Objective: To investigate the levels and distribution of uterine artery pulsatility index (PI) in the first trimester of pregnancy of Chinese pregnancies and compare them to that predicted by the Fetal Medicine Foundation (FMF).

Methods: Sonographers, with an FMF certificate of competence to perform uterine artery doppler waveform assessment, prospectively assessed and measured the left and right uterine artery PI in Hong Kong Chinese pregnant women having a singleton pregnancy whilst performing first trimester screening for aneuploidies in April 2013. The measurements were performed by transabdominal ultrasound imaging and in accordance with FMF recommended practice. The lower of the two PI (L-PI) was used for analysis. The L-PI were converted into multiples of the expected median (MoM) corrected for fetal crown rump length, maternal age and body mass index using linear regression model published by the FMF. The results of the uterine artery PI assessment were not given to the women and did not influence the subsequent pregnancy management.

Results: 320 Women had a first trimester Doppler uterine artery assessment. The median (range) L-PI, CRL, maternal age at EDD, and BMI were 1.7 (0.6-3.6), 59.3mm (42-79), 32.3 years (21.3-44.2) and 21.4 Kg/m²(15.9-33.2) respectively. After correcting for maternal factors using the FMF expected L-PI the median L-PI MoM was 1.16 MoM (95% CI 1.13 to 1.23) and the standard deviation of the log10 L-PI MoM was 0.12. Linear regression analysis confirmed that Log10L-PI was significantly associated with CRL but not maternal age or BMI in our cohort.

Conclusion: Our data and analysis would indicate that using the FMF published expected L-PI in normal pregnancies did not result L-PI MoM centered on 1 MoM and if adopted would result in an increased screen positive rate.