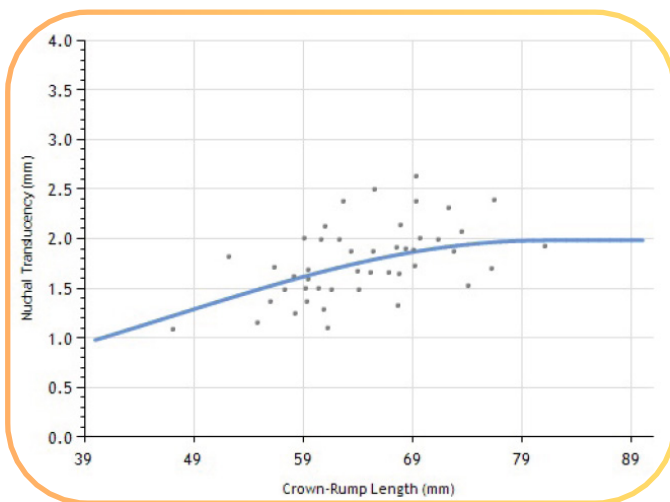


Negative Bias

Median bias refers to the position of the NT/CRL data points relative to the Fetal Medicine Foundation (FMF-UK) reference curve. A **negative bias** means that the majority of your data points fall below the FMF curve.

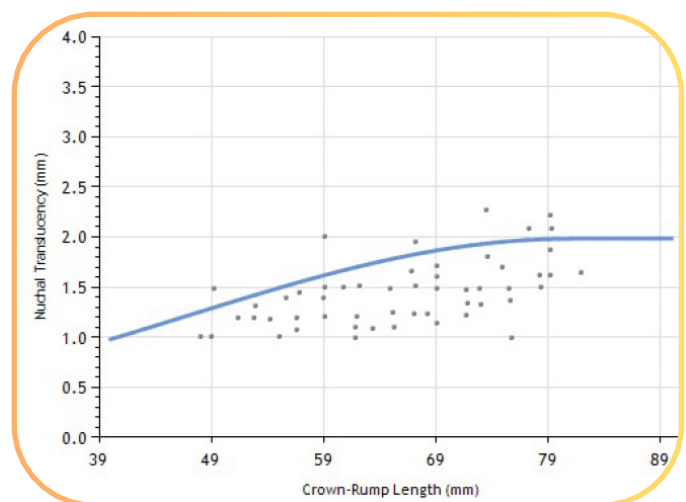
When the sonographer-specific NT performance curve shows a negative bias, it indicates that the operator may be **UNDER-MEASURING THE NUCHAL TRANSLUCENCY**.

Acceptable median bias



Approximately 50 percent of the data points are positioned above the curve, and 50 percent of the points are below the curve.

Negative bias



The majority of the data points are positioned below the FMF reference curve.

➔ Why does it matter?

A Negative Bias can lead to underestimating the risk for aneuploidies, or even false negative prenatal screening results.

➔ What to do about it?

The next step is to evaluate your scanning practice to determine WHY you may be under-measuring.

Negative Bias

Common reasons for a negative bias

- **Hyperflexion of the fetal neck when measuring the NT** When the fetal neck is hyperflexed, the NT may be decreased by up to 0.4mm¹.
- **Lack of true midline sagittal plane**
A true midsagittal plane is required to accurately measure the NT and measure the CRL. For midsagittal requirements, examples, and a checklist, see the Appendix.
- **Incorrect caliper placement**
For accurate NT measurement, the calipers must be placed “on-to-on” the echogenic lines of the NT, at the widest portion. The cross-hairs of the calipers should not be touching the anechoic nuchal fluid.
- **Over-gaining** If the gains are too bright, it can lead to fill-in of the NT, making caliper placement difficult and potentially inaccurate.
- **Inadequate magnification** To measure the NT accurately, the image should be zoomed so that the head and thorax occupy > 75 percent of the field of view.

¹ Nicolaides, K. H. (2004). The 11–13+6 weeks scan. London: Fetal Medicine Foundation. Retrieved from <https://fetalmedicine.org/education/the-11-13-weeks-scan>



Correct

Incorrect

Inaccurate caliper placement can lead to a negative bias. Be sure to place the calipers “on-to-on” the echogenic lines of the NT.

→ Resources & recommendations

- Review the FMF Imaging Protocol and re-watch the NT Measurement sections of the [FMF 11-13 weeks scan course](#).
- This video by the [New Zealand Ministry of Health](#) provides excellent tips for measuring the NT and CRL accurately.
- Visit the For Sonographers section of the PSO website for more information about addressing a negative bias.
- Use the checklist in the Appendix of this document to guide you in capturing a true midsagittal plane.

