PRENATAL SCREENING
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ONTARIO

BORN Ontario

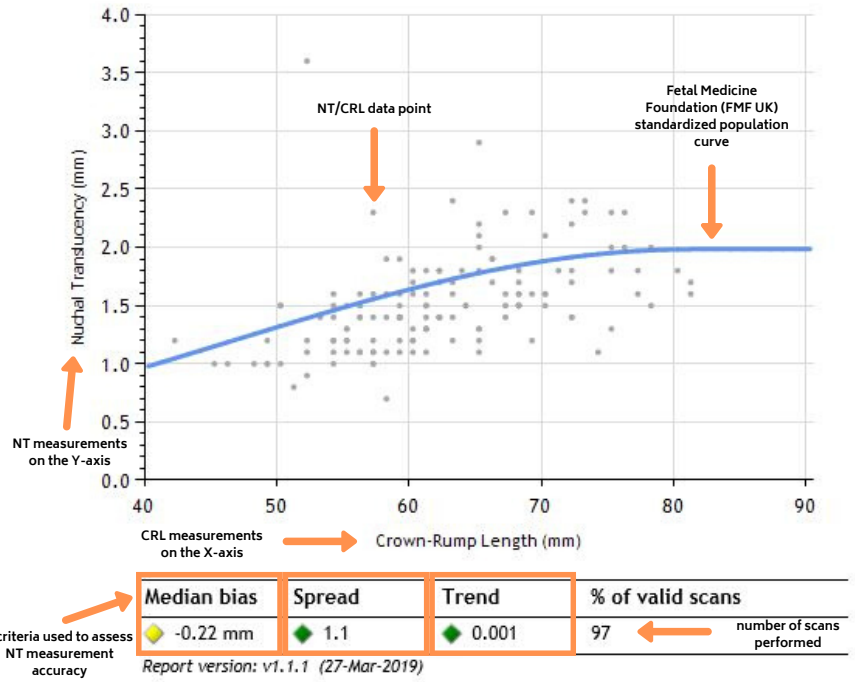
NTQA PROGRAM

Guide to interpreting your personalized NT performance distribution

The Better Outcomes Registry and Network (BORN) Ontario has been collecting prenatal screening information from pregnant individuals' first trimester screening (FTS) requisitions since 2012.

BORN Ontario has then mapped individualized distributions of NT measurements over the 11 to 14 week gestational period for each ultrasound practitioner according to their NT ID number.

These personalized NT performance distributions map each individuals' cumulative NT data against the Fetal Medicine Foundation (FMF UK) standardized population curve, providing ultrasound practitioners with valuable information concerning the accuracy of their NT measurement practice.



Question: How can I gain access to my personalized NT performance distribution?

This guide will:

- inform ultrasound practitioners on the criteria used to assess NT measurement accuracy (i.e., median bias, spread, trend)
- assist ultrasound practitioners in interpreting their own personalized NT performance distributions
- educate ultrasound practitioners on how they can use this information to improve and/or maintain their NT measurement skills

Answer: By registering with Prenatal Screening Ontario (PSO) and BORN Ontario.

Please visit the "NT Registration" pages on the PSO website or contact us for step-by-step instructions on how to obtain an Ontario NT ID number and gain access to your personalized NT performance distribution.

Contact us:

Website: www.prenatalscreeningontario.ca
Email: pso@bornontario.ca
Phone: 1-833-531-6490

Criteria used to assess NT measurement accuracy

There are 3 criteria used to assess practitioners' NT measurement accuracy:

- Median bias
- Spread
- Trend

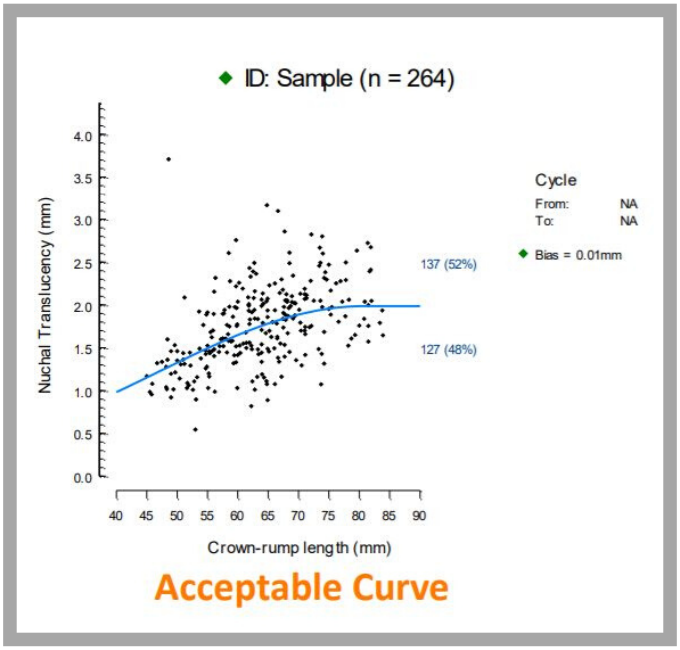
The colours illustrate how closely each criteria aligns with the FMF UK protocol:

