SOUTH AUSTRALIAN & TASMANIAN MATERNAL SERUM ANTENATAL SCREENING PROGRAM©

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First Trimester Screening NT Provider Progress Report 3

01/04/04

Dear Colleague,

Your NT Provider Code is _____.

You have been chosen from your practice to receive this progress report. Please review and discuss with your group. Results are confidential and coded so that only you know your code. To maintain confidentiality your code may change on any subsequent reports. If you wish to nominate another individual from within your organisation to receive these reports please let us know. Code 20 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 period January 2003 to February 2004 during which 8198 valid combined risk assessments were issued.

The SAMSAS software uses the ASUM standard as published in the Aust. NZ J. Obst.Gynae. Aug. 2000 Vol 40 No.3 for the calculation of gestational age (days) from the crown rump length (CRL). From this paper, SAMSAS uses a smoothed curve fit, which accounts for slight discrepancies in gestational age if simply using a table. SAMSAS software is designed to detect discrepancies in submitted gestational age information; consequently corrections are initiated before risk calculations. Figure 1 shows the smoothed curve as used by SAMSAS for converting CRL (mm) measurements to a gestation.

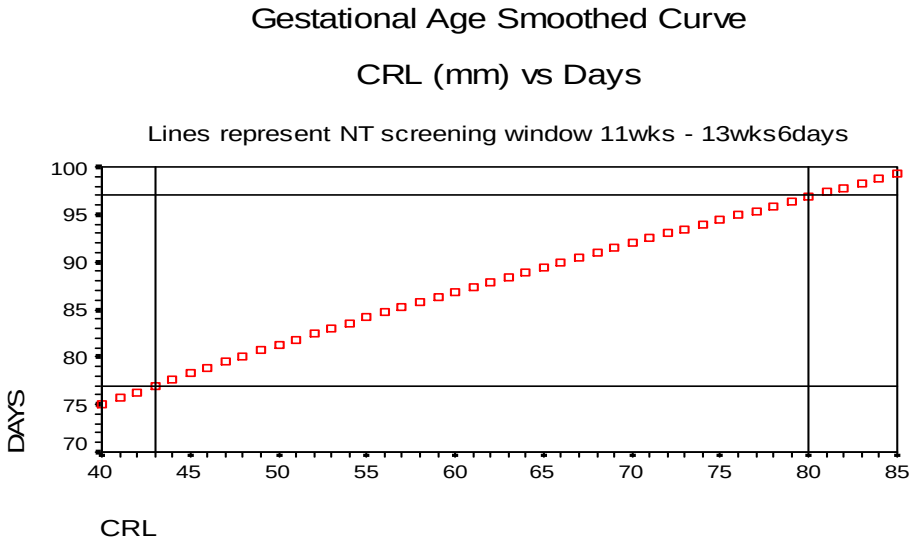

Figure 1

Most data presented in this report is in the form of a Box Plot. A number N= is displayed on the X axis, this represents the number of measurements displayed in the box plot for the respective group. The Box Plot provides summary statistics visually, eliminating the need for detailed statistical knowledge. 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.

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.

Figure 2 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 the box distribution being tight around 1 MoM.

Those groups deviating from the reference line are advised to review their measuring technique.

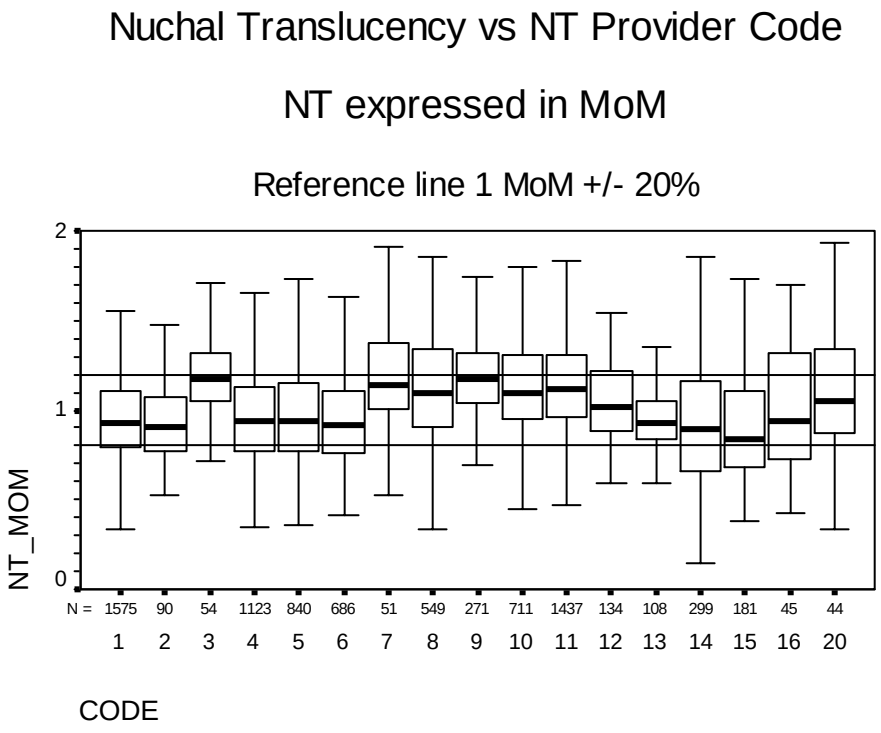

Figure 2

It is imperative that all NT providers follow the same measurement technique. The recommended method is taught by the 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.