→ Summary and next steps

Step 1: Assess



Critically analyze your own NT and CRL images, to find reasons for your negative bias. Seeking feedback from colleagues may also be helpful.

Step 2: Review & implement



Review the Resources and Recommendations above, and implement changes to your NT and CRL scanning to correct errors contributing to a negative bias.

Step 3: Monitor



In six months, log in to your BORN account to view your NT performance curve, and monitor improvement in your bias.

MIDLINE SAGITTAL PLANE REQUIREMENTS

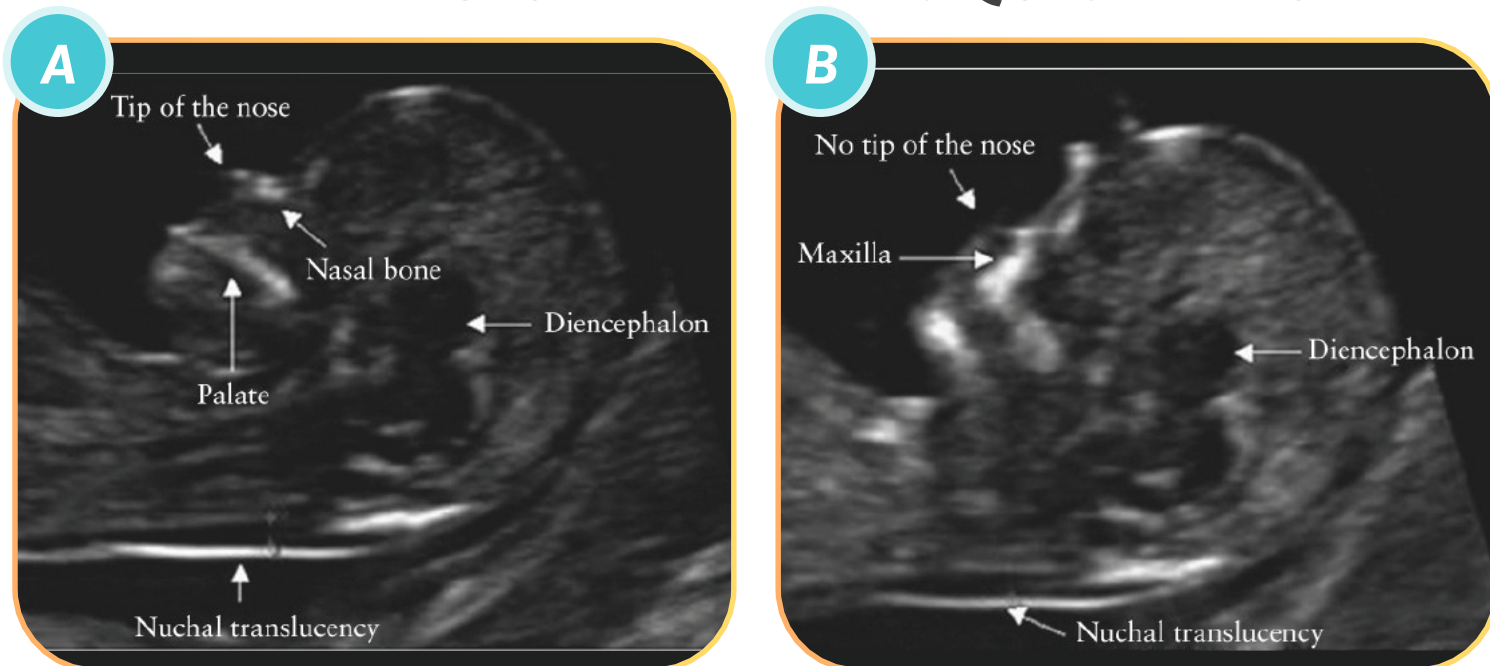


Figure 11: Left: Fetus in a true midsagittal plane. Right: Fetus in a slightly oblique plane. Note the presence of the maxilla bone and the foreshortening of the NT.

1. Luchi, C., Persico, N., Rembouskos, G., & Nicolaides, K. H. (2014, November). Practical approach to obtain the mid-sagittal plane of the fetal face at 11–13 weeks' gestation by two-dimensional ultrasound. *Ultrasound in Obstetrics and Gynecology*, 44(5), 617-618. doi:doi: 10.1002/uog.14660MIDLINE

- ☐ Absence of maxilla bone. We should see a hypoechoic space between the nasal bone and the palate.
- ☐ Nasal bone, skin over nasal bone, and tip of nose visible.
- ☐ Palate and mandible visible.
- ☐ Anechoic diencephalon visible in brain.
- ☐ Long portion of NT visible (from thorax to tapering at occiput).

Looking for more information?

Visit Prenatal Screening Ontario's [website for Sonographers](#) or contact us to speak with a clinical content specialist



Find out more on our website for Sonographers

