Methods: In a prospective longitudinal study, during the routine first trimester assessment, we measured the FMF angle accordingly to the Fetal Medicine Foundation Guidelines. The data will be statistically analyzed to determine the significance of the difference between the previous European studies and ours.
Results: The measurings were obtained in 49 of the first 50 cases (98%). The ethnic origin of the mothers was 42% caucasian, 22% blacks, 2% oriental and 34% of mixed races. The mean FMF angle decreased with crown–rump length (CRL) from 75o. at CRL 47.5 to 50 mm to 75o. at CRL 74 to 78.5 mm in all races.
Conclusions: Apparently, the FMF angle can be applied with success to the Brazilian population. Further studies will include more patients in the analysis, meaning an increase of the significance of this data.

P06.14
Normogram for frontomaxillary facial angle in a Lebanese population

R. S. Abu-Rustum[1], M. Ziade[2], S. Abu-Rustum[3]

[1]Center For Advanced Fetal Care, Tripoli, Lebanon; [2]Public Health, Lebanese University, Tripoli, Lebanon; [3]Ob/Gyn, Nini Hospital, Tripoli, Lebanon

Objectives: The frontomaxillary facial angle (FMFA) is a first trimester (FT) marker for trisomy. Recently, its role as a FT marker for spina bifida (SB) has been evaluated. Our objective was to determine the normogram for the FMFA in an unselected low risk Lebanese population and to compare our results to the established normogram of Borenstein *et al* to assess for any ethnic variations precluding its application in our population as an early FT marker of trisomy and SB.
Methods: Prospective study on 361 fetuses with confirmed dating undergoing a FT scan at 11 to 14 weeks. All scans were performed by a single sonologist certified by the Fetal Medicine Foundation. The FMFA was measured in all fetuses in a mid sagittal plane according to the guidelines of the Fetal Medicine Foundation. Regression analysis was used to establish the relationship between fetal crown rump length (CRL) and FMFA. ANOVA test of means was employed to compare the mean FMFA in relation to the CRL. All fetuses were healthy term live births.
Results: A total of 361 patients were included in the analysis. Mean CRL was 72.48 mm. Mean FMFA was 77.29°. Regression analysis was employed to establish the relationship of FMFA to CRL and it revealed no significant decrease in the FMFA with advancing gestation ($P = 0.609$) as has previously been described by Borenstein *et al*. Statistical analysis using ANOVA test of means comparing the mean FMFA with CRL indicated that the mean FMFA is significantly unchanged as CRL increases or decreases. For a CRL of 50–59, 60–69, 70–79 and 80–89 mm, the mean FMFA was 79.3°, 77°, 77°, 78.1° and 77.3° respectively ($P = 0.421$). The FMFA was > 85° in 7.8% of our patients.
Conclusions: Our study demonstrates that in an unselected low risk Lebanese population, there is no statistically significant decrease in the FMFA with advancing gestation as has been previously reported by Borenstein *et al*. In 7.8% of our population, the FMFA is > 85°. This ethnic variation calls for employing caution when using the FMFA in our FT screening for trisomy and when screening fetuses who may be at risk for SB.

P06.15
The nuchal translucency examination leading to early diagnosis of structural fetal anomalies

I. Solt[1,2], I. Goldstein[1,2], B. Weizman[1], K. Nizar[1], Z. Weiner[1,2]

[1]Obstetrics & Gynecology, Rambam, Health Care Campus, Haifa, Israel; [2]Technion Faculty of Medicine, Haifa, Israel

