

First Trimester Screening NT Provider Progress Report 8

01/02/09

Dear Colleague,

Your NT Provider Code is

You are receiving this progress report on behalf of your practice. Please review and discuss with your group. Results are confidential with each group having their own code. To maintain confidentiality, codes may vary from previous reports. If you wish to nominate another individual from within your organisation or you have received this report in error please let us know. Code 30 is a collective group for those NT providers with too few measurements to be displayed individually.

South Australian Maternal Serum Antenatal Screening (SAMSAS) Program
Department of Genetics and Molecular Pathology, WCH site
4th Floor Rogerson
72 King William Road
North Adelaide SA 5006
T 08 8161 7285
F 08 8161 8085
samsas.program@health.sa.gov.au
www.wch.sa.gov.au/samsas.html

Nuchal Translucency Measurements

Enclosed are graphical representations of nuchal translucency (NT) measurements submitted to the SAMSAS program from South Australia, Tasmania and Northern Territory, for the 2008 Calendar year during which 15,560 valid combined risk assessments were issued.

See **Appendix A** for information on gestation, box plots and multiples of the population median (MoM).

Figure 1 shows the NT MoM distributions for each NT provider. From this display one is able to compare measurements between groups. Ideally, for each group, the median measurement should be 1 MoM with 50% of measurements falling between 0.8 and 1.2 MoM.

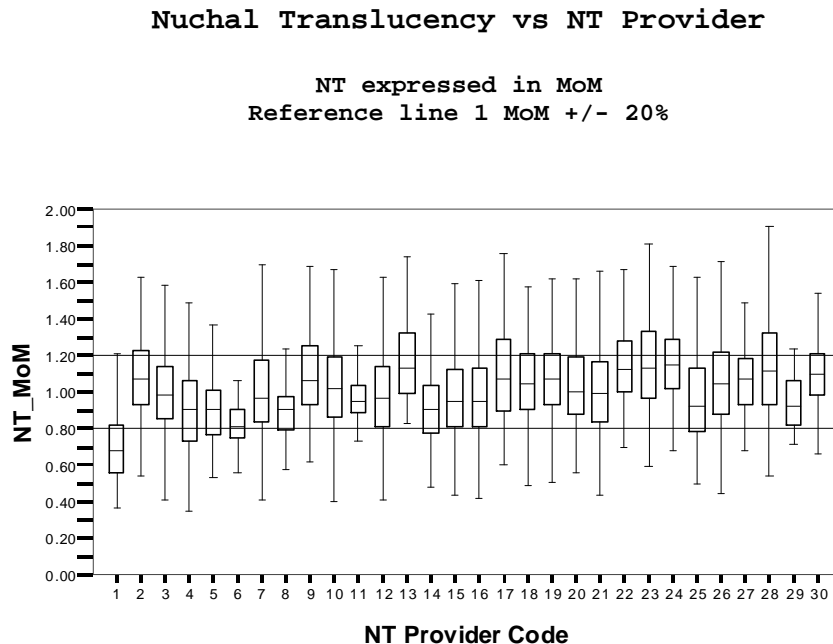


Figure 1

Table 1 below shows the number of NT measurements performed by each group.

| NT Provider | Number of Measurements | NT Provider | Number of Measurements |
|-------------|------------------------|-------------|------------------------|
| 1 | 72 | 16 | 650 |
| 2 | 240 | 17 | 187 |
| 3 | 3948 | 18 | 65 |
| 4 | 94 | 19 | 345 |
| 5 | 83 | 20 | 255 |
| 6 | 74 | 21 | 538 |
| 7 | 300 | 22 | 337 |
| 8 | 51 | 23 | 274 |
| 9 | 286 | 24 | 1996 |
| 10 | 2097 | 25 | 160 |
| 11 | 36 | 26 | 246 |
| 12 | 1367 | 27 | 127 |
| 13 | 42 | 28 | 738 |
| 14 | 204 | 29 | 35 |
| 15 | 672 | 30 | 41 |
| | | Total | 15,560 |

With the exception of NT provider **1** all other NT providers have acceptable distributions however group **6** is trending towards lower measurements. **NT provider 1 should review their measuring practices as 69% of their measurements lie below 0.8 MoM.** Lower than average measurements will result in an underestimate of risk.

Guidelines developed by the Human Genetics Society of Australasia (HGSA) and the Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG) state that nuchal scans should be performed by accredited sonographers. In order to provide a program of high quality, it is imperative that all NT providers follow the same measurement technique. The recommended method is taught by the RANZCOG run NT Ultrasound, Education & Monitoring Program and is discussed under “Newsletters” in their website, www.nuchaltrans.edu.au . This site contains information on training and accreditation programs, all provider groups are encouraged to have registered sonographers and radiologists. In addition to accreditation and SAMSAS progress reports, quality assurance procedures or systematic reviews within each practice are strongly recommended.

