

# SOUTH AUSTRALIAN & TASMANIAN MATERNAL SERUM ANTENATAL SCREENING PROGRAMME®

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## First Trimester Screening Progress Report

14/12/01

Dear Colleague,

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 me know. If you have received a report without a code for your practice its because the number of submitted measurements were too few.

### Nuchal Translucency Measurements

Enclosed is a graphical representation of nuchal translucency (NT) measurements submitted to the SAMSAS programme from both South Australia and Tasmania. This data only includes those measurements where the NT measurement was performed between 11 weeks and 13 weeks 6 days. 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 from the crown rump length. Our software is designed to detect discrepancies in submitted gestational age information; consequently we have initiated several corrections. Records have not been kept of these cases however there has been a mix of typographical errors largely to do with the units reported and cases where the wrong charts or programmed equations had been used for the conversion of CRL to gestational age. The good news is that these errors appear to be diminishing as imaging groups review internal procedures. As we are promoting a combined risk it would be appreciated if the NT reports did not make reference to "Risk", but simply stated that the NT measurement was being forwarded to the SAMSAS programme, for incorporation into a single combined risk along with the biochemistry. Reference to normal limits for the NT measurement would however be acceptable and should not cause confusion.

For those who are not familiar with the Box Plot, it provides summary statistics visually, eliminating the need for detailed statistical knowledge. The Box displays the 25<sup>th</sup> percentile, the Median and the 75<sup>th</sup> percentile, 50% of cases measured fall within the Box. The tails or whiskers at either end of the box display the smallest and largest observed values that aren't 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 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.

From the MoM box plot, Diagram 1, it can be seen that providers 1,5 and 6 are reading on average 20% lower for their NT when compared to the others. This same trend is repeated in Diagram 2, the box plot displaying actual NT measurements in mm. Two of the three providers are FMF accredited for NT measurements.

The third box plot Diagram 3, shows the range of gestational ages (GA) returned by each provider. The median GA was within a day (87 & 88) across all providers.

## First Trimester Combined Screening Strategy Performance

Our expectations from first trimester screening was to have a performance that was at least as effective or better than second trimester screening with significant benefits to the patient. Two objective markers which can be used to measure effectiveness are recall and detection rates expressed as a % of the population screened. Recall rate is simply the number of pregnancies screened at increased risk of Down syndrome. The detection rate is the number of affected pregnancies screened at increased risk relative to the number of affected pregnancies in the screened population.

Table 1 compares first trimester screening performance to second trimester, which is divided into 5year blocks to highlight trends.

Table 1:

	Detection Rate	Recall Rate	% of Women ≥ 35yrs	Primigravida ≥ 30 yrs	Median Maternal Age at Delivery
<b>2<sup>nd</sup> Trimester</b>					
1991 - 1995	63.0%	4.9%	<9%	<20%	28 yrs
1996 - 2000	76.7%	6.6%	>15%	>30%	30 yrs
<b>1<sup>st</sup> Trimester</b>					
N=1,793	100%	6.5%	>30%		32.5yrs

From Table 1 it can be seen from the second trimester data that the age of the screened population has become significantly older, the recall rate has increased and the detection rate has increased. If we look at the first trimester data to date the most satisfying trend is not the 100% detection but the relatively low recall rate considering this is a much older group. For an equivalent group in second trimester the recall rate would be a double-digit figure.

Table 2 shows the cases found from 1,793 first trimester risks issued.

Table 2:		
Outcome	Number	Prevalence
Twins	7	1:256
Failed/Non Viable	15	1:120
Trisomy 21	5	1:359
Other Aneuploidies	5	1:359
Anencephaly	2	1:897

Table 3 shows how the Trisomy 21 and other Aneuploidies were screened.

Table3:		
Outcome	Detected	Significant Marker
Trisomy 15	1/1 as ↑T-21 risk	↑ NT
Trisomy 18	2/2 as ↑T-21 risk	2x ↑NT & ↓PappA
Translocation 13/17	1/1 as ↑T-21 risk	↑ NT
Triploidy	1/1 as non viable	NT ok but ↓↓PappA
Trisomy 21	*5/5 as ↑T-21 risk	*NT ok but ↑↑ biochemistry

\*(3 combined risks only, NT measurements could not be obtained on the other two.)

Table 4 shows the odds of an adverse outcome following an increased risk report.

