For many years, the main use of ultrasound in the first trimester of pregnancy was to confirm viability and to establish gestational age. Indeed, the crown-rump length measurement in the first trimester remains the most accurate method to estimate the gestational age even today. However, improvements in ultrasound equipment and improvement in our understanding of normal and abnormal fetal development allows us now to perform a much more complete first trimester fetal evaluation. This pertains not only to the diagnosis of fetal anomalies but also to screening for fetal defects. The combination of the nuchal translucency measurement and maternal serum biochemistries (free ß-hCG and PAPP-A) has been shown to be an extremely efficient way to screen for fetal aneuploidy. The addition of other first trimester markers such as the nasal bone evaluation, fronto-maxillary facial angle measurement, and Doppler evaluation of blood flow across the tricuspid valve and through the ductus venosus improves the screening performance even further by increasing the detection rates and decreasing the false positive rates. Several of the first trimester markers also are useful in screening for cardiac defects. Furthermore, significant nuchal translucency thickening has been associated with a variety of genetic and non-genetic syndromes. A recently described first trimester marker called the intracerebral translucency appears to hold great promise in screening for open spine defects. Finally, it appears that a first trimester evaluation (uterine artery Doppler and the measurement of certain biochemical markers in the maternal serum) significantly improves the assessment of the risk of preeclampsia.

Most spectacular very recent innovation is 3D silhouette ultrasound. All of these new advancements in assessing female infertility will be richly illustrated at the meeting.