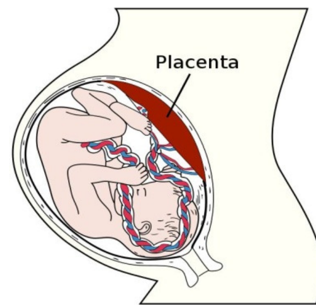
The UK BabyCenter website for parents has some basic but useful descriptions of the stages of labour: See Key Reading.

The length and timing of labour in relation to the three stages vary greatly from women to women and again is dependent on many factors (e.g. parity, presentation as before).

Midwives will encourage women to adopt different positions to help the fetus descend through the birth canal. When the woman feels the urge to push she is encouraged to adopt her own pattern of pushing.

Episiotomy is not done routinely.

Delivering the placenta and membranes



During the third stage of labour, the placenta separates from the uterine wall, the membranes peel away from the surface of the uterus and they are all expelled from the uterus.

The woman may be given an intramuscular injection of an oxytocic drug such as Syntometrine to speed up the third stage and reduce the blood loss. This causes rhythmic contractions of the uterus to force the placenta from the uterine wall, followed by a sustained contraction to reduce blood loss.

Some women prefer to deliver the placenta without the aid of drugs. In these cases, the cord will not be cut until it stops pulsating and the baby will be encouraged to breastfeed as this causes uterine contractions which assist the delivery of the placenta. In rare cases, the placenta will adhere to the uterine wall and will have to be removed manually.

Following the delivery the midwife will check the placenta and membranes to ensure that they are complete. If a lobe of the placenta or some of the membranes are left in the uterus it will not be able to contract properly and the women may haemorrhage. The retained tissue will also act as a focus for infection.

You will be able to see the segments (cotyledons) and the two membranes (the chorion and amnion). If there has been placental insufficiency you may see small infarcts in the placenta or the placenta may feel gritty if you touch it with a gloved hand.

Cutting the cord

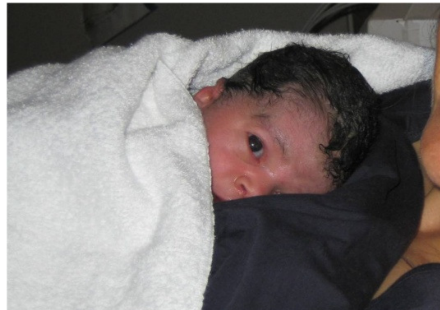
It is now recommended that if a newborn baby is well at birth, then the cord can be left for a minute prior to clamping and cutting.

After the birth

The newborn baby should be given to the mother and / or father straight away if the baby is well. Skin-to-skin contact can be carried out immediately to facilitate thermoregulation for the baby, encourage bonding and early feeding on the breast if the mother wishes. Care should always be culturally sensitive and open to discussion and individual choice.

Some cultures believe the blood of childbirth is unclean and prefer the baby to be cleaned before handling, while some women find that idea of holding a baby covered in blood and liquor distasteful. In these cases, the baby is cleaned and dried and then given to the mother.

Providing all is well, the woman and her partner or other birth supporters should be able to spend some time alone with the baby.



KEY READING

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Blincowe J (2006) Umbilical artery Doppler; A screening tool for fetal wellbeing British Journal of Midwifery 14, 2, 41-42

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NICE (2008) Antenatal care Routine care for the healthy pregnant woman http://guidance.nice.org.uk/CG62

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RCOG (2011) Rhesus D Prophylaxis, The Use of Anti-D Immunoglobulin for (Green-top 22) http://www.rcog.org.uk/womens-health/clinical-guidance/use-anti-d-immunoglobulin-rh-prophylaxis-green-top-22

NICE (2007) Clinical Guidelines 55; Intrapartum Care of healthy women and their babies during childbirth   The Quick Reference Guide is via the following link: http://guidance.nice.org.uk/CG55/NICEGuidance/pdf/English

http://www.patient.co.uk/doctor/Intrapartum-Fetal-Monitoring.htm

RCOG Full list of Guidelines -http://www.rcog.org.uk/guidelines?filter0%5B%5D=**ALL**

Screening Timeline http://cpd.screening.nhs.uk/timeline

SCREENING TIMELINE (UK National Screening Committee)

http://www.healthscotland.com/uploads/documents/12614-PregnancyAndNewbornTimeline.pdf

Antenatal and newborn publications for parents – www.screening.nhs.uk website

http://www.screening.nhs.uk/annbpublications

NHS SCREENING CONTINUOUS PROFESSIONAL DEVELOPMENT WEBSITE

http://cpd.screening.nhs.uk/programme-specific

ONLINE / E-LEARNING MODULES IN SCREENJNG (includes antenatal and newborn screening, Group b Strep, Midwifery competencies, PEGASUS (Sickle cell and Thalassaemia) and Newborn Physical Examination) ......REQUIRES free registration to access modules)

http://cpd.screening.nhs.uk/elearning

RESOURCE CARDS FOR SCREENING – ANTENATAL AND NEONATAL

http://cpd.screening.nhs.uk/resource-cards

CHIMAT LINK TO SCREENING TIMELINE

http://www.chimat.org.uk/resource/item.aspx?RID=88294

http://www.patient.co.uk/doctor/Newborn-Screening.htm

Screening for Fetal Anomalies – Map of Medicine

http://healthguides.mapofmedicine.com/choices/map/fetal_anomaly_screening1.html

Down's syndrome screening – Map of Medicine

http://healthguides.mapofmedicine.com/choices/map/down_s_syndrome_screening1.html

http://www.patient.co.uk/doctor/Antenatal-Screening-for-Down's-Syndrome.htm

http://www.patient.co.uk/health/Pre-natal-Screening-and-Diagnosis-of-Down''s-Syndrome.htm

Sickle cell and Thalassaemia screening http://www.screening.nhs.uk/sct-england

http://www.patient.co.uk/doctor/Prenatal-Diagnosis.htm

http://www.library.nhs.uk/WOMENSHEALTH/

BabyCenter website for parents

http://www.babycentre.co.uk/pregnancy/labourandbirth/labour/stagesofchildbirth/

NPEU - MATERNITY SURVEY

https://www.npeu.ox.ac.uk/files/downloads/reports/Maternity-Survey-Report-2010.pdf

COCHRANE PREGNANCY AND CHILDBIRTH REVIEWS – FULL LIST

http://onlinelibrary.wiley.com/o/cochrane/cochrane_clsysrev_crglist_fs.html