

NTMonitor[©]

Analysis and Summary of NT Measurements

(Prepared by the Department of Pathology and Laboratory Medicine,
Women and Infants Hospital, Providence, Rhode Island, USA)

Prepared For: Anywhere Hospital Lab ← Prepared specifically for your laboratory.

Contact Person: Nancy Teller ← All names in this sample report are fictitious.

Study Period: May 1, 2007 through October 31, 2007 ← Over a 6 month time period.

Report Date: November 30, 2007

Reviewed by: _____

Date: _____

↑
We personally review the data.

Summary

1) Number of **RECORDS** received: **2,757**

2) Number of records in 6-month period analyzed: **2,731**

<u>By Month</u>	May '07	291
	Jun '07	333
	Jul '07	490
	Aug '07	435
	Sep '07	679
	Oct '07	503

3) Number of records removed due to twin pregnancies: **23**

4) Number of records with missing sonographer code: **0**

5) Number of records with missing CRL measurement: **0**

6) Number of records with missing NT measurement: **0**

7) Number of records with missing NT MoM: **5**

Totals by individual sonographer

8) Number of **SONOGRAPHERS:** **35**

9) Number of sonographers with 50 or more observations: **12** (34%), 51% of samples
 4 of which have 'all parameters within acceptable limits'

10) Number of sonographers with 25 to 49 observations: **8** (23%), 26% of samples

11) Number of sonographers with 10 to 24 observations: **11** (31%), 22% of samples

12) Number of sonographers with 9 or fewer observations: **4** (11%), 1% of samples

13) Proportion of sonographers credentialed: **100%**

and by centers (groups of sonographers)

14) Number of **CENTERS:** **9**

15) Number of centers with 50 or more observations: **4** (45%), 82% of samples
 3 of which have 'all parameters within acceptable limits'

16) Number of centers with 25 to 49 observations: **2** (22%), 13% of samples

17) Number of centers with 10 to 24 observations: **3** (33%), 5% of samples

18) Number of centers with 9 or fewer observations: **0** (0%), 0% of samples

19) Overall proportion of NT values over 3 mm:

0.22%

<u>By Month</u>			
	May '07	n=1	0.34%
	Jun '07	n=0	0.00%
	Jul '07	n=1	0.20%
	Aug '07	n=1	0.23%
	Sep '07	n=2	0.29%
	Oct '07	n=1	0.20%

Items requiring laboratory action (e.g., median change, discussion with sonographer, or other).



Action Items
(epidemiological parameters out of range)

1) Sonographer/Center-Specific NT medians should be updated/implemented for the following sonographers/centers:

Sonographer/Center	Regression Parameters							
	day-specific				mm-specific			
	$10^{[a(\text{day})+b]}$		$ba^{(\text{day})}$		$10^{[a(\text{mm})+b]}$		$ba^{(\text{mm})}$	
	a=	b=	a=	b=	a=	b=	a=	b=
H30241 /Center A	0.01136	-0.96118	1.02650	0.10935	0.00584	-0.32635	1.01354	0.47168
B65073 /Center C	Insufficient data to generate sonographer/center-specific medians. (minimum of 50 samples required)							

Equations to fit all regression models

2) The percent-increase-per-week in NT (mm) medians and/or the log SD for NT MoM is/are out of range and the following sonographers/centers should be contacted:

Sonographer/Center	Percent-Increase Per Week (15%-35%)	Log SD (0.080-0.130)
A43388 /Center A	46%	0.141
H30241 /Center A		0.145
46063 /Center B	38%	0.065
B19927 /Center D		0.133

Too broad

Too tight

Too steep

Informational Items

No action to be taken.

- 1a) Data from the following sonographers/centers were partially uninterpretable (data sufficient only to estimate median NT MoM):

Sonographer/Center

N is between 30 and 49

A13295 /Center A

B65073 /Center C

91449 /Center D

- 1b) Data from the following sonographers/centers were uninterpretable (insufficient data to compute any epidemiological parameters):

Sonographer/Center

N is less than 30

52130 /Center A

B11574 /Center C

B68215 /Center E

2) The following sonographers/centers need no action:

Sonographer/Center

59751	/Center B
32106	/Center D
45120	/Center D
91448	/Center D
- ALL -	/Center D

This is the page where sonographers want to be.

