Antenatal screening

Screening in pregnancy implies strategies for the detection of disorders at a stage at which the patient has no signs or symptoms.

FBC

All pregnant women should have a haemoglobin concentration and haematocrit determination early in each pregnancy since anaemia is the most common complication of pregnancy, usually due to iron deficiency, but may also be due to folate deficiency, rarely blood loss and vitamin B12 deficiency, and disorders of haemoglobin synthesis.

Blood group (ABO) and Rh testing

It is important to know a pregnant woman's ABO type so that steps can be taken to assure that type specific blood is available for transfusion should she have an uncommon type. ABO type information is also important if ABO incompatibility is being considered in the diagnosis of neonatal jaundice.

There is a 70 to 75% chance that the foetus being carried by an Rh negative women is Rh positive. Greater than 99% of Rh isoimmunisation can be prevented with the appropriate use of Rh immunoglobulin (RhoGam) administered to the mother at 28 weeks gestation. After delivery, the infant of an Rh negative mother should have Rh type determination, and if positive, additional Rh immunoglobulin should be administered to the mother within 72 hours of delivery.

Red cell antibody screening

Maternal sensitisation to certain red blood cell antigens present in the foetus puts the foetus at risk for erythroblastosis foetalis and the baby at risk of haemolytic disease of the newborn. Rh antibody (anti-D) is most commonly responsible for this problem; however, maternal IgG antibodies to several red cells antigens including C,c,E,e, Kell, Duffy, and Kid may also put the foetus and newborn at risk. A woman can develop this type of isoimmunisation through a previous pregnancy or via previous exposure to blood products.

Rubella serology

Primary maternal rubella infection in the first trimester of pregnancy carries devastating consequences for the foetus, especially in the the first eight weeks of pregnancy. Although infection is symptomatic in most mothers, asymptomatic infection does occur. Rubella serology is unnecessary in those with proven immunity to rubella virus. Non-immune women should be offered rubella vaccination after birth.

HbsAg

There is up to an 80% chance of transmission of hepatitis B virus vertically from the mother to the child if the mother is a hepatitis B carrier. Postexposure prophylaxis is possible with hepatitis B vaccine and immunoglobulin. Therefore screening for hepatitis B surface antigen (HbsAg) in pregnant women would be justified in areas of high prevalence. However, even in areas of low prevalence, there is movement towards the implementation of antenatal screening, so that infants of mothers who are hepatitis B positive may be protected by prophylaxis.

Syphilis serology

Any stage of syphilis during pregnancy can result in an infected foetus. Congenital syphilis occurs when the treponemes cross the placenta after the 16 to 18th week of gestation. In rare circumstances, infection may occur from contact with an infectious lesion during passage through the birth canal. Treatment is important – to eradicate maternal infection and to prevent congenital syphilis.

Urine MCS

All pregnant women should be screened for asymptomatic bacteriuria early in pregnancy. Those with documented UTI should be treated, and test for cure should be done following antibiotic therapy.

Genital swab for group B streptococcus (GBS)

Advocated in some centres. Others recommend administering intrapartum ampicillin for defined risk factors such as preterm birth before 35 weeks gestation, membranes ruptured > 18 hours before delivery, maternal temperature ≥ 38°C, GBS colonisation or bacteriuria ever

Routine at first antenatal visit before 20 weeks-	Blood group (ABO) and Rh testing, Red cell antibody screen, Rubella serology, Hepatitis B surface antigen (HbsAg), Syphilis serology Urine MCS.
Routine at 28 weeks	Blood group and red cell antibody screen.
Routine at 30 – 36 weeks	FBC Urine MCS Genital swab for group B streptococcus.
If high risk for infection	Urine or endocervical swab for chlamydia, PCR Endocervical swab for gonococcal culture, HIV serology, Herpes simplex virus culture or PCR of cervical swabs, Hepatitis C serology.
Additional tests, if appropriate	Urine or endocervical swab for chlamydia, PCR Endocervical swab for gonococcal culture, HIV serology Herpes simplex virus culture or PCR of cervical swabs Hepatitis C serology
Additional tests, if	Down's syndrome antenatal screen, AFP