Caution needs to be applied when making inference on the quality of NT measurements as ascertainment bias may result from either too few measurements or from screening practices which may preselect screened pregnancies based on either high or low NT measurements. 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 3 shows the NT MoM distribution for all NT providers combined. It represents the population distribution of NT measurements in the screened population.

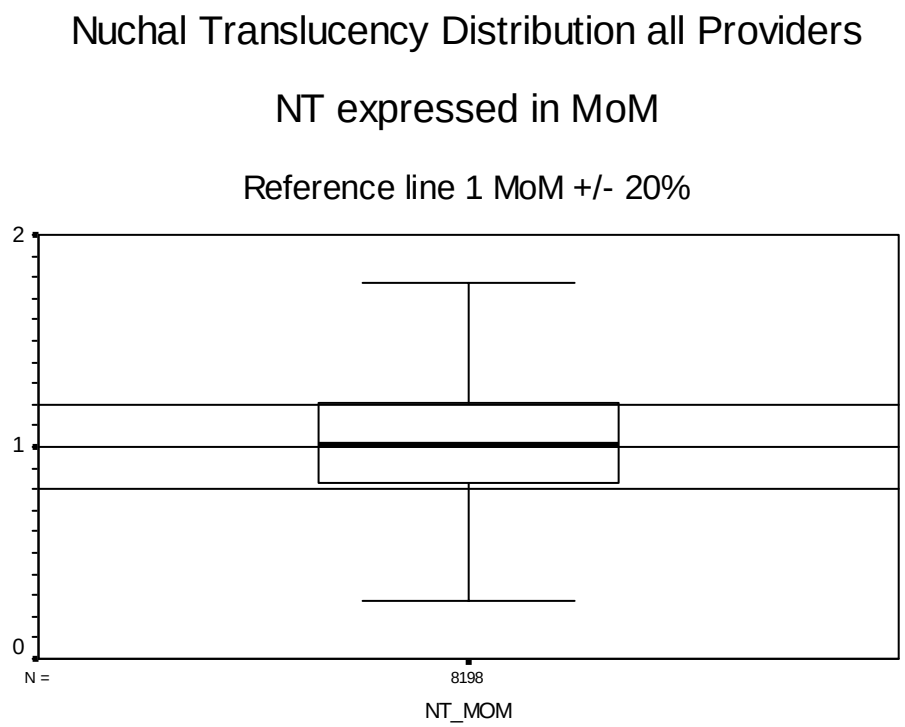

Figure 3

Table 1 shows summary data of NT MoM's for three NT progress reports. The data suggests stability in the NT distribution. This is pleasing as the number of NT provider groups has increased with each progress report from 8 to 12 to 17. The stability displayed supports current practices and the continued use of NT in the screening program, this is further evidenced by 2002 audit data, page 4.

Table 1

	Report 1 Dec'01	Report 2 May'03	Report 3 April'04
Number of NT measurements	1,845	2,465	8,198
Percentile	**MoM**	**MoM**	**MoM**
5th	0.6	0.59	0.61
25th	0.82	0.82	0.83
50th or Median	**0.99**	**1.0**	**1.01**
75th	1.19	1.22	1.21
95th	1.62	1.63	1.63
Interquartile Range (IQR)	**0.37**	**0.4**	**0.38**

Figures 4 & 5 show gestational age distributions. The median time for an NT measurement was again 87 days or 12wks and 3 days, the box distribution also stable with the IQR being 12wks to 13wks, figure 5. SAMSAS would like to encourage more bookings between 11 and 12 weeks, blood samples are accepted from 10 weeks and need not be done on the same day as the NT scan, as the GA for the bloods will be automatically corrected once the NT report is received.