Caution needs to be applied when making inferences about the quality of NT measurements, as ascertainment bias may result from either too few measurements or from screening practices which may pre-select pregnancies for screening based on either high or low NT measurements (which is not recommended practice). It is however correct to say that **accreditation and strict adherence to the recommended method of measurement will minimise variability, lead to tighter population distributions and assist in maintaining program performance.** This point can not be stressed strongly enough.

Figure 2 shows the NT MoM distribution for all NT providers combined. It represents the overall population distribution of NT measurements and is a graphical representation of data in Table 2. We aim to keep the box between 1 MoM +/- 20%.

Nuchal Translucency Distribution all Providers

NT expressed in MoM

Reference line 1 MoM +/- 20%

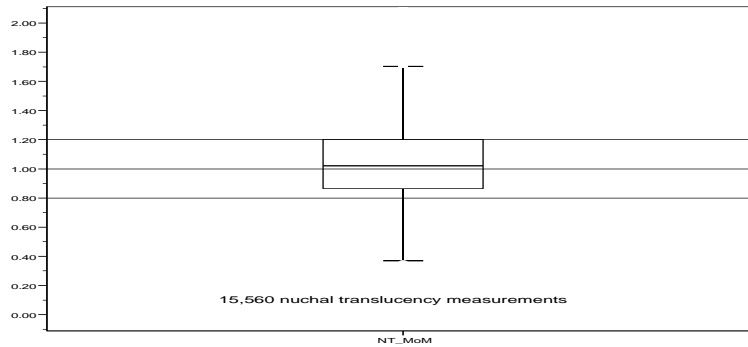


Figure 2

Table 2 shows summary data of NT MoM's for seven NT progress reports. The data shows that 50% of all results or the box lies between 1 MoM +/- 20%. The box distribution also shows slight skewness away from the 0.8 MoM reference line. The stability displayed supports current practices and the continued use of NT in the screening program.

Table 2

| | Report 1 Dec'01 | Report 2 May'03 | Report 3 April'04 | Report 4 April'05 | Report 5 Jan'06 | Report 6 Feb'07 | Report 7 Jan'08 | Report 8 Jan'09 |
|----------------------------------|--------------------|--------------------|----------------------|----------------------|--------------------|--------------------|--------------------|--------------------|
| Number of NT Provider Groups | 8 | 12 | 17 | 17 | 19 | 23 | 27 | 30 |
| Number of NT measurements | 1,845 | 2,465 | 8,198 | 8,727 | 10,832 | 12,516 | 14,281 | 15,560 |
| Percentile | MoM | MoM | MoM | MoM | MoM | MoM | MoM | MoM |
| 5 th | 0.6 | 0.59 | 0.61 | 0.62 | 0.64 | 0.66 | 0.69 | 0.68 |
| 25 th | 0.82 | 0.82 | 0.83 | 0.83 | 0.85 | 0.86 | 0.88 | 0.86 |
| 50th or Median | 0.99 | 1.0 | 1.01 | 1.00 | 1.03 | 1.0 | 1.02 | 1.02 |
| 75 th | 1.19 | 1.22 | 1.21 | 1.20 | 1.23 | 1.17 | 1.20 | 1.20 |
| 95 th | 1.62 | 1.63 | 1.63 | 1.60 | 1.62 | 1.55 | 1.57 | 1.55 |
| Interquartile Range (IQR) | 0.37 | 0.4 | 0.38 | 0.37 | 0.38 | 0.31 | 0.32 | 0.34 |

For the 15,560 screens performed the median maternal age at delivery was 31.06 years, the median gestation for blood samples was 12wks 2 days and 12wks 4 days for the nuchal translucency scans. Blood samples and nuchal translucency scans can be done on different days refer to point 2 of Appendix A.

First Trimester Combined Screening Strategy Performance

Performance data was published comparing 1st trimester, 2nd trimester and integrated screening modalities. The details for the paper are as follows;

Combining first and second trimester markers for Down syndrome screening: Think twice

Robert Cocciolone, Kate Brameld, Peter O'Leary, Eric Haan, Peter Muller, Karen Shand *Aust N Z J Obstet Gynaecol 2008; 48: 492-500*

The definitive version of this paper is available at www.blackwell-synergy.com;
<http://www3.interscience.wiley.com/cgi-bin/fulltext/121476797/PDFSTART>

The link to paper can be accessed from *Publications* on our website www.wch.sa.gov.au/samsas.html

We make the point in the paper that integrated screening is not yet suitable as the primary population screening modality and 1st trimester combined screening is still the strategy of choice. We do acknowledge however that there may be a role for integrated risk assessments in certain cases.