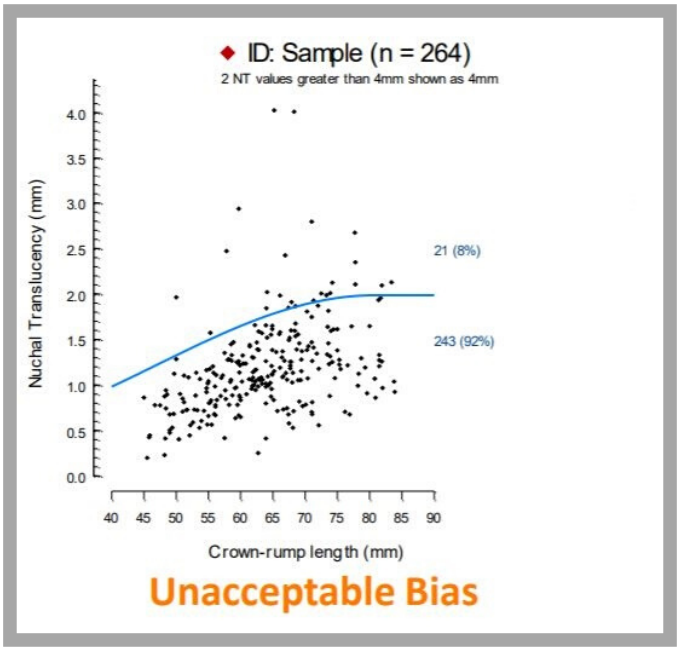
- performance meets acceptable standard
- performance is just outside acceptable standard
- performance falls far outside acceptable standard

MEDIAN BIAS

Median bias indicates the position of the majority of your NT/CRL data points with respect to the vertical axis and relative to the median (i.e., the FMF UK standardized population curve).

In a normal population of patients, approximately 50% of your NT/CRL data points will sit above the median curve and 50% of your NT/CRL data points will fall below the median curve. The value displayed is the median distance of all measurements from the curve.





Positive Bias:

- a majority of your NT/CRL data points sit above the median curve
- indicates chronic over measurement of the NT

Negative Bias:

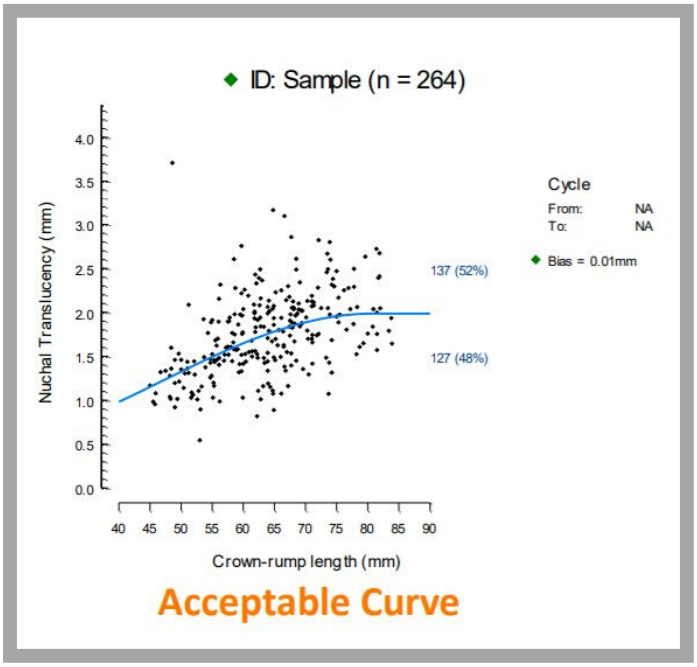
- a majority of your NT/CRL data points fall below the median curve
- indicates chronic under measurement of the NT

Criteria used to assess NT measurement accuracy

SPREAD

Spread describes how closely your NT/CRL data points hug the median curve. The value displayed is the factor by which the spread is increased or decreased.

Your NT/CRL data points should cluster around the median curve with some variation. This is expected in a normal population of patients.



