

II. Screening ⁽¹⁾

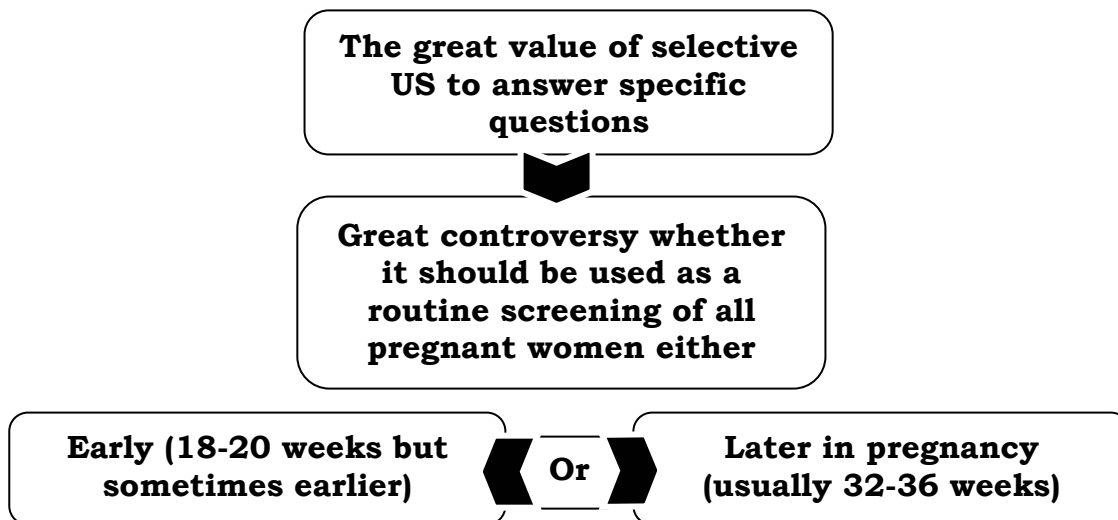
II.1. Imaging ultrasound in pregnancy

It is not firmly established to be used whether routinely for prenatal screening or selectively for specific indications.

A. Selective use of ultrasound

The selective examination answer specific question and introduce available help in:

- Whether a fetus is alive or dead.
- Predict whether pregnancy is likely to continue after threatened abortion.
- Accurate estimation of fetal size in the 1st or early 2nd trimester
- Visualize malformations and facilitate other diagnostic techniques, as amniocentesis and chorion villous sampling
- Fetal size and growth in the 2nd half of pregnancy
- Placental location in case of suspected placenta previa
- Confirmation of suspected multiple pregnancy
- Measurement of amniotic fluid volume
- Confirmation of fetal position and assistance in cervical cerclage or external cephalic version



B. Routine early ultrasonography benefits

- Better gestational age assessment
- Earlier detection of multiple pregnancy
- Detection of clinically unsuspected fetal malformation at a time where termination of pregnancy is possible
- Diagnosis of unsuspected non-viable pregnancies (e.g. blighted ova and hydatiform moles)
- There is association between increased nuchal translucency (measurement of fluid filled area at the baby's neck) at 10-14 weeks and chromosomes and other abnormalities (early diagnosis and termination).

Screening

The balance of advantages and disadvantages to each woman must be carefully weighted, the financial implications of routine detailed U.S examination in early pregnancy, and if costly, cytogenetic analysis in the laboratory, must also be considered.

C. Routine late ultrasonography

The main purpose of routine screening in late pregnancy is to identify unsuspected growth-restricted fetuses who may benefit from elective delivery.

No evidence to support for routine US in late pregnancy for fetal measurement.

D. Placental grading

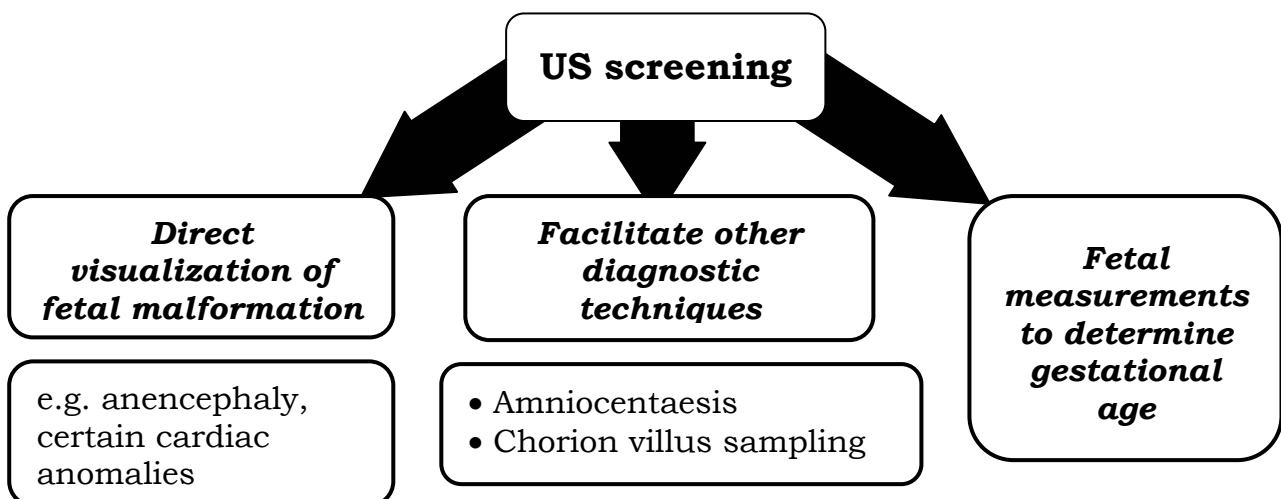
Knowledge of placental appearance can result in clinical action that may improve pregnancy outcome.