Observed Median NT MoM

Recalculated Median NT MoM*	Low (< 0.90)	Good ($0.90 - 1.10$)	High (> 1.10)
Low (< 0.70)		A13295, A43388	
Good ($0.70 - 0.89$)		32106, 45120, 91448, 91449	
Good ($0.90 - 1.10$)		46063, 59751, B19927	B65073, H30241
High (> 1.10)			

* Recalculated NTMoM based on NTQR/FMF reported medians – a measure of whether the sonographer/center agrees with the absolute levels suggested by those organizations. 1.00 indicates agreement, while low values indicate a sonographer who reports systematically lower NT measurements (in mm) than expected at the associated CRL measurement.

The darkened box represents cells in which the sonographer is performing as expected by FMF/NTQR or FASTER in absolute NT measurements (in mm) and is also having an NT interpretation that is close to the expected MoM of 1.00. Sonographers in the first or last column need to have new reference ranges implemented by the laboratory (or retraining by a credentialed organization). The top and bottom rows indicate sonographers whose measurements are high (unusual) or very low compared to the expected NT measurements in mm.

Includes only those sonographers/centers with 25 or more observations.

Columns indicate how well your own medians are working. NT MoMs are derived from *your* medians. If these medians are appropriate, your data should fall in the 'good' column.

Rows indicate how well a published median equation (FMF) would fit your data. If the FMF medians correctly interpret your data, your data should fall in the 'good' rows (2 or 3).

Figure Legend

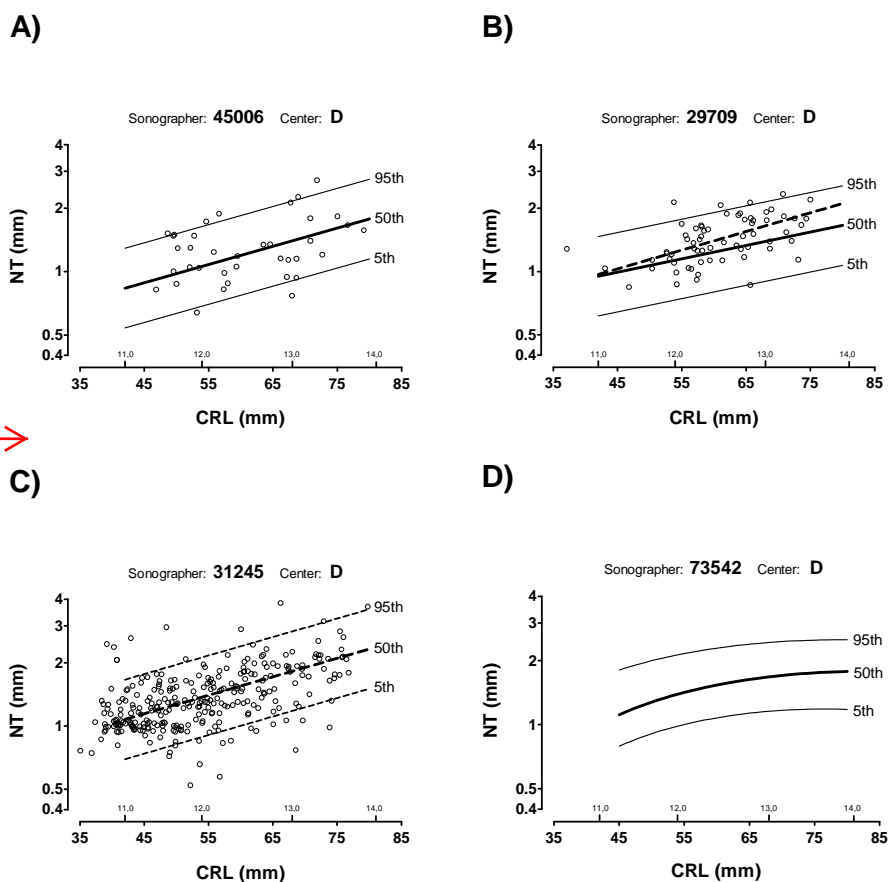
(individual CRL-NT scatterplots)

Figure A. A thick, solid line represents the sonographer/center's current set of NT medians (50th), if provided. The thin, solid lines represent the calculated 5th and 95th prediction limits for the sonographer/center's current set of NT medians using a log standard deviation of 0.115¹.

