Quadruple Screen

Types and components of 2nd trimester (maternal serum) screening:

- Alpha-fetoprotein (AFP) as a single marker
- "Quad Screen" checks levels of 4 analytes:
    - Alpha Fetoprotein (AFP)
    - Unconjugated estriol
    - Beta Human Chorionic Gonadotropin (HCG)
    - Inhibin A

- Screening must be **offered** to **all** pregnant patients
- Patient has a right to decline (document permission or decline in chart)
- Counsel the patient:
    - This is only a **screening** test, does not provide definitive diagnosis
    - Abnormal result just means higher risk, would need further tests
    - Not all birth defects are screened for

- A maternal blood test, drawn at 15-20 weeks gestation (optimal = 16-18 wks)
- Accurate dating for gestational age is essential: order dating ultrasound if needed
- Form to be filled out to order test: maternal age/weight/ethnicity, other risk factors (if any), which method was used to determine gestational age, and choose the group of markers to be measured

Follow-up: Make sure to review the results with the patient!
(Found in EPIC 'media" tab)

- If results are normal (and dating accurate), no further work-up needed.
- Most common cause of abnormal results is inaccurate gestational age. If not yet done, order dating ultrasound to confirm EDC.
- If EDC is correct and results abnormal, refer patient to Genetic Counselor at OB Testing Unit (HCMC), who will give detailed counseling on the baby's risk of having various anomalies, and may offer to schedule genetic amniocentesis or OBTU ultrasound, as appropriate.

Note: Certain pregnant patients must be offered timely referral to Genetic Counseling *regardless,* or in lieu, of prenatal screening results (i.e., those whose risk of fetal aneuploidy is high enough to justify invasive diagnostic testing such as chorionic villi sampling or amniocentesis):

- Advanced Maternal Age
    - Singleton pregnancy and age 35 years or older at time of delivery
    - Twin pregnancy and age 33 years or older at delivery

- Presence of 1 major or 2 minor fetal structural abnormalities identified on ultrasound (or 1 major or 2 minor ultrasound markers for higher risk of Down Syndrome)
- History of previous fetus with autosomal trisomy or sex-chromosome aneuploidy
- Personal (or male partner with) history of having chromosomal aneuploidy, translocation, or inversion

Serum Analyte	Fetal anomaly screened for		
	NTD	**Trisomy 21**	**Trisomy 18**
AFP	increased *	decreased	decreased
Beta HCG		increased	decreased
Estriol		decreased	decreased
Inhibin-A		increased	normal

* Increased AFP levels can also be seen in abdominal wall defects (e.g., gastroschisis, omphalocele, exstrophy of urinary bladder)

NTD = Neural tube defects:
Cranial: include anencephaly, exencephaly, encephalocele
Caudal: include meningocele, meningomyelocele, myelo- or holorachischisis

ACOG Practice Bulletin # 27, May 2001 (pp. 716-723)
ACOG Practice Bulletin # 44, July 2003 (pp. 614-621)
Dugoff,L.,et. al. (2005)Quad screen as a predictor of adverse pregnancy outcome. Obstet Gynecol. 106:260-267.