

Nuchal Translucency Measurements and Quality Assurance Report

This document should provide some further information with respect to the Nuchal Translucency (NT) performance report generated from the BORN information system.

Each prenatal screening record in the province is uploaded to the BORN Information System (BIS) on a weekly basis. Therefore, every NT measurement that has been submitted for the purposes of prenatal screening is included in that data set. With this information, BORN is able to plot any sonographer's NT measurements against the CRL, and compare the data set with a recognised standard, the Fetal Medicine Foundation (FMF) curve.

Along with the visual graph, each set of data points is accompanied by additional calculated measures, including bias, spread and trend, as defined below:

Bias

We look at the difference between observed NT measurements and those we would expect from the FMF curve. For example, the expected NT for a CRL of 60mm is 1.65mm. For example, if a patient with a CRL of 60mm has an NT of 2mm, the difference is

$$2\text{mm} - 1.65\text{mm} = 0.35\text{mm}$$

or if the measured NT is 1mm, the difference is

$$1\text{mm} - 1.65\text{mm} = -0.65\text{mm}$$

The figure shown beneath the distribution plot is the median distance of all measurements from the curve.

Spread

We look at the spread of NT measurements about the FMF curve. Most measurements will cluster along the FMF curve. The number shown is the factor by which the spread is increased (the measurements vary more greatly than would be expected given the CRL) or decreased (the measurements cluster very tightly around the curve, without the expected normal variance).

Trend

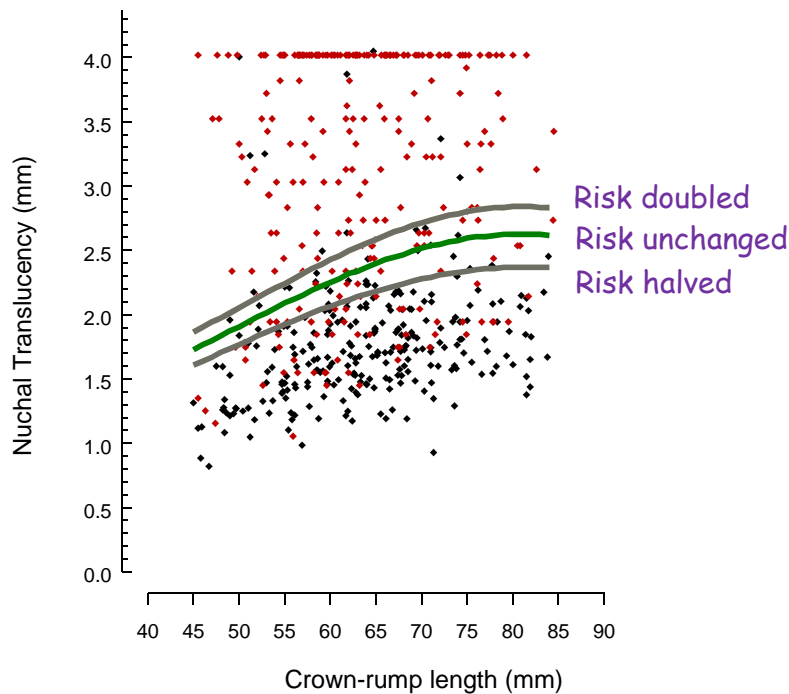
We look at the trend of NT measurements with CRL. The curve of observed NT /CRL values should mimic the FMF curve in shape and direction. The value displayed shows the degree of discrepancy between the expected trend as compared to the observed measurements.

What do these measures mean?

Deviations in any of these measures can have an impact on the final risk for Down syndrome that is provided to each patient through prenatal screening. The effect on patient risks is summarised below. Note that this is a rather simplified interpretation.

	Description	Effect on risks
Bias		
Negative	Points tend to lie below the FMF curve.	Risks are decreased.
Positive	Points tend to lie above the FMF curve.	Risks are increased.
Spread		
Decreased	Points tend to lie closer to the FMF curve.	Risks tend to be decreased for NT measurements above the curve and increased for NT measurements below the curve.
Increased	Points tend to lie further from the FMF curve.	Risks tend to be increased for NT measurements above the curve and decreased for NT measurements below the curve.
Trend		
Negative	For lower CRL values, points tend to lie above the curve. For higher CRL values, points tend to lie below the curve.	Risks are increased for patients with low CRL and decreased for patients with high CRL.
Positive	For lower CRL values, points tend to lie below the curve. For higher CRL values, points tend to lie above the curve.	Risks are decreased for patients with low CRL and increased for patients with high CRL.

The graph below shows the FMF reference curve with points representing typical measurements in pregnancies where the fetus has been identified to be unaffected (black) or affected (red) with Down syndrome. Lines indicate the NT measurement where the patient risk is doubled, unchanged and halved.



If there are concerns with the report that has been generated by BORN, it is recommended that you review your images to ensure they comply with the Fetal Medicine Foundation Nuchal Translucency protocol. The NT protocol and other useful resources on 1st trimester ultrasound can be found on the **Fetal Medicine Foundation USA** website: www.fetalmedicineusa.com.

You may also be interested to know that the FMF(UK) offers a free re-accreditation program along with an image audit component, which will provide feedback on your images that may help to explain measurement distribution. www.fetalmedicine.com

Lastly, the plot and calculations provided can only reflect the data that is given to the Prenatal Screening laboratories. All measurements submitted should be as measured by the sonographer with that specified ID number. Each sonographer is responsible for any and all measurements provided for their ID number, as reflected in their nuchal translucency quality assurance report.