Figure B. When sufficient data are available ($n \geq 50$), a new regression line for NT medians is calculated based on the data provided and is represented by a thick, dotted line.

Figure C. If the sonographer/center's current set of NT medians is not provided and sufficient data are available ($n \geq 50$), the 5th and 95th prediction limits (thin dotted lines) correspond to the new regression line for NT medians based on the data provided.

Figure D. If the sonographer/center's current set of NT medians is not provided and insufficient data are available to calculate a new regression line for NT medians, the NT medians and corresponding 5th and 95th prediction limits from FMF² are plotted (curved lines).



¹ Malone FD, et al. Use of overall population, center-specific, and sonographer-specific nuchal translucency medians in Down syndrome screening: Which is best? *Am J Obstet Gynecol* 2003; 189:S232.

² <http://fetalmedicine.com/usa>

The type of figure you get depends on the data you supply and the number of samples reported.

**THE FOLLOWING IS A REPRESENTATION OF
INDIVIDUAL SONOGRAPHER REPORTS FOR A
SUBSET OF THE SONOGRAPHERS EVALUATED ON
THE PREVIOUS PAGES.**

Name can be included if you provide a 'phonebook'.

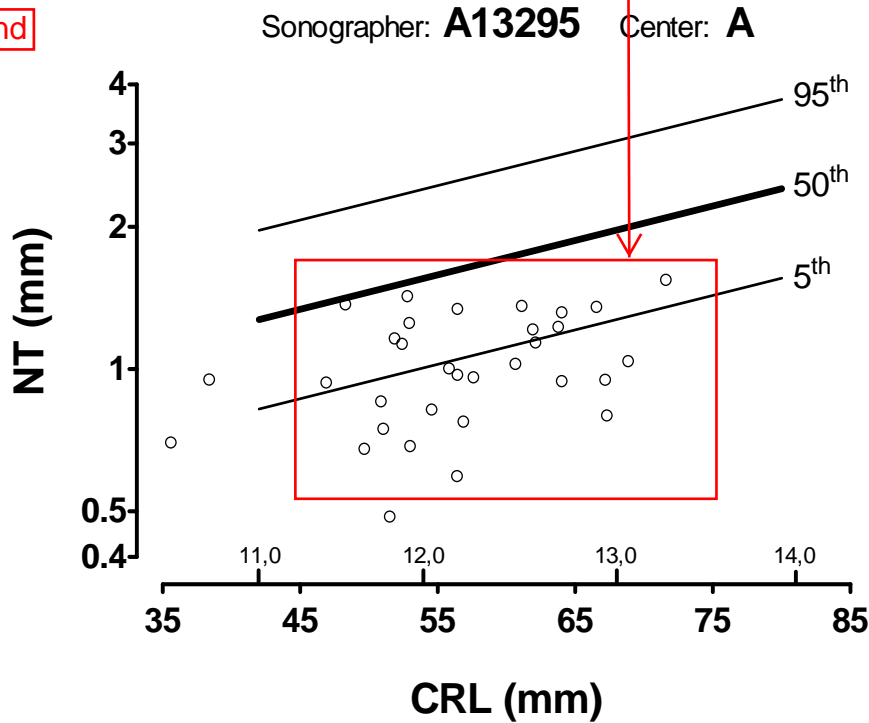
Sonographer/Center-Specific Audit

Prepared For: Anywhere Hospital Lab
 Sonographer: **A13295 (Jane Forsyth)**
 Center: **A**
 Date: November 30, 2007
 Study Period: May 1, 2007 through October 29, 2007

Compare results to target ranges.

Number of NT measurements:	32	target range
Percent increase in NT (mm) per week:	N/C	≥ 50
Median NTMoM:	1.08	15% - 35%
(weeks 11-13: 1.28, 1.02, 0.90 respectively)		0.90 - 1.10
Log standard deviation of NTMoM:	N/C	0.080 - 0.130

Notice weekly trend



Apparently, the medians provided by the lab (solid thick line) were not used to compute the NT MoM levels. If they had been, the median MoM would be much less than 1.00.

Comments:

- NT MoM is 'ok', but too few measurement for other assessments.

Simple interpretations.