Acceptable Curve

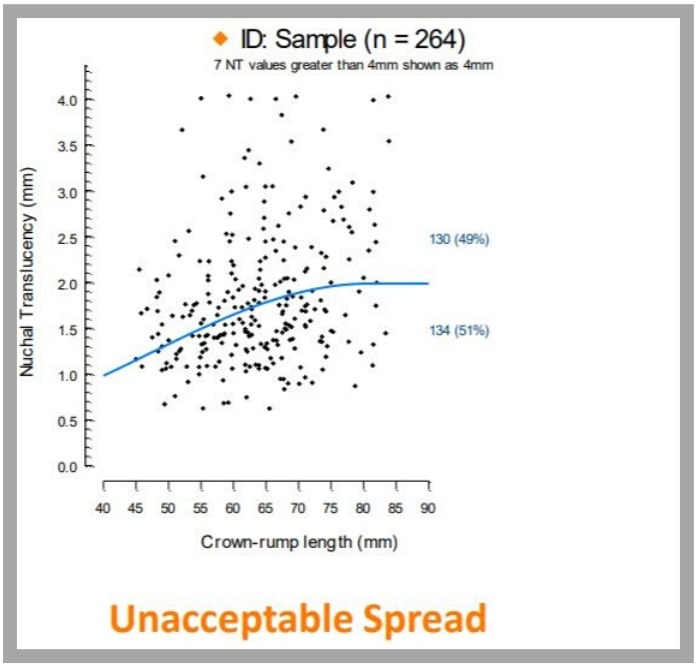
Tight Spread (decreased):

- your NT/CRL data points cluster very tightly around the median curve without the expected normal population variation
- indicates that a practitioner is choosing their NT measurements according to what is expected at a given CRL

Wide Spread (increased):

- your NT/CRL data points do not cluster around the median curve and vary more greatly than what is expected at a given CRL and in a normal population
- indicates inconsistent measurement of the NT at all CRLs

A wide spread is most often caused by more than one practitioner submitting NT/CRL data points under a single NT ID number.



Unacceptable Spread

NT ID number sharing reduces the quality of your personalized NT performance distribution.
Protect your number and your curve.
Do not share your NT ID number!

Criteria used to assess NT measurement accuracy

TREND

Trend describes the shape of your NT/CRL data point distribution with respect to the median curve.

Your NT/CRL data point distribution should mimic the shape and direction of the median curve. The value displayed shows the degree of discrepancy between the expected trend and the arrangement of your NT/CRL data points.

Steep Positive Trend (/):

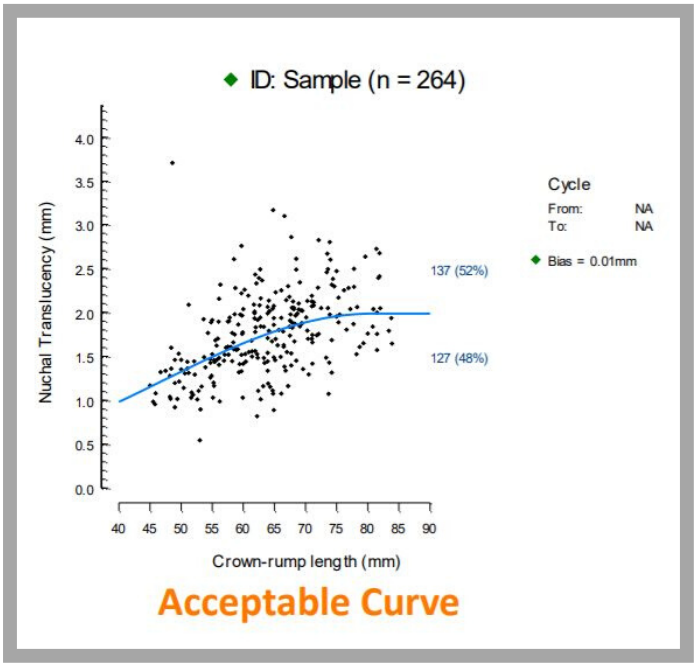
- a majority of your NT/CRL data points fall below the median curve at smaller CRLs and sit above the median curve at larger CRLs
- indicates consistent under measurement of the NT at smaller CRLs and consistent over measurement of the NT at larger CRLs

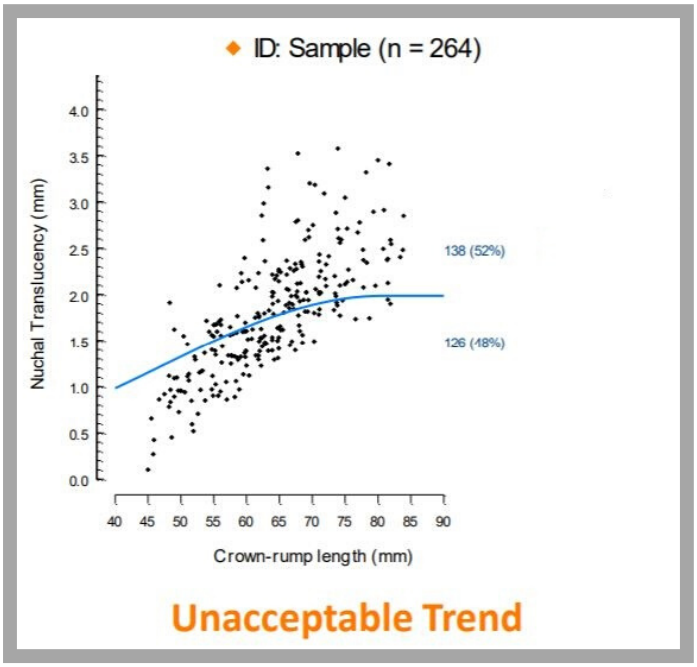
Steep Negative Trend (\):