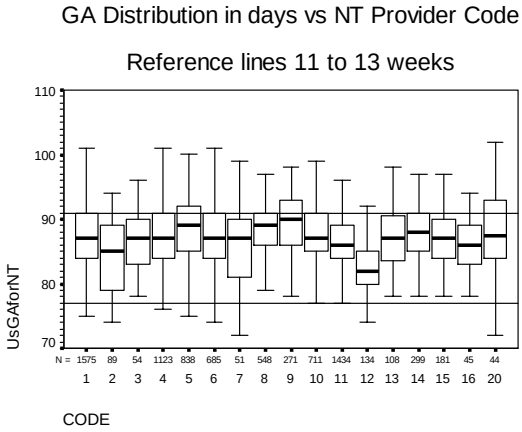

Figure 4

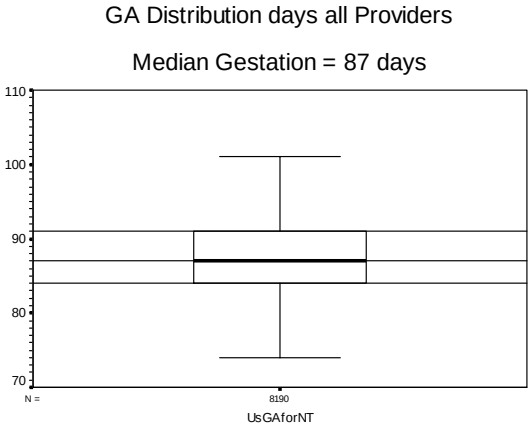

Figure 5

First Trimester Combined Screening Strategy Performance

A review of data for 2002 shows that SAMSAS performance continues to be high. The median age of mothers screened in 2002 was 31.4 yrs, 6.0% were given an "at increased risk report" for Down syndrome. **There were 18 cases of Down syndrome within the SA population, 16 of the 18 affected pregnancies were detected by SAMSAS, resulting in an 88.9% detection rate.** A risk of 1:300 or greater was used to classify pregnancies at increased risk.

Figure 6 shows the distribution of each marker in the 18 affected cases with Down syndrome.

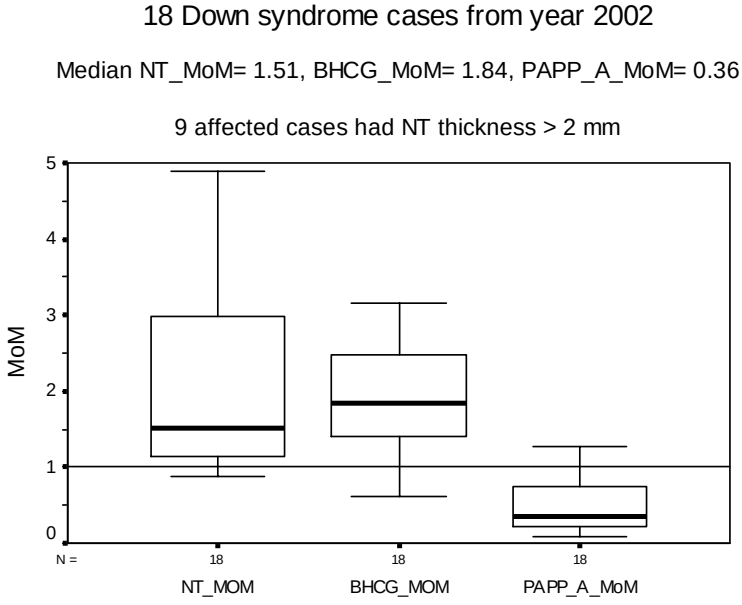

Figure 6

Marker Distributions

Figure 7 displays all three marker distributions in the screened population under review. The distributions observed are as expected, with the NT having the least spread. A key point to note from the display is all three markers have median MoM values close to one. **These data along with audit figures are reassuring as they suggest acceptable imprecision in the measurement of all three markers, validates median values used and the management strategy employed by SAMSAS.**

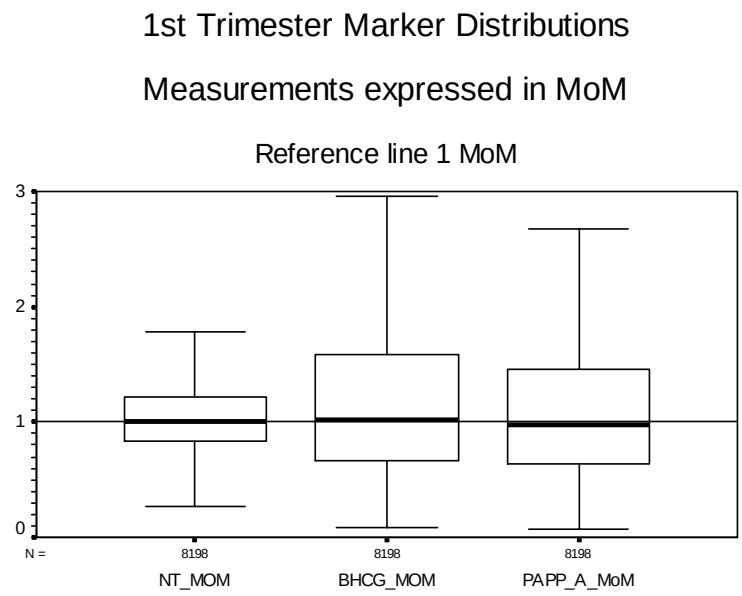

Figure 7

Summary

- From a population screening perspective the spread and stability of NT measurements continues to be acceptable.
- Individual groups deviating from the reference line are advised to review their measuring technique.
- The combined screening strategy performance continues to be high, detecting 16 of the 18 affected pregnancies with Down syndrome.
- Comparative marker distribution plots show stability in the measurement of all three markers and validates median values used.

In order to avoid delays in risk reporting, all imaging groups (with the exception of OACIS users) are asked to e-mail or fax copies of NT reports to SAMSAS without delay. If your practice uses Promedicus software please send reports under Dr A SAMSAS or Dr SAMSAS using the e-mail address samsas@promedicus.net . Please contact Promedicus on 03 9426 9988 if assistance is required.

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.

Yours sincerely,

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