Table 4:	
Screen	Odds
2 <sup>nd</sup> Trimester Raised AFP	1 : 8
2 <sup>nd</sup> Trimester Raised Down syndrome Risk	1 : 30
1 <sup>st</sup> Trimester Raised Down syndrome Risk	1 : 12

## Summary

- Indicators from data collated to date suggest that the first trimester combined screening strategy is working well.
- NT providers need to review internal procedures for consistent reporting of CRL and NT measurements in **mm**.
- NT providers returning lower NT measurements should look for possible reasons and take corrective action.

Progress reports of this nature (but perhaps not quite so long) will be attempted quarterly. It is hoped that this feedback will be an aid to maintaining standards and address any local issues that may affect programme performance.

I would like to personally thank all the NT providers for the manner in which they have cooperated with the SAMSAS group and the special efforts made by several individuals to ensure first trimester screening got off to a good start.

Yours sincerely,

Robert Cocciolone, BAppSc  
 On behalf of the South Australian/Tasmanian Maternal Serum Antenatal Screening  
 (SAMSAS/TAMSAS) Programme.

## Nuchal Translucency vs NT provider

### NT Expressed in MoM

Reference line 1 MoM +/- 20%

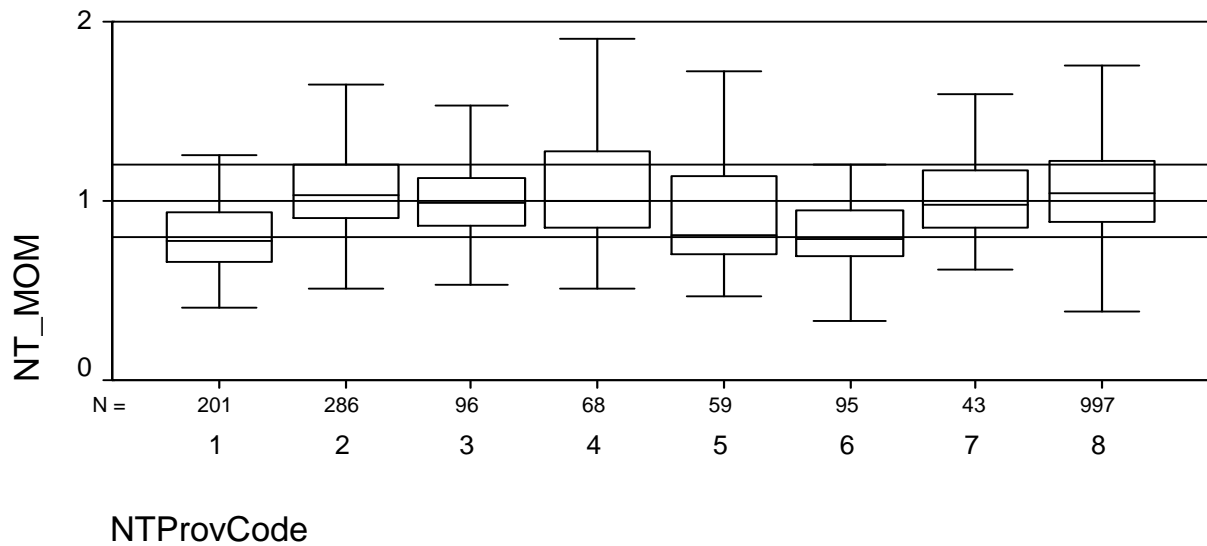


Diagram 1

## Nuchal Translucency vs NT provider

### NT Expressed in mm

Reference line 1, 1.5 & 2 mm

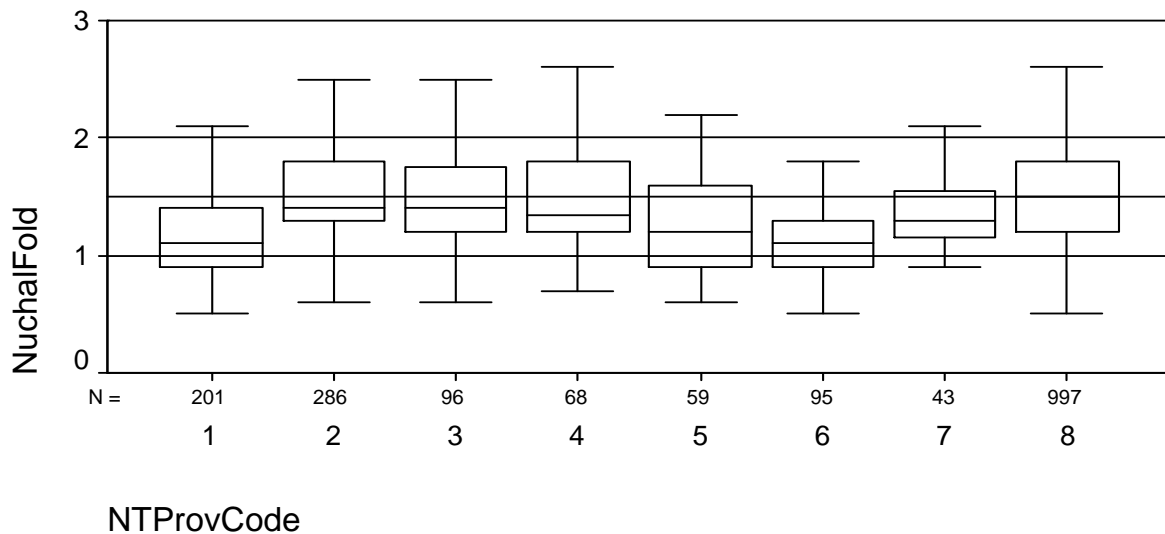


Diagram 2

# Gestational Age in Days vs NT Provider

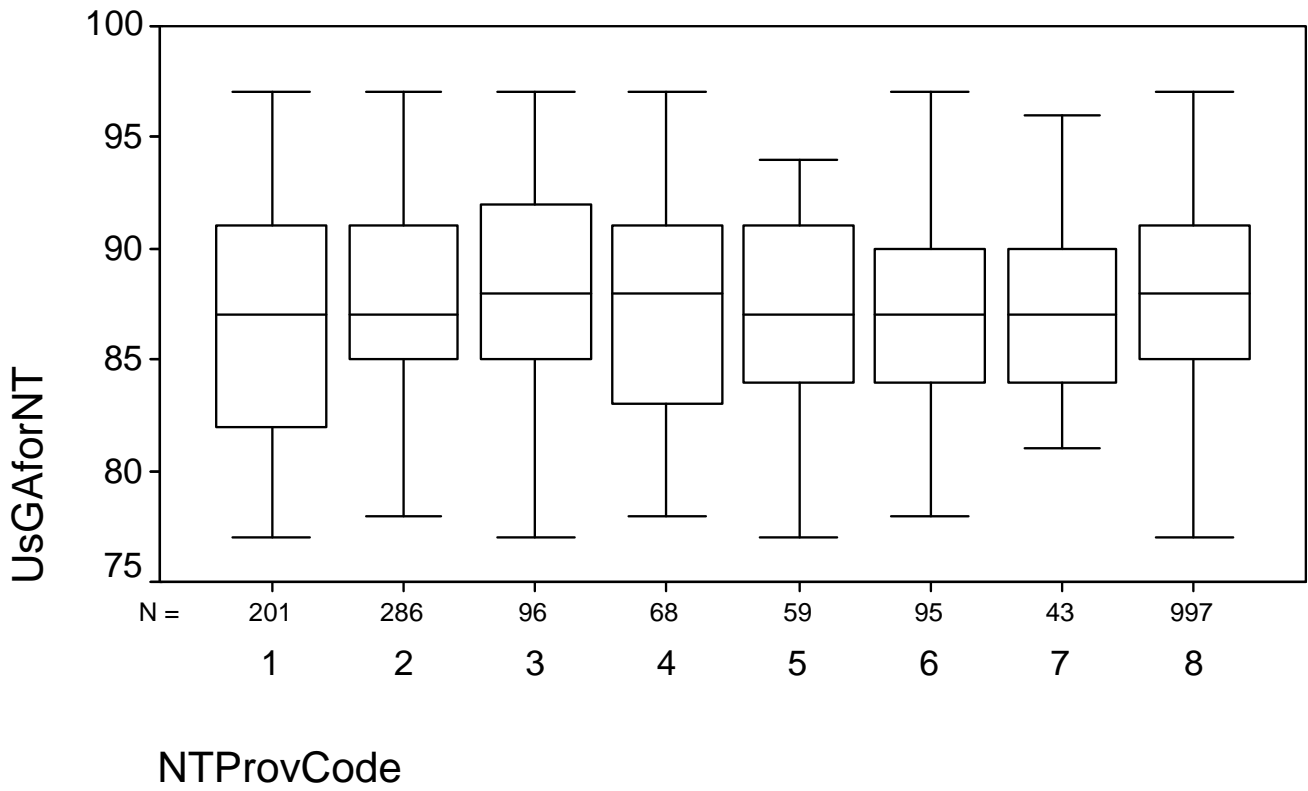


Diagram 3