- a majority of your NT/CRL data points sit above the median curve at smaller CRLs and fall below the median curve at larger CRLs
- indicates consistent over measurement of the NT at smaller CRLs and consistent under measurement of the NT at larger CRLs

Flattened Trend (--):

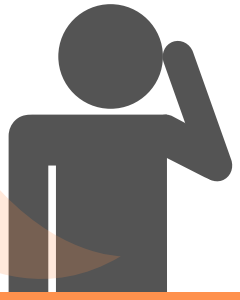
- a majority of your NT CRL data points fall along the same line with respect to the horizontal axis
- indicates that a practitioner is consistently obtaining the same NT measurement across all CRLs with limited variation





In a normal population of patients, NT measurements should increase in size as the size of the fetus (CRL) increases with some variation.

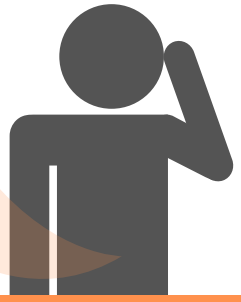
How do our personalized NT performance distributions affect our patients?



Deviations in any of these criteria can decrease the accuracy of our patients' prenatal screening results!

	Description	Effect on Risk
MEDIAN BIAS Positive Bias Negative Bias	NT/CRL data points sit above the median curve NT/CRL data points fall below the median curve	Risks are increased Risks are decreased
SPREAD Wide Spread (increased) Tight Spread (decreased)	NT/CRL data points vary greatly and do not cluster around the median curve NT/CRL data points cluster very tightly to the median curve	Risks tend to be increased for NT measurements above the curve and decreased for NT measurements below the curve Risks tend to be decreased for NT measurements above the curve and increased for NT measurements below the curve
TREND Positive Trend Negative Trend Flattened Trend	NT/CRL data points fall below the median curve at smaller CRLs and sit above the median curve at larger CRLs NT/CRL data points sit above the median curve at smaller CRLs and fall below the median curve at larger CRLs NT/CRL data points fall along the same line with respect to the horizontal axis	Risks are decreased for patients with small CRLs and increased for patients with large CRLs Risks are increased for patients with small CRLs and decreased for patients with large CRLs Risks can be increased or decreased depending on CRL measurement and where the data points sit in relation to the median curve (i.e., above/below)

How can our personalized NT performance distributions inform our NT ultrasound practice?



If you notice deviations in your personalized NT performance distribution, please review your NT and CRL images:

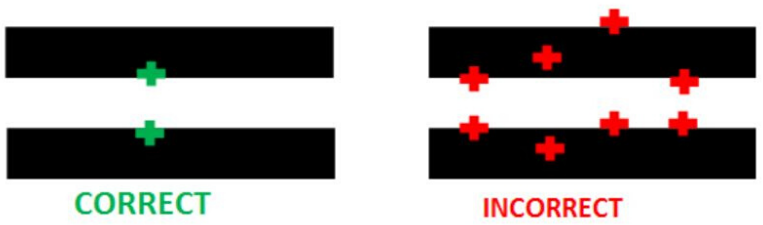
- Your personalized NT performance distribution tells you **when** there is an issue with your NT measurement accuracy.
- Your NT and CRL images illustrate **what** those issues are and guide you in how to fix them (i.e., how closely do your NT and CRL images adhere to the FMF UK protocol?).

The most common parameter to fall outside of the acceptable range is bias, and it is most commonly a negative bias.

Common reasons a negative bias occurs:

- incorrect caliper placement
- not measuring the widest portion of the NT
- largest NT measurement that meets FMF UK criteria not recorded on the requisition
- over gaining of the image causing fill-in of the anechoic NT
- NT and/or CRL image not obtained in the midline sagittal plane of the fetus
- inadequate use of zoom

NT Caliper Placement



NT Measurement Resources

- Visit the PSO website (www.prenatalscreeningontario.ca) for information on, and access to, your personalized NT performance distribution
- FMF USA website (www.fetalmedicineusa.com) has a fantastic educational video titled "1st Trimester Ultrasound Ultimate Survival Guide"
- FMF UK website (www.fetalmedicine.org)
  - re-do the 11-13 weeks scan course to refresh your memory on proper NT and CRL measurement protocol
  - download PDF book on the 11-13 weeks scan