



The Nuchal Translucency Ultrasound, Education & Monitoring Program – Newsletter

Now and in the Future...

WELCOME!

December 2007/January 2008

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It has been a long time since we have published a newsletter and it is with great pleasure that we are able to resurrect this valuable resource for the ultrasound community performing nuchal translucency scans. Our last newsletter was in 2004 so we decided to spruce this one up with a fresh new layout that we hope you will enjoy.

A lot has happened over the past four years. The major achievements have been:

2004

- The update for the FMF software was successfully distributed to over 150 centres.

2005

- Comprehensive audit reporting formats established.
- New assessors recruited.
- An update symposium in all capital cities with Dr Jon Hyett from the UK FMF presenting.
- Development of centre and operator databases and processing software for audit using *Visual DataFlex*.
- Revision of audit fees for centres which made the fee structure more equitable.
- Ms Lai Yue Aitken, Administrative Officer, joined the team.

2006

- Classification of operators and centres for the major June audit established.
- Bedding down the processing software.

2007

- Successful funding submission to the Department of Health and Ageing to develop the Nuchal *Translucency Online Learning Program*.
- Ms Jordan Chrisp, Project Officer, has been appointed to take this initiative forward.
- Convened a meeting of the Nuchal Translucency Reference Committee.

June 2007 Audit

The major audit in June 2007 was our biggest yet with 139,500 scans audited for the country. These scans were performed at 198 centres by 794 operators. Assessing all centres and operators is logistically demanding given that all the information that goes to the assessors has to be de-identified. The number of sites reaching standard is increasing year by year, which is very gratifying.

2008

In the New Year we will be running short courses via teleconference and desk top sharing software. The courses will aim to meet the needs of people who would like more tuition on imaging criteria and assessment and also for familiarisation with the FMF software. We will promote these via email and also on the website: www.nuchaltrans.edu.au

Wishing you and your families a safe and happy Christmas and New Year-
Ann Robertson,
Lai Yue Aitken and
Jordan Chrisp.



Tips for Data Entry

- When entering your data, don't forget to enter the patient's weight. This enables the concentration of the hormones to be accurately assessed.
- Check information regarding the patients' previous pregnancies. Has the patient had a previous Down Syndrome pregnancy?
- If this pregnancy has been achieved using IVF, the age of the egg used may not be the same age as that of the woman. This situation can occur:

1. When a donor egg is used; and
2. When pregnancy occurs using a frozen embryo (i.e. the egg was collected from the woman when she was younger).

Seeing Double

- Harmonics can result in 'double lines' for the skin line and for the fascia over the spine, resulting in four white lines instead of two and confusion over which lines to measure between. Two of the lines are real and two are artefacts.
- Turn off the harmonics and find out which are the 'real' white lines. If you are not sure whether this is happening on your machine, look at the amnion. The artefact results in a double line for the amnion.
- Harmonics should always be switched 'off' when measuring the nuchal translucency.

Promoting Best Practice

- Promote your commitment to best practice to your referrers.
- Centres and operators can do this by stating on their websites and other documents that they participate in regular audit and have a commitment to best practice.
- By doing this, referrers can be reassured that the centres are striving to provide the very best care to their patients.

First Trimester Screening– More than an Ultrasound

Screening for Down Syndrome and other fetal abnormalities in the first trimester is a complex process that should incorporate a risk assessment based on maternal blood tests, maternal age and an ultrasound examination estimating gestational age and nuchal translucency measurements.

The medical defence organisation, Avant, has been advised that there are some practices who are continuing the now dated practice of performing ultrasound nuchal translucency measurements alone for the assessment of risk.

The joint RANZCOG and Human Genetics Society of

Australasia 'Best Practice' Guidelines on antenatal screening for Down Syndrome and other fetal aneuploidy and Prenatal diagnosis policy, recommend provision of first trimester screening by a coordinated prenatal diagnosis service of experienced operators who audit their results. They also recommend that counseling support be provided to women before they undergo testing to ensure they understand the tests, their accuracy and the potential consequences. An accredited service will have access to appropriate counselling services.

Caution should be used when referring a patient to a non-accredited practice. As the

referring doctor, it is important that you are confident that the practice has adequate quality and audit processes in place to ensure accuracy of measurements. Use of an accredited practice helps to provide reassurance that they are keeping up to date in what is a rapidly changing area of clinical practice.

As with other procedures or examination, adequate consent should be obtained. Consent should take into consideration the risks and accuracy of the test, the timing and its implications for the method of termination that may need to be considered.