Objectives: To summarize five years experience of diagnosing structural fetal anomalies during an extended nuchal translucency (NT) examination.
Methods: The study population included all women who had a routine NT examination in the ultrasound division of one of three centers. The sonographers were instructed to perform an extended NT examination by paying attention to fetal anomalies. Each examination was initially attempted transabdominally. Failure to obtain adequate views transabdominally was an indication for a transvaginal examination. When a structural fetal anomaly was detected or suspected, a full fetal anomaly scan was performed. When diagnosis could not be established, fetal anatomy scan was repeated after 14 weeks' gestation. When fetal anomalies were diagnosed the patients were informed about the possibilities of terminating the pregnancy or continuing the work-up and follow-up. Overall, ascertainment of fetal outcome was available in 95% of the study population.
Results: We performed 5321 NT examinations during the study period (2005–2010). The fetal anomalies detected included the following: five skeletal anomalies, nine brain anomalies, six urinary system anomalies, six abdominal anomalies, and two facial anomalies. Twelve of 28 patients chose to discontinue the pregnancy shortly following detection of the congenital anomaly (within 14 weeks' gestation) and 11 patients waited for a repeated confirmatory scan to establish the diagnosis. Additional 29 non cardiac structural fetal anomalies were detected following the anatomy scan performed at 14–16 or 22–24 weeks' gestation.
Conclusions: The opportunity to diagnose structural fetal anomalies in early pregnancy, justifies the approach of extended NT examination.

P06.16
Sensitivity of the 11–14 week scan in identifying structural abnormalities in a single centre in South India

I. Suresh, S. Sairam, J. Ramesh, B. Kugan, V. Raja, S. Seshadri

Mediscan, Chennai, India

Objectives: To assess the sensitivity of detection of structural abnormalities at the 11–14 week scan in a large tertiary referral centre in South India.
Methods: This was a retrospective study looking at the abnormalities identified in the first trimester scan between January 2008 and December 2010. Only those women with singleton pregnancies at the 11–14 weeks scan were included. The overall number of the structural abnormalities identified in the first and second trimester scans were analysed. The sensitivity of the first trimester was derived from this data. The abnormalities were categorized based on the system affected.
Results: During the study period, 17,754 women underwent the 11–14 week scan. 197 (1.1%) structural abnormalities were identified in this group. 12932 woman returned for second trimester scans and in this group 190 (1.5%) structural abnormalities were identified in this group. Out of a total of 387 structural abnormalities, 51% of the abnormalities were detected by the first trimester scan. Cardiovascular (23%) and central nervous system (22%) abnormalities were the leading groups in the anomalies missed in the first trimester, followed by skeletal (19%) and gastro-intestinal abnormalities (18%). An audit of the missed abnormalities will also be presented.

Conclusions: To our knowledge, this is the first report of detection rate of abnormalities at the 11–14 week scan from a single unit from South India. The detection rate is at par with the published literature. The audit revealed areas that could be strengthened in order improve the efficiency and sensitivity of the first trimester anomaly screening.

P06.17
Chromosomal mosaicisms in correlation with first trimester screening and clinical outcome

C. Eckmann-Scholz[1], J. Mallek[1], A. Caliebe[2], S. Heidemann[2]

[1]Obsterics and Gynecology, University Hospital Kiel, Kiel, Germany; [2]Human Genetics, University Clinic of Schleswig-Holstein, Kiel, Germany

Objectives: To detect a correlation between suspicious findings in first trimester screening for aneuploidies such as abnormal hormonal values or abnormal ultrasound findings and placental mosaicism in chorionoc villus sampling (CVS) or fetal mosaicism in amniocentesis (AC). Pregnancy complications and fetal outcome were evaluated.
Methods: Retrospective study on 5359 pregnancies from 2 centers of prenatal diagnostics between January 2000 and December 2010. Pregnancies were followed up until birth if possible, abortions were documented.
Results: Invasive testing was performed due to suspicious first trimester screening, advanced maternal age or family history. In 45 patients invasive procedure found a chromosomal mosaic status in either chorionic villi or amniocytes. In our series structural anomalies were found in 9/45 cases. The highest number in numerical abnormalities was found with Monosomy X0 in 11 cases, followed by trisomy 21 in 4 cases and 4 cases with trisomy 7. There proved to be a correlation between abnormally low PAPP-A and/or elevated human chorionic gonadotropin from first trimester screening. Pregnancy complications such as preeclampsia, abnormal Doppler findings and fetal growth restriction correlated with very low PAPP-A values whereas high levels of free beta-HCG did not impair pregnancy outcome. Our findings suggest that fetal outcome depends on the chromosomes involved in the mosaic status. Although the absolute numbers of investigated cases is low our findings support that placental mosaicism is one reason for severe fetal growth restriction but not necessesarily preeclampsia.
Conclusions: Placental and fetal mosaicism and adverse pregnancy outcome seem to correlate very low PAPP-A levels. This predictive value suggests that patients within this group may benefit from increased surveillance with respect to preeclampsia and fetal growth restriction. In contrast very high free beta-HCG levels do not seem to impair pregnancy. Further studies in this field with respect to preeclampsia and fetal growth retardation are necessary.

