



Providing the answers you need

At Insight+Ascot Radiology we are specialized in the area of obstetrics and gynaecology and are lucky enough to have many experts in the field working in conjunction with highly trained and experienced sonographers. We aim to provide expert scanning and counselling through all stages of pregnancy.

WE ARE ALSO VERY FORTUNATE to have the added expertise of **Obstetrician & Gynaecologist Emma Parry (right)**. Emma is a sub-specialist in Maternal Fetal Medicine and is Clinical Director at the New Zealand Maternal Fetal Medicine Network (NZMFMN). She has varied clinical interests, but is particularly focused on multiple pregnancy, role of 3D scanning and echocardiography.

Emma has written the article below, outlining new and exciting changes in early pregnancy testing.



On The Horizon: Advances in first trimester testing

THE MSS1 SCREENING PROGRAMME for Down syndrome and other conditions has been in place since 2007 in New Zealand. The combination of clinical factors, serum levels of Papp-A and bHCG, and Nuchal translucency scanning gives the woman a high quality risk result. It is worth noting that at the Nuchal translucency scan, the nasal bone can also be assessed and will improve the quality of the screen result.

If the woman has a high-risk result (1 in 300 or higher) she can choose to have an invasive test (amniocentesis or Chorionic Villus Sampling) to determine whether the fetus has Down syndrome. In most cases the result will be reassuring. However, these tests carry a risk of miscarriage, which is why they are generally only performed when the woman has a high-risk screening result.

There is a new test on the horizon known as **Non Invasive Prenatal Tests (NIPT)**. It has been known for a long time that small pieces of placental tissue (which is effectively fetal in origin) slough off into the maternal blood stream. Technical advances has meant that these small pieces of fetal DNA can be separated from the maternal DNA and amplified many times over to provide enough DNA to allow testing.

The DNA gathered is in fragments rather than whole chromosomes, but new genetic techniques can assess the relative ratios of different chromosome fragments and give a result as to whether the fetus has Down syndrome. The test does not give the whole karyotype (picture of all the

chromosomes) but will target certain chromosomes and assess the most common types of aneuploidy seen.

The NIPT blood test is offered by a number of companies in New Zealand, but the analysis of the samples is done overseas. Blood is taken at around 10 weeks onwards and there is usually a two week wait for a result once the sample is sent. A key factor in the test is the 'Fetal Fraction'. That is how much of the fetal DNA can be extracted. If this is too low, the test cannot be done. In women with a higher BMI, there is a higher chance of no result. If the result is negative for Down syndrome, then it is highly accurate and considered conclusive. If the result is positive for Down syndrome, then it is recommended to have an invasive test to confirm prior to proceeding to a termination of pregnancy. The accuracy is very high though, and less than 1% will be negative.

This test has been shown to be effective in high-risk groups (higher maternal age, high Nuchal translucency etc). Ongoing studies are looking at a low-risk population, but it is likely it will be highly accurate in this group too.

Currently the test is patient funded and is expensive (\$800-\$2000), however it is likely to get cheaper in time. The National Screening Unit is looking at the test and how it might be incorporated into the publicly funded screening.

Emma Parry is available at our Ascot Hospital branch for both routine and high risk obstetric scanning, as well as for amniocentesis and CVS tests.

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Chromosomal assessment scanning

The 10 - 14 week ultrasound scan was introduced in 1992 at the Harris Birthright Research Centre at King's College Hospital in London as a method of screening for chromosomal abnormalities.

ALL THE SONOGRAPHERS and reporting radiologists at Insight+Ascot Radiology have undergone extensive training in both the theoretical and practical aspects of nuchal scanning. We are one of the few private Radiology practices in New Zealand to be accredited in nuchal scanning and have all the most up to date fetal medicine software to allow analysis. We have further been accredited to include the fetal nasal bone as part of the scan. If the nasal bone is identified during the scan, the risk of fetal chromosomal abnormality decreases quite significantly.

During the scan, several measurements of the nuchal fold are made to get as accurate measurements as possible. This is a very small structure to measure (usually less than 3mm) and accuracy is reliant on the baby being in an optimum position. Every effort is also made to detect the presence or absence of a nasal bone. Once the measurements and images have been obtained, the data is entered into the Fetal Medicine Software programme. The measurements are also forwarded to the laboratory to be combined with the results of the maternal blood test.

Only about 80% of chromosomally abnormal babies have thickened nuchal folds. 1.4% of normal babies will have an absent nasal bone but 67% of babies with Down syndrome will have an absent nasal bone.

First trimester screening with ultrasound is currently offered throughout the developed world. Eighty percent of fetuses with chromosomal abnormalities have been identified, accepting a 5% false-positive rate. This compares favourably to the detection rates achieved with screening based on maternal age alone (a 30% detection rate) and maternal age plus serum biochemistry (a 60% detection rate). The addition of nasal bone screening has increased the detection rate to 90%.



ABOVE: MEASUREMENT OF THE NUCHAL FOLD

The Pregnancy Ultrasound Package

INSIGHT+ASCOT RADIOLOGY offer a single-payment package for any obstetric ultrasound scans a patient may need during their pregnancy. We offer this package from the 12 week (nuchal translucency) scan or at any subsequent stage in their pregnancy.

Pregnancy ultrasound is available at these branches:

- Ascot Hospital, Remuera
- Millennium Institute of Sport & Health, Mairangi Bay
- Birthcare, Parnell

For more information, please go to our website:

www.insightradiology.co.nz

THE PACKAGE INCLUDES:

- All scans referred by the patient's LMC for their pregnancy **including nuchal, anatomy and growth scans.**
- The patient may have as many of these scans as they need. **There is no maximum number of scans, as long as they are referred by their LMC.**
- Patients can have their scans **at any one of our three branches during their pregnancy** - they are not locked into one location.



Introducing Dr Richard Davis MBChB, Dip Obst, FRANZCR

RICHARD GRADUATED AS A JUNIOR DOCTOR IN 1980 and enjoyed both diagnostic and obstetric work, completing his Diploma in Obstetrics in 1982. He then qualified as a Diagnostic Radiologist in 1989.

In subsequent years, Richard has sub-specialised in obstetric ultrasound and is the Founding Partner of Insight Radiology. Insight was the first radiology practice in New Zealand to use the Fetal Medicine Foundation Nuchal Translucency (FMF-NT) software.

Richard is happily married with three children and his leisure time revolves around family, tennis, surfing, gardening and fishing.

Richard consults at our Millennium Institute of Sport & Health branch in Mairangi Bay, and at the Parnell rooms.

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