Understanding Audit

Extracted from the RCOG Clinical Governance Advice No.5 October 2003

Background

Clinical governance provides a framework for accountability and quality improvement. While research is concerned with discovering the right thing to do, audit is concerned with ensuring that the right thing is done.

Definition

Clinical audit is a quality improvement process that seeks to improve patient care and outcomes through systematic review of care against explicit criteria and the implementation of change. Aspects of the structure, processes and outcomes of care are selected and systematically evaluated against explicit criteria. Where indicated, changes are implemented at an individual, team or service level and further monitoring is used to confirm improvement in healthcare delivery.

Evidence

A review of the evidence by the National Institute of Clinical Excellence (NICE) concluded that audit is an effective method for improving quality of care. The same review also described the audit methods associated with successful audit projects.

The Clinical Audit Cycle

Audit can be considered to have five principal steps, commonly referred to as the audit cycle:

1. Selection of a topic;
2. Identification of an appropriate standard;
3. Data collection to assess performance against pre-specified standard;
4. Implementation of changes to improve care if necessary; and
5. Data collection for a second, or subsequent, time to determine whether care has improved.

- Standard and target level performance

This is defined as, 'the percentage of events that should comply with the criterion.' Information about the levels of performance that can be achieved may be helpful when making plans for improvement. Target levels of performance should be examined periodically.

Standard has been defined as, 'the percentage of events that should comply with the criterion' in the interests of clarity.

- Benchmarking

Is the 'process of defining a level of care set as a goal to be attained' Benchmarking techniques could help participants in audit to avoid setting unnecessarily low or unrealistically high target levels of performance. Reference to the levels achieved in audits undertaken by other professionals is useful.

- Implementation of changes to improve care if necessary

Data analysis and interpretation will lead to the identification of clinical areas that should be addressed. There are many methods by which this can be done. The NICE review identified several audits in which change in care had occurred. Simple methods were occasionally effective, for example:

- Feedback of data collected;
- Provision of clear data, perhaps using modern information systems, supported by active teamwork;
- Support from the organization for teamwork; and
- Use of several methods together within the context of an implementation plan.

Change does not always occur in audit and consideration of the reasons for failure may take place after the second data collection. Resistance to change among local professionals or in the organisation environment of team should be considered.

Understanding Audit continued.....

Common reasons why audits fail

- Failure to participate and attitudes to audit

Involving all stakeholders (including service users) in the project can encourage participation. It is important to recognise the attitudes of those whose behaviour is being audited and to modify the audit process to accommodate these views.

- Failure to continue and complete audit cycle

This makes it impossible to determine whether the audit has led to any improvements in care.

- Failure to provide a supportive environment for audit

Perceived lack of support at all stages together with a range of structural and organizational problems, is associated with poor progress in conducting audit. Research has pointed to a theory-practice gap for clinicians carrying out audit, one solution being to change the organisational culture to one in which clinical audit is supported and actively encouraged.

- Lack of resources, especially time

This includes lack of protected time to investigate the audit topic, collect and analyse data, and the time to complete an audit cycle. It follows that audit should be recognised as an important part of clinical practice and those directly involved in audit need to be allocated protected time.

- Lack of training in audit methodology and evidence-based skills

Health professionals and audit support staff require adequate knowledge and skills for undertaking audit, and they should be keen to learn. Barriers identified in the literature include a lack of training in evidence-based audit skills and the failure to apply what has already been established.

- Cost

It must be recognised that audit requires appropriate funding and that improvements in care resulting from clinical audit can increase costs.

Images on Time

It is disappointing when images are not submitted on time as this impacts on the whole audit process and leads to:

- A slower process;
- Cost implications on license renewal fees; and
- Classification implications.

We acknowledge that the contact person for the centre

should not have to adopt the role of having to chase and harass individual operators for images. We suggest that operators be encouraged to collect twelve images throughout the year so that a selection of five images is available for the audit in April/May each year.

Congratulations!

We have seen an ongoing improvement in individual distribution, reflecting a big improvement in most operators' technical skill at performing the NT scan as well. The standard of images submitted has improved dramatically. In this June's audit, the vast majority of centres have an appropriate distribution.

Well done!

Resistance to Change

Unfortunately we have a small group of centres which have shown no improvement in their distribution over the last few years, despite feedback. Why is this?

When the NT scan was first performed in Australia, many of us tended to have low distribution and we said it was because Australian fetuses have thinner nuchal translucencies. We have however learnt to do it better. We modified our technique to obtain a distribution in keeping with the norm and realised that it was us (the operators) rather than our fetuses that were different. We invite those few centres that have resisted change and persistently had a 'low' distribution to modify their technique and join the rest of us in having a normal distribution.