P06.18
Single umbilical artery visualisation in 1st and 2/3 trimesters

O. Solovyov[1], Y. Goncharova[1], I. Sudoma[1,2]

[1]Fetal Medicine Unit, Reproductive Medicine Clinic "Nadiya", Kyiv, Ukraine; [2]National Medical Academy of Post-Graduate Education, Kyiv, Ukraine

Objectives: It is known that single umbilical artery (SUA) occur in less than 1% of cords in singletons and 5% in twin pregnancy. SUA is believed to be caused by one umbilical artery agenesis or atrophy of a previously normal artery. The aim of this study was to compare ultrasound findings of SUA in 1st and 2/3 trimesters.
Methods: We collected all SUA cases met in our clinic during last 4 years regardless gestational age and analyzed ultrasound findings, pregnancy types (natural or IVF), follow-up data, babies sex.
Results: In total 75 SUA cases were found, among them 17.3% had IVF pregnancy, female/male ratio was equal to 2/1. There were 14.7% of twins (in one case both fetuses had SUA). 25.3% of cases were associated with chromosomal anomalies and/or congenital defects. 38.7% of women were examined in our clinic starting from 11+0–13+6. Surprisingly, in 72.4% of these cases of SUA at 11+0–13+6 scan both functional umbilical arteries were present (proved by visualisation in 2D and Power Doppler mode); in contrast, additional 4 cases demonstrated only one functional umbilical artery at 11+0–13+6 exam while both functional umbilical arteries were found in late 2d or 3d trimester.
Conclusions: 1. the majority of SUA cases is really caused by atrophy of a previously normal artery; 2. in most cases SUA can be easily seen starting from the 1st trimester, but we suppose that sometimes the activity of both umbilical arteries can be shown later in pregnancy and can be unexpected finding; 3. most SUA cases we met in natural pregnancies.

P06.19
Early fetal anatomic surveillance. Transabdominal and transvaginal first trimester scan. How good are we?

S. Tudorache[1,2], D. G. Iliescu[1], A. Comanescu[1], N. Cernea[2]

[1]Prenatal Diagnostic Unit, University Emergency Hospital, Craiova, Romania; [2]University of Medicine and Pharmacy Craiova, Romania

Objectives: To assess the accuracy of fetal anatomic study, at 12+3–13+3 weeks, performed by well-trained obstetricians, using high-frequency volumetric ultrasound transducers, both transabdominal and transvaginal.
Methods: Fetal detailed anatomic study was performed at first trimester genetic scan, between Jan 2008 and Dec 2010. The study group consisted in high-risk pregnancies. Digital videoclips and volumes of the examination were stored by the obstetricians. There were aimed to demonstrate: symmetric choroid plexus, intact skull, retronasal triangle, sagittal section of fetal face, diaphragm, situs sollitus, four chamber view, X sign and V sign, tricuspid valve spectral Doppler, sagittal section of fetal body, with DV spectral Doppler, extremities. As control, were used: offline examination by a fetal cardiologist and second trimester scan.
Results: 483 cases entered the study. 346 cases were complete examined and followed-up. The time interval of scanning was between 18 and 71 minutes, with a median of 34 minutes. There were first trimester (FT) diagnostic: 18 cases of congenital anomalies, among them 10 cases of extreme severity or lethal anomalies. The second trimester discovered missed: 23 cases, among them 6 cases of extreme severity or lethal anomalies.
Conclusions: The severity of anomalies FT detected was superior to those ST detected. A cost/efficiency study must be performed, due to long duration of the examination, and the use of expensive machines.