South Australian Maternal Serum Antenatal Screening (SAMSAS)© Program

Department of Genetic Medicine
4th floor Rogerson Building
Women's and Children's Hospital
NORTH ADELAIDE SA 5006

Phone (08) 8161 7285
Fax (08) 8161 8085
E-mail cywhs.samsas@cywhs.sa.gov.au
www.wch.sa.gov.au/samsas.html

First Trimester Screening NT Provider Progress Report 7

01/02/08

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 and each group has their own code. To maintain confidentiality, codes may vary from previous reports. If you wish to nominate another individual from within your organisation to receive these reports please let us know.
Code 30 is a collective group for those NT providers with too few measurements to be displayed individually.

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 2007 Calendar year during which 14,281 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.

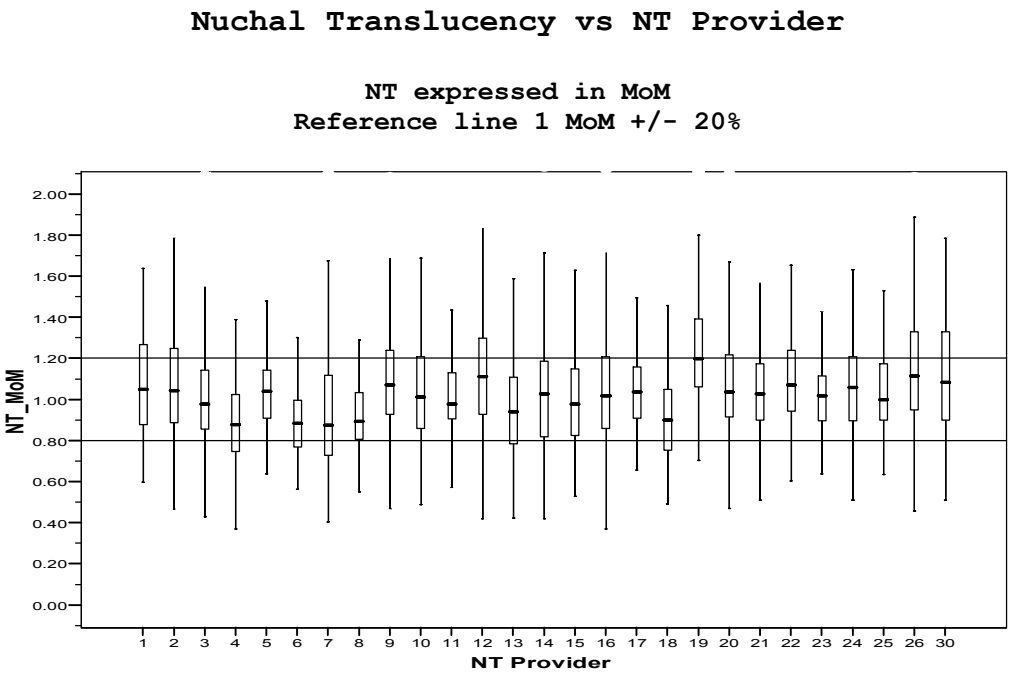


Figure 1

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

NT Provider	Number of Measurements		NT Provider	Number of Measurements
1	29		15	122
2	270		16	316
3	3775		17	277
4	75		18	108
5	89		19	193
6	96		20	585
7	266		21	1735
8	44		22	153
9	2010		23	51
10	1227		24	309
11	175		25	79
12	622		26	373
13	986		30	72
14	244		Total	14281

All NT providers have acceptable distributions; however group 19 are trending towards higher measurements. Higher than average measurements will result in an over estimate 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. In addition to accredited sonographers and SAMSAS progress reports, quality assurance procedures 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 preselect pregnancies for screening based on either high or low NT measurements (which is not recommended practice). It is however correct to say that 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%.