Summary

- NT provider group1 should review their measuring practices as 69% of their measurements lie below 0.8 MoM.
- In accordance with joint HGSA/RANZCOG guidelines NT providers should have accredited sonographers to maintain the standard in this service.
- From a population screening perspective, the spread and stability of NT measurements continues to be acceptable.
- The combined screening strategy performance continues to be high and is the strategy of choice when screening for Down syndrome.

In 2008 SAMSAS initiated a notification fax to the nominated imaging practice asking for a nuchal report to be sent. Can groups use these faxes to manage report sending to SAMSAS, this does not apply to OACIS users as SAMSAS has direct access.

We are able to receive ultrasound reports electronically so please contact Promedicus on 03 9426 9988, E-clinic on 1300 669 961 or Health Link on 1800 125 036 for assistance.

The data presented and the performances quoted in this report are those of the SAMSAS program and do not apply to other software or testing centres.

Progress reports are available on line, www.wch.sa.gov.au/samsas.html

I would like to thank all participants within the SAMSAS program network for their co-operation throughout the year.

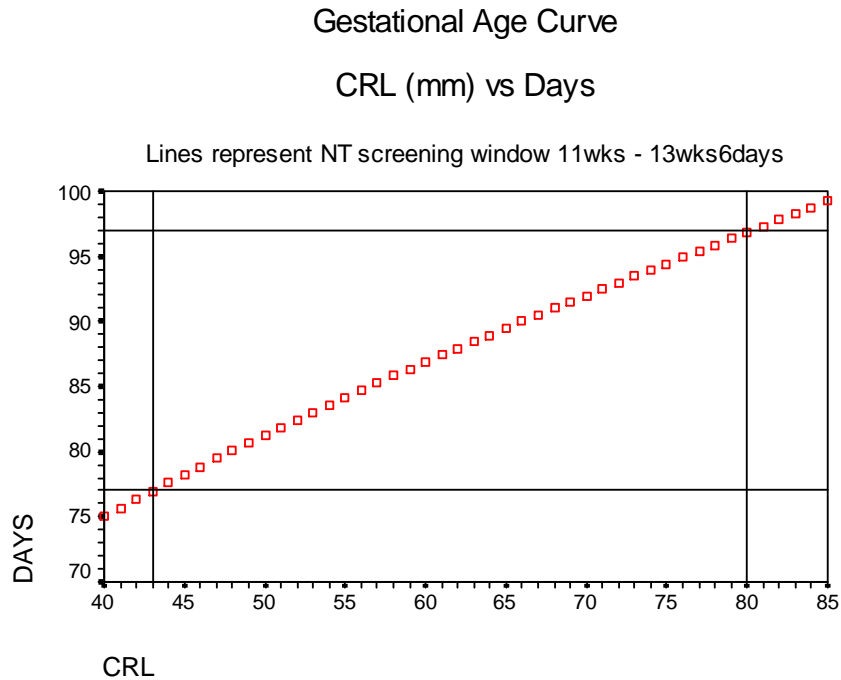
Yours sincerely,



Robert Cocciolone, BAppSc, Med Lab Sc, Head, Antenatal Screening (SAMSAS) Program

Appendix A

1. SAMSAS uses crown rump length (CRL) at the time of the nuchal translucency (NT) scan to estimate gestation. From our curve shown below, (based on ASUM standards), a CRL of 43 mm corresponds to 11 wks 0 days with 81 mm being 13wks 6 days. If, when measuring the NT, the fetal position and image is optimal but the CRL is a few mm outside the above range, still measure and report the NT; chances are the blood sample is within the acceptable gestational age window. If in doubt please call us on 08 8161 7285. Our staff and SAMSAS software are primed to pick up discrepancies in submitted gestational age information; corrections are initiated before risk calculations.



2. 1st trimester blood samples are accepted from 10wks to 13wks 6 days; they DO NOT have to be collected on the same day as the nuchal scan. Any gestational age variations for blood samples will be automatically corrected back to the collection date once the NT report is received. The optimal time for the blood sample is 10-12 wks.
3. Most data presented in this report are in the form of Box Plots. The Box includes the 25th to the 75th percentiles (or the Interquartile range, IQR), with the median (or 50th percentile) being the line in the box. 50% of cases fall within the Box. The tails or whiskers at either end of the box display the smallest and largest observed values that are not outliers. From the length of the box you can determine the spread or variability of your measurements. If the Median value is not in the centre of the box, then your measurements are skewed. The number of measurements performed by each group is shown in Table 1.
4. Representing the NT measurements in multiples of the population median (MoM), eliminates variability from differences in gestational age. For example, 1 MoM at 11 weeks is directly comparable to 1 MoM at 12 weeks etc, whereas the respective measurements in mm would be different.