Additional comments:

By: _____

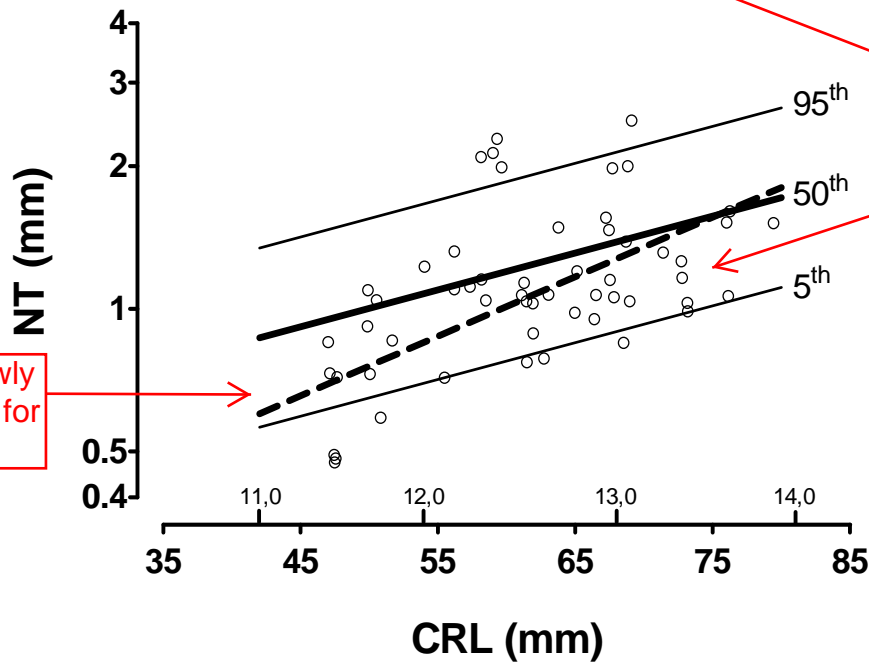
You could add comments, sign the report, and forward to sonographers.

Sonographer/Center-Specific Audit

Prepared For: Anywhere Hospital Lab
 Sonographer: **A43388 (Henry Banks)**
 Center: **A**
 Date: November 30, 2007
 Study Period: May 1, 2007 through October 29, 2007

		<u>target range</u>
Number of NT measurements:	55	≥ 50
Percent increase in NT (mm) per week:	46%	15% - 35%
Median NTMoM:	0.90	0.90 - 1.10
(weeks 11-13: 0.75, 0.92, 0.97 respectively)		
Log standard deviation of NTMoM:	0.141	0.080 - 0.130

Sonographer: **A43388** Center: **A**



Comments:

- NT MoM log SD is out of range.
- Percent increase per week of NT (mm) is out of range.

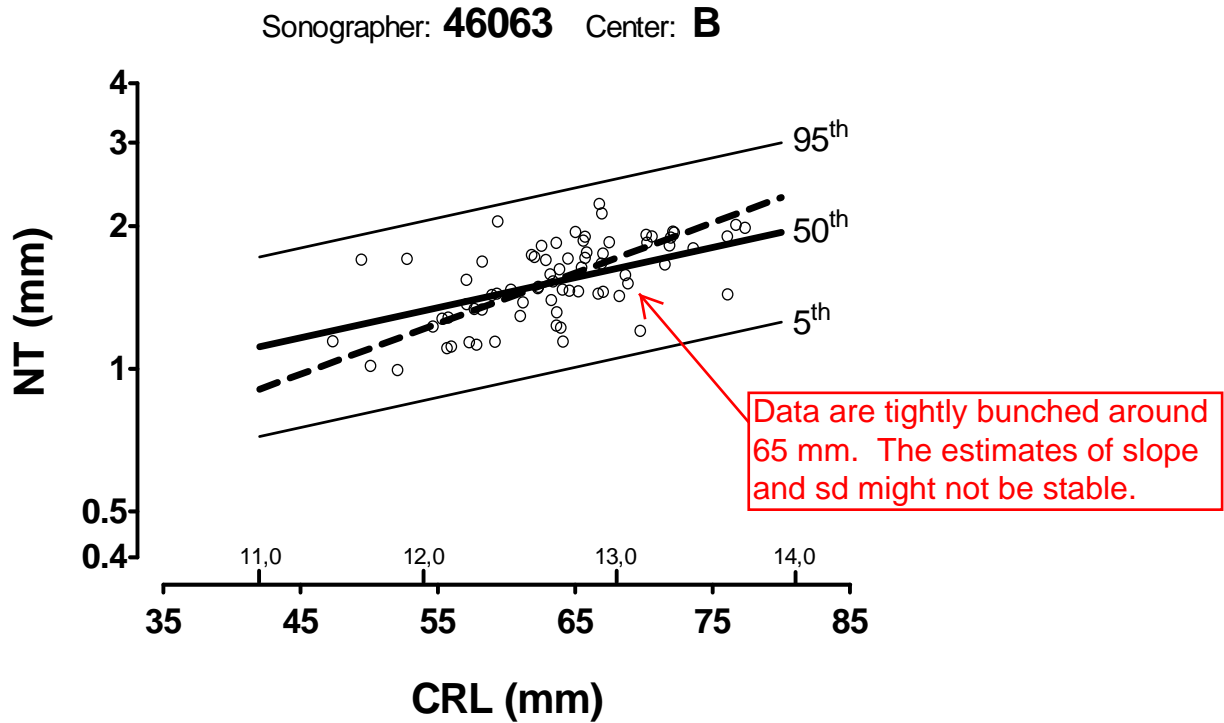
Additional comments:

By: _____

Sonographer/Center-Specific Audit

Prepared For: Anywhere Hospital Lab
 Sonographer: **46063 (Pamela Goode)**
 Center: **B**
 Date: November 30, 2007
 Study Period: May 1, 2007 through October 29, 2007

		<u>target range</u>
Number of NT measurements:	73	≥ 50
Percent increase in NT (mm) per week:	38%	15% - 35%
Median NTMoM:	1.02	0.90 - 1.10
(weeks 11-13: 0.86, 0.99, 1.08 respectively)		
Log standard deviation of NTMoM:	0.065	0.080 - 0.130



Comments:

- NT MoM log SD is out of range.
- Percent increase per week of NT (mm) appears to be out of range.

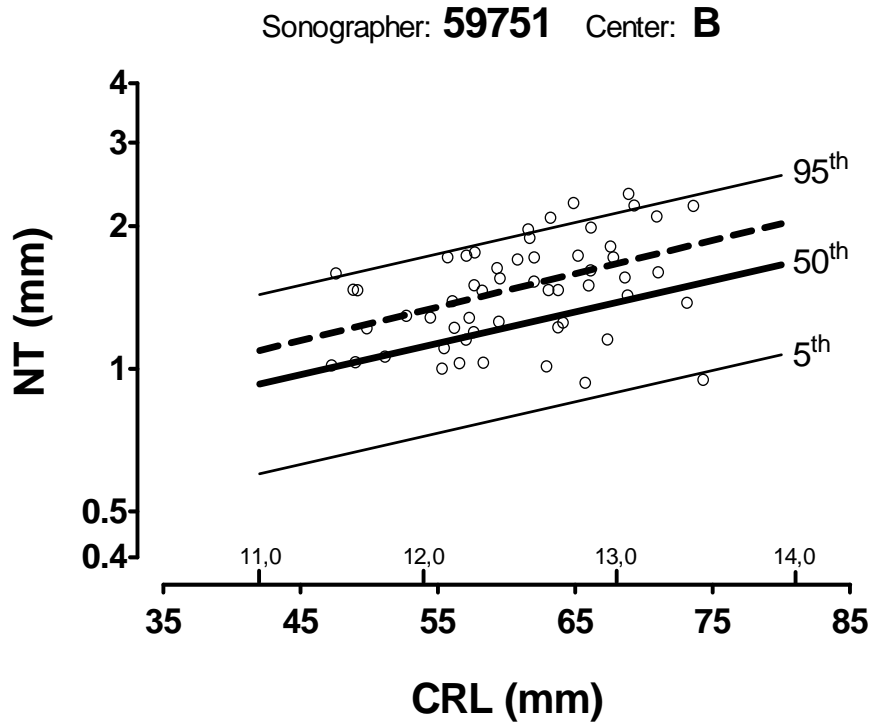
Additional comments:

By: _____

Sonographer/Center-Specific Audit

Prepared For: Anywhere Hospital Lab
 Sonographer: **59751 (Charles Epstein)**
 Center: **B**
 Date: November 30, 2007
 Study Period: May 1, 2007 through October 29, 2007

		<u>target range</u>
Number of NT measurements:	55	≥ 50
Percent increase in NT (mm) per week:	24%	15% - 35%
Median NTMoM:	1.09	0.90 - 1.10
(weeks 11-13: 1.08, 1.11, 1.09 respectively)		
Log standard deviation of NTMoM:	0.092	0.080 - 0.130



Comments:

- All parameters are within acceptable limits.