Nasal Bone Update

The incorporation of first trimester nasal bone presence or absence into routine Australian practice is currently under evaluation. The initial study involved development of image assessment guidelines (on images of 400 fetuses from experienced, accredited operators). The second phase of the study is assessing 1500 fetuses to: **a)** determine the percentage of NB visualisation and; to: **b)** determine the impact of that Nasal Bone information on the screen positive rate. Data collection should be complete by the end of October with a report on the findings in the following edition of the NT newsletter.

2008 Courses

The first Nuchal Translucency Theoretical Course for 2008 will take place in Sydney on 27 March 2008 and will be held in conjunction with ASUM's Multidisciplinary Ultrasound Workshop. For further details or to register, please visit our website:

www.nuchaltrans.edu.au

Alternatively, you can visit ASUM's website at:

www.asum.com.au

Our Experiences with Nuchal Translucencies

I work in a practice with multiple sites including country practice. This meant we had a large number of people on our software license and many were struggling to pass our audit. We knew we had to improve and rapidly as to ensure we were providing a high quality service to our patients.

We decided to run a few educational nights to brush up on our knowledge. We peer reviewed our images to see where we could improve. We regularly check on our distributions to ensure we were not over or under measuring and utilised the knowledge of our senior sonographer who also worked in tertiary centres.

We have encouraged all our sonographers who are on our license to become fully credentialed.

With much guidance, patience and help from program staff and assessors feedback, we have now managed to improve our distributions and almost all our sonographers are passing the audits with flying colours.

Thanks to a lot of hard work and the program staff in Melbourne always responding quickly to all my emails offering encouragement and advice. We have turned over a new leaf.

Stephanie Martin (Weir), Pittwater Radiology, Dee Why

Down Syndrome OR Down's Syndrome?

There has always been differing opinion on the correct usage of the above condition's terminology.

Below is a link to an interesting piece by Tom Gally that explains the differences between the two spellings. It is dated August 2003 but still very relevant in 2007.

We recommend that when you have a spare moment to go online and have a read:

<http://www.gally.net/leavings/01/0106.html>

Down's Screening News Vignettes

ADAM-12

ADAM-12 is another syncytiotrophoblast protein that is produced in smaller amounts in trisomy 21 fetuses compared to euploid fetuses. Recent literature suggests that it is most efficient in very early pregnancy (seven-ten weeks) and may be used in conjunction with PAPP-A at eight-nine weeks to improve T21 detection (Laigaard, Prenatal Diagnosis 2006, 26, 973)

Markers for Adverse Pregnancy Outcomes

Doppler ultrasound of uterine artery impedance in the first trimester can be an early marker for pre-eclampsia and other adverse pregnancy outcomes. The same is true for low levels of PAPP-A or high levels of hCG. A recent study unfortunately shows no correlation between uterine artery RI or PI and serum levels of PAPP-A or hCG (Prefumo, Fertil Steril, 2006, 86, 977), thus not providing a model for better prediction of PE and poor pregnancy outcome.

Fetal Nasal Bone

Three recent papers show that fetal nasal bone lengths are shorter in Asian populations at all weeks of gestation (359 Japanese women [Kanagawa J Obstet Gyn Res 2006, 32, 403], 407 Thai women [Naraphut, J Med Assoc Thai 2006, 89, 911] and 3000 Korean women [Jung, Prenat Diag 2007, 27, 154]). It is unclear from these papers, mostly focusing on the second trimester, how this would affect NB presence/absence screening in the first trimester.

FMF Screening Angle

The use of fronto-maxillary facial (FMF) angle in screening for Down syndrome has been addressed in a recent paper (Sonek, AmJOG 2007). The theory is that trisomy 21 fetuses have a 'flat' profile due to a shorter maxilla, dorsal displacement of the maxilla and absent dentition. In a retrospective review of 3D volumes of 300 euploid and 100 trisomy 21 fetuses, lines were drawn one) along the superior edge of the bony structures that combine to form the hard palate and floor of the nasal cavity and two) from the front of the maxilla to the bony forehead. The resultant angle at the anterior aspect of the maxilla is measured and tends to be an obtuse angle (greater than 90 degrees) in T21 fetuses and an acute angle in euploid fetuses.

Licence Application Initiative

Details of a recent initiative titled, 'license application' can be found on the website at: http://www.nuchaltrans.edu.au/license_application.shtml

Before an operator can use the FMF software, they must be registered as an operator on the software. To do this, the operator must submit five recent images to the Nuchal Translucency Program with a cover letter requesting 'license application'. Operators at any stage of their training and experience can apply.