II. 2. Screening for congenital anomalies ⁽¹⁾

The decision to screen, and the action taken as a result of a screening test, should be determined by the individuals concerned. Personal or religious beliefs will influence whether screening is undertaken at all. So what is in the meaning of chromosome studies when the couple would refuse a termination under any circumstances.

Methods of screening

1. **Ultrasound:** employed in screening in 3 ways.



2. Cytogenetic techniques

- Amniocentesis.
- Chorion villus sampling.
- Serum alpha-fetoprotein.

II.3. Screening for pre-eclampsia ⁽¹⁾

Hypertension and pre-eclampsia are usually asymptomatic, screening and diagnosis depend mainly on:

- A. Clinical history
- B. Careful determination of blood pressure
- C. Proteinuria

A. Clinical history: to assess the risk of preeclampsia factors that raises the risk

- Primiparity
- First pregnancy with a new partner
- History of pre-eclampsia in a close relative
- Early onset pre-eclampsia in a previous pregnancy
- Chronic hypertension
- Diabetes
- Multiple pregnancies

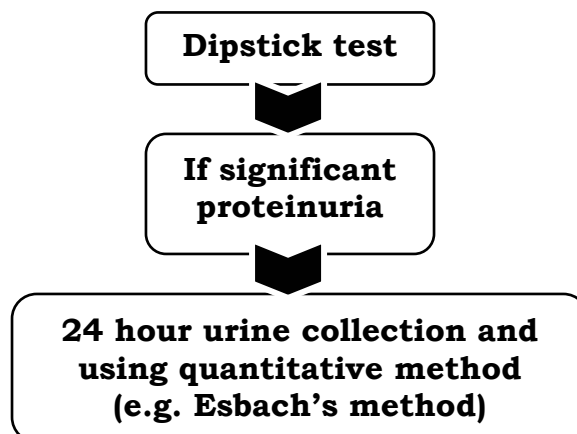
None of these factors is very specific or sensitive

B. Blood pressure: Simple blood pressure measurement remains an integral part of antenatal care.

- Pregnant women with a diastolic blood pressure between 90 and 100 mmHg in the second half of pregnancy raises incidence of proteinuria and perinatal death.
- Diastolic blood pressure between 90 and 100 mmHg may be considered to be a threshold between women at low risk and women with an increased risk of pregnancy complications.

C. Proteinuria

- In normal pregnancy there is a rise in renal protein excretion.
- Proteinuria in pregnancy = protein in urine > 300 mg in 24 h hours.
- *Proteinuria is usually a late sign in pregnancy induced hypertensive disorders, and is associated with an increased risk of poor fetal outcome.*
- *Thus, urine testing is a vital part of the screening process of hypertensive disorders in pregnancy.*
- **In practice:**



Edema

- Moderate edema occurs in 50 – 80% of healthy normotensive pregnant women, it is part of normal maternal adaptation with pregnancy.

So it shouldn't be used as a defining sign of hypertensive disorders in pregnancy.

Doppler ultrasound

It has an early predictable value in diagnosis and may be beneficial for high-risk women.

II.4. Gestational diabetes ⁽¹⁾

- The available data provide no evidence to support the wide recommendation that all pregnant women should be screened for gestational diabetes.
- Only women in whom overt diabetes is suspected should be followed with fasting or blood glucose estimation 2 hours after meals, through out pregnancy.
- **Women who are suspected for diabetes who have one or more of the following criteria**
 - Obesity.
 - Large fetus.
 - Previous still birth.
 - Previous malformation.

II.5. Assessment of fetal growth, size, and well-being

Why? ⁽¹⁾

- These methods can predict or detect fetal compromise, also, they can reduce the frequency or severity of adverse perinatal events or prevent needless interventions.

Abdominal examination

- Measurement of symphysis-fundal height is simple inexpensive, it could be used as a screening device for referral for further assessment.

Fetal movements count

- Fetal movements count by the mother is a simple and inexpensive test of fetal well-being that can be performed daily; there is no evidence that routine fetal movement counting will have beneficial results.

The evidence provides no support for routine ultrasonography for fetal measurement in late pregnancy.

Biochemical tests of fetal well-being

- Biochemical tests of fetal well-being are expensive and have a low predictive value for adverse outcome. Their use should be restricted to research, and shouldn't be employed in clinical practice.

Biophysical tests of fetal well-being

A. Ultrasound measurements

It helps to assess the fetal growth in a number of ways:

1. Assessing fetal size of a single point in time
2. By repeated measurements of the fetal size
3. Assessing amniotic fluid volume
4. Investigating the appearance of the placenta
5. Examining the movement and behavior of the baby

When gestational age is unknown or uncertain, ultrasonography is considered the gold standard for measuring fetal growth. Despite this, controlled trials show that routine ultrasound measurement of

fetal size in late pregnancy may increase the rate of antenatal hospital admission, and possibly of induction of labor, with no evidence of any benefit to the baby.

Evidence indicates that abdominal measurements are superior to head measurements in predicating light-for-dates babies, but little is known about serial measurements.

B. Doppler ultrasound

It is a useful technique for evaluating fetal well-being in high risk pregnancies, and has no early predictive value especially of fetal growth restriction.

The use of Doppler ultrasound in high-risk pregnancies leads to fewer hospital admission rates during pregnancy and fewer elective deliveries.

Doppler ultrasound appears to have little, if any, effect on pregnancy outcome when used as a screening test in unselected pregnancies.

C. Contraction stress test

It has no demonstrated benefits and suffers from a number of disadvantages.

The nipple-stimulation stress test should be relegated to the history books.

D. Non stress cardiotocography

Its role as either a screening or a diagnostic test seems questionable, because of its poor predictive value.