## FMF \ NTUEMP Certificate of competence in measurement of uterine artery PI

The FMF & the Australian Nuchal Translucency – Ultrasound, Education & Monitoring Program has now established (FMF) software for the calculation of risk for preeclampsia. The software is provided free of charge to those who comply with the FMF \ NUTEMP regulation of NT screening and have demonstrated competence in the Doppler assessment of the uterine arteries at the 11-13 weeks scan.

Preeclampsia, which affects about 2% of pregnancies, is a major cause of perinatal and maternal morbidity and mortality. Routine antenatal care has evolved with the aim of identifying women at high-risk for subsequent development of preeclampsia. The likelihood of developing preeclampsia is increased by a number of factors in the maternal history, including nulliparity, high body mass index and personal or family history of preeclampsia. However, screening by maternal history may detect only about 30% of those that will develop preeclampsia for a false positive rate of 5%.

### A more effective method of screening for preeclampsia is provided by: -

1. Uterine Artery Pulsatility Index at $11^{+0}$ to $13^{+6}$ weeks gestation
2. Maternal history and family history including Ethnicity and BMI
3. Assessment of maternal mean arterial pressure (MAP) using an automated device
4. Serum PAPP-A and placental growth factor (PLGF)

For a false-positive rate of 5% it has been estimated that the new combined method of screening using the above criteria can predict 90% of preeclampsia requiring delivery before 34 weeks and 45% of late preeclampsia. There is extensive evidence that it is early rather than late preeclampsia which is associated with an increased risk of perinatal mortality and morbidity and both short-term and long-term maternal complications.

Identification of women at high-risk for preeclampsia during the first trimester could potentially improve pregnancy outcome because intensive maternal and fetal monitoring in such patients would lead to an earlier diagnosis of the clinical signs of the disease and the associated fetal growth restriction. This may avoid the development of serious complications through such interventions as the administration of antihypertensive medication and early delivery. There is also evidence suggesting that adverse events due to pre-eclampsia can be ameliorated by the early administration of low dose aspirin.

## Requirements for Certification in measurement of uterine artery PI

It is imperative that, as for the NT scan, sonographers and sonologists undertaking risk assessment of preeclampsia by examination of the uterine arteries must receive appropriate training and certification of their competence.

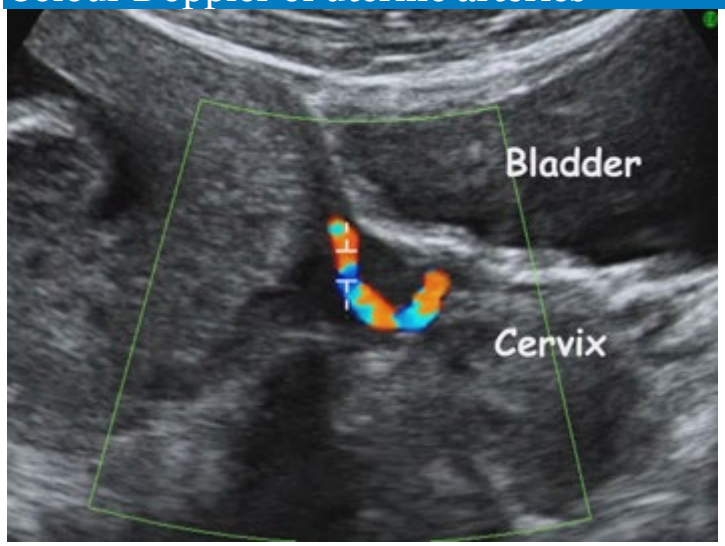
The requirements for certification are: -

1. Completion of the UAPI Online Learning Program- http://elearning.nuchaltrans.edu.au/ Submission of the certificate you can save on finishing the course must be emailed with 3 electronic logbook images.
2. Submission of a logbook of 3 images demonstrating color flow mapping and waveforms of the uterine artery at 11-13 weeks.
3. Submit to NTUEMP (Melbourne office) nuchaltrans@ranzcog.edu.au your Certificate of Competence from the FMF course plus 3 images for your logbook as described in point 3.

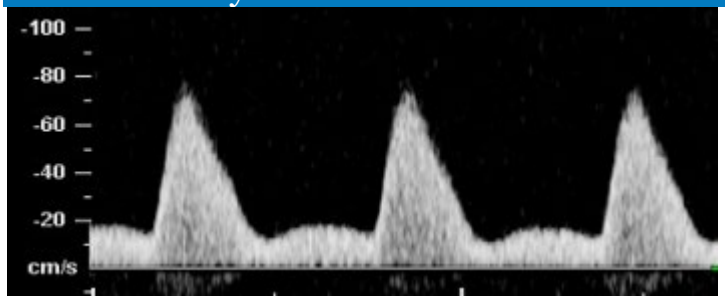
## Protocol for first-trimester measurement of the uterine artery PI

- The gestational age must be between 11 weeks and 13 weeks and six days.
- Sagittal section of the uterus must be obtained and the cervical canal and internal cervical os identified.
- Subsequently, the transducer must be gently tilted from side to side and then colour flow mapping should be used to identify each uterine artery along the side of the cervix and uterus at the level of the internal os.
- Pulsed wave Doppler should be used with the sampling gate set at 2 mm to cover the whole vessel and ensuring that the angle of insonation is less than 30º. When three similar consecutive waveforms are obtained the PI must be measured and the mean PI of the left and right arteries is calculated.

## Colour Doppler of uterine arteries




## Uterine artery waveform




### Ongoing Certification and Quality review for assessment of the uterine artery PI.

Submission of an image demonstrating the above along with 1 NT image + any other marker for annual audit of practice.