The operator is required to pass four out of five (4/5) images, thus achieving an overall pass mark of 80 per cent to be included on a centre license.

The operator is expected to have a commitment to becoming fully credentialed. A license may not be continued if there is no evidence that the operator is not completing the certification process.

The Price of Inaccuracy

A paper published in July of this year titled: *Nuchal Translucency Measurements for First-Trimester Screening: The 'Price' of Inaccuracy* by Mark I. Evans, Hilde Van Decruyes and Kypros H. Nicolaides looks at 'the impact of systematic under-measurement on abnormality detection.'

The below link will take you to an abstract from this important paper, outlining the objective, study design, results and conclusions found:

<http://content.karger.com/ProdukteDB/produkte.asp?Ak-tion=ShowAbstract&ArtikelNr=106342&Ausgabe=233677&ProduktNr=224239>

Policy Statements

2007 saw some major policy statements published by a number of Colleges and Societies. These include:

- The Human Genetics Society of Australasia in partnership with the Royal Australian and New Zealand College of Obstetricians and Gynaecologists (HGSA / RANZCOG)- <http://www.ranzcog.edu.au/publications/statements/C-obs4.pdf>
- The Society of Obstetricians and Gynaecologists of Canada (SGOC)- <http://sogc.medical.org/guidelines/documents/187E-CPG-February2007.pdf>
- The American College of Obstetricians and Gynaecologists (ACOG)- *Screening for Fetal Chromosomal Abnormalities*, *Obstet. Gynecol.*, Jan 2007; 109: 217 – 228.

These documents all state that the combined test as a screening tool for Down syndrome is recommended. The document developed by HGSA and RANZCOG is available on their websites.

Meet the Nuchal Translucency Program Team

Ann Robertson Program Manager

Ann has a background in nursing, midwifery and genetic counseling; she has been at the College since early 2001 when she was appointed to the position as Manager of the Nuchal Translucency– Ultrasound, Education and Monitoring Program. This involved the education and credentialing of operators and annual audit performance of the NT scan in Australia. Prior to this the annual audit had been performed by the FMF (Fetal Medicine Foundation) in the UK. Ann is now the Manager of Women’s Health Services at RANZCOG.

Jordan Chrisp Project Coordinator

Prior to joining the College in April 2006, Jordan completed a degree in Sociology and worked in the Project Management Team at the Ministry of Health in Wellington, New Zealand. At the College, she has worked in a few areas, including the Fetal Surveillance Education Program and the Assessment Services Team. Her current role sees her responsible for the implementation of the Nuchal Translucency Program’s 11-14 week theoretical course in to the Nuchal Translucency Online Education Program (NTOLP).

Lai Yue Aitken Program Assistant

Lai Yue joined the College in December 2005. She holds a degree in Economics and worked for a number of years in Asia after university. Her background is in Information Technology where she has worked in aviation, the arts and the community services sectors. At the College, she is responsible for maintaining various databases that tracks the nuchal translucency credentialling process for operators, licenses for centres that use the FMF software and biannual audits.



Left-right: Jordan Chrisp, Lai Yue Aitken and Ann Robertson.

NEXT EDITION:

We will be published bi-annually so look out for us around May/June 2008 when we bring you the next edition of *The Nuchal Translucency Ultrasound, Education & Monitoring Program-Newsletter*.



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NUCHAL TRANSLUCENCY

ULTRASOUND, EDUCATION & MONITORING PROGRAM



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<http://www.ranzcog.edu.au>

NUCHAL TRANSLUCENCY PROJECT OFFICE

Nuchal Translucency Ultrasound, Education & Monitoring Program

College House
254-260 Albert St
East Melbourne
Vic 3002

This newsletter is intended to provide centres and operators with news and information on what's happening in Nuchal Translucency around Australia.

Your contribution is welcomed!

Please contact Jordan Chrisp (details below) if you would like to submit an article for the next newsletter.

We're on the web!
www.nuchaltrans.edu.au

Ann Robertson

Program Manager

(t) +61 3 9412 2939

(f) +61 3 9417 7795

(e) arobertson@ranzcog.edu.au

Jordan Chrisp

Project Coordinator

(t) +61 3 9412 2978

(f) +61 3 9417 7795

(e) jchrisp@ranzcog.edu.au

Lai Yue Aitken

Program Administrative Assistant

(t) +61 3 9412 2938

(f) +61 3 9417 7795

(e) laitken@ranzcog.edu.au

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2. Dr Deborah L. Nisbet FRANZCOG, COGU

The Nuchal Translucency Team would like to thank you very much for your input.