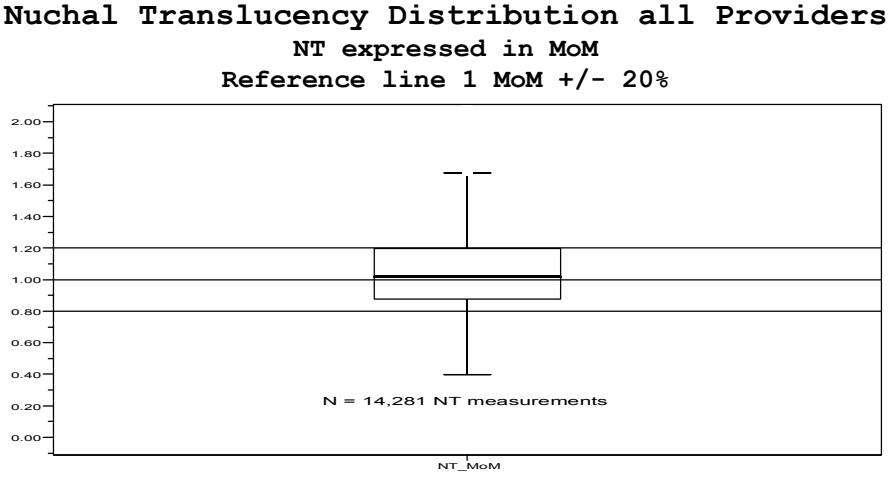


Figure 2

Table 2 shows summary data of NT MoM's for seven NT progress reports. The data shows an improved IQR for reports 6 and 7, suggesting less variability in measurements. The distribution is however slightly skewed below the median as shown by the 5th and 25th percentiles. This will be addressed by SAMSAS through a review of medians. 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
Number of NT Provider Groups	8	12	17	17	19	23	27
Number of NT measurements	1,845	2,465	8,198	8,727	10,832	12,516	14,281
Percentile	**MoM**	**MoM**	**MoM**	**MoM**	**MoM**	**MoM**	**MoM**
5th	0.6	0.59	0.61	0.62	0.64	0.66	0.69
25th	0.82	0.82	0.83	0.83	0.85	0.86	0.88
50th or Median	**0.99**	**1.0**	**1.01**	**1.00**	**1.03**	**1.0**	**1.02**
75th	1.19	1.22	1.21	1.20	1.23	1.17	1.20
95th	1.62	1.63	1.63	1.60	1.62	1.55	1.57
Interquartile Range (IQR)	**0.37**	**0.4**	**0.38**	**0.37**	**0.38**	**0.31**	**0.32**

For the 14,281 screens performed the median maternal age at delivery remained at 31.3yrs, the median gestation for blood samples at 12wks 3 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

In 2007, 74.7% of all requests submitted to the SAMSAS program from South Australia, Tasmania and the Northern Territory were for first trimester screening.

Audits for 2006 for the SA population continue to demonstrate improved performance of 1st trimester combined screening over the 2nd trimester screen. The comparative figures are as follows:

- First trimester screening. The median age of mothers screened in 1st trimester was 31.3 years. 4.3% were given an "at increased risk report" for Down syndrome. There were 34 cases of Down syndrome in this 1st trimester audited population and 32 of the 34 affected pregnancies were detected, resulting in a 94.1% detection rate.

- Second trimester screening. The median age of mothers screened in second trimester was 30.0 years. 7.0% were given an "at increased risk report" for Down syndrome. There were 7 cases of Down syndrome within the audited 2nd trimester population and 5 of the 7 affected pregnancies were detected, resulting in a 71.4% detection rate.

- Two reviews were undertaken in 2006. The first, a review of Down syndrome screening, has been published in the AJOG. The second, a review of screening for neural tube defects, was presented at the 27th Annual Clinical Meeting of the Society of Maternal-Fetal Medicine held in San Francisco, February 2007. A summary of these reviews is presented in Update 13 which can be accessed from our website www.wch.sa.gov.au/samsas.html .

Summary

- 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.

SAMSAS is able to receive ultrasound reports electronically through Promedicus, E-clinic and Health Link. Submitting reports electronically will assist in minimising delays with reporting.

Could all groups review their practice of providing timely reports to SAMSAS; this does not apply to OACIS users as SAMSAS has direct access.

Please contact Promedicus on 03 9426 9988, E-clinic on 1300 669 961 or Health Link on 1800 125 036 for assistance.

South Australia is in a unique position of offering centralised services for both maternal serum screening and cytogenetics. This results in effective program management and evaluation. I would like to thank all participants within this service network.

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.

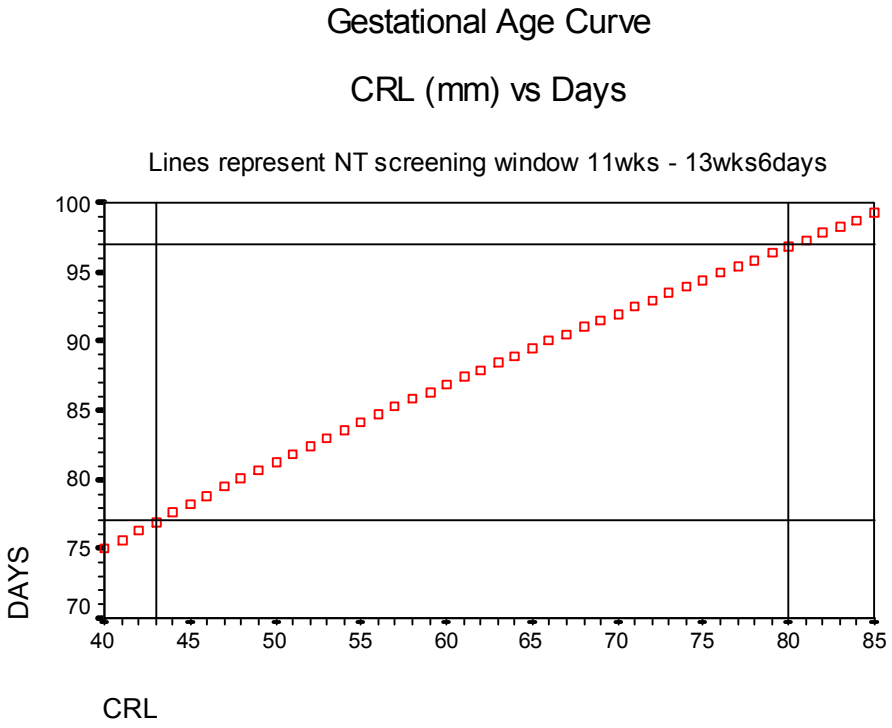
Progress reports are available on line, www.wch.sa.gov.au/samsas.html

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.