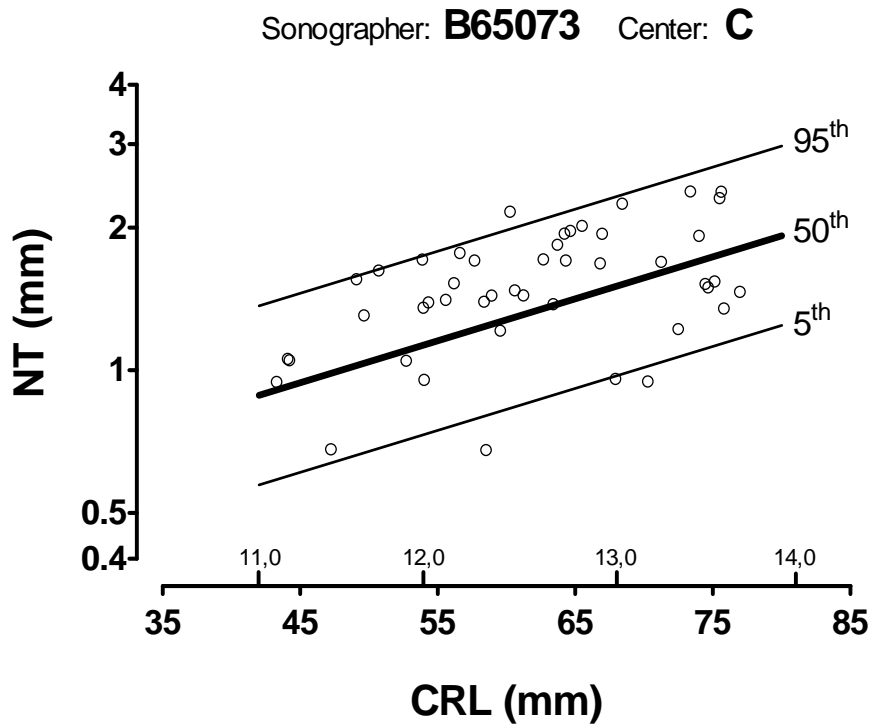
Additional comments:

By: _____

Sonographer/Center-Specific Audit

Prepared For: Anywhere Hospital Lab
 Sonographer: **B65073 (Debra Riley)**
 Center: **C**
 Date: November 30, 2007
 Study Period: May 1, 2007 through October 29, 2007

		<u>target range</u>
Number of NT measurements:	46	≥ 50
Percent increase in NT (mm) per week:	N/C	15% - 35%
Median NT MoM:	1.13	0.90 - 1.10
(weeks 11-13: 1.11, 1.21, 0.89 respectively)		
Log standard deviation of NT MoM:	N/C	0.080 - 0.130



Comments:

- NT MoM appears to be out of range and too few measurements for other assessments.

Additional comments:

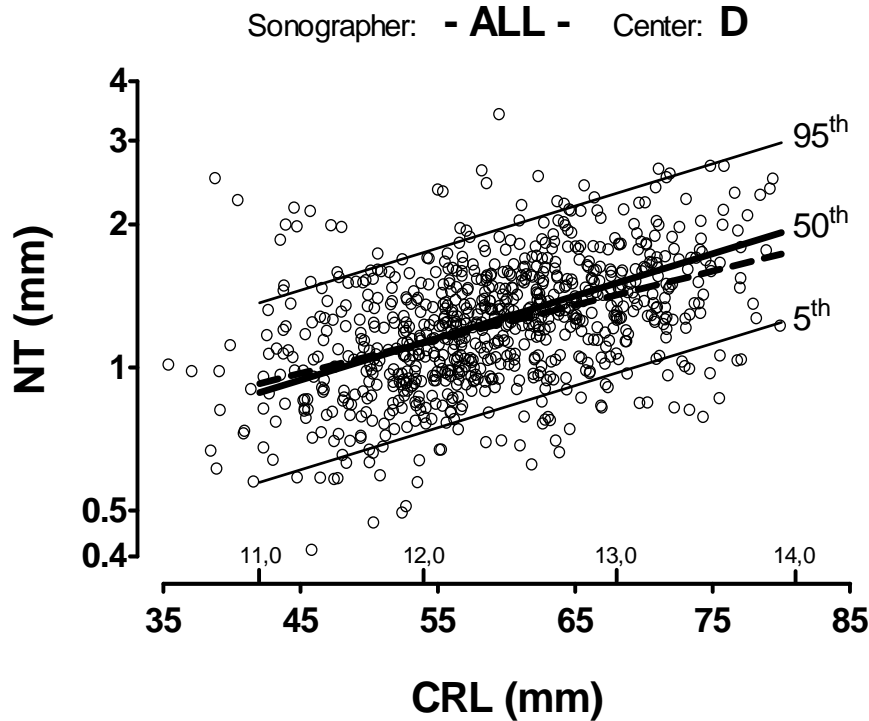
By: _____

Sonographer/Center-Specific Audit

Prepared For: Anywhere Hospital Lab
 Sonographer: - ALL -
 Center: **D**
 Date: November 30, 2007
 Study Period: May 1, 2007 through October 29, 2007

On average, this looks good.

		<u>target range</u>
Number of NT measurements:	795	≥ 50
Percent increase in NT (mm) per week:	24%	15% - 35%
Median NTMoM: (weeks 11-13: 0.97, 0.99, 0.92 respectively)	0.98	0.90 - 1.10
Log standard deviation of NTMoM:	0.119	0.080 - 0.130



Comments:

- All parameters within acceptable limits.

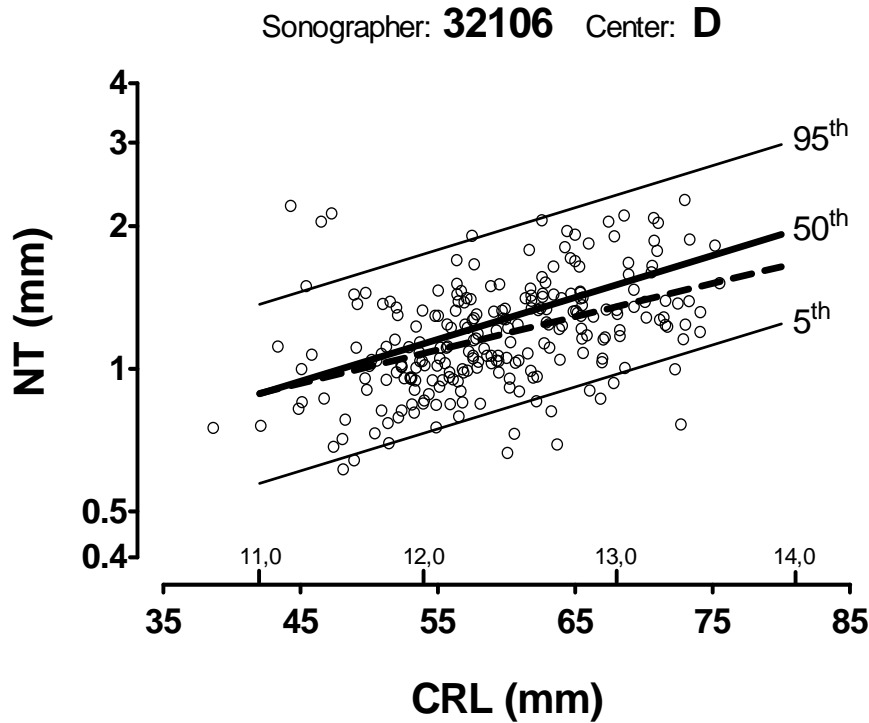
Additional comments:

By: _____

Sonographer/Center-Specific Audit

Prepared For: Anywhere Hospital Lab
 Sonographer: **32106 (David Lowell)**
 Center: **D**
 Date: November 30, 2007
 Study Period: May 1, 2007 through October 29, 2007

		<u>target range</u>
Number of NT measurements:	241	≥ 50
Percent increase in NT (mm) per week:	23%	15% - 35%
Median NTMoM:	0.91	0.90 - 1.10
<small>(weeks 11-13: 0.90, 0.92, 0.84 respectively)</small>		
Log standard deviation of NTMoM:	0.094	0.080 - 0.130



Comments:

- All parameters are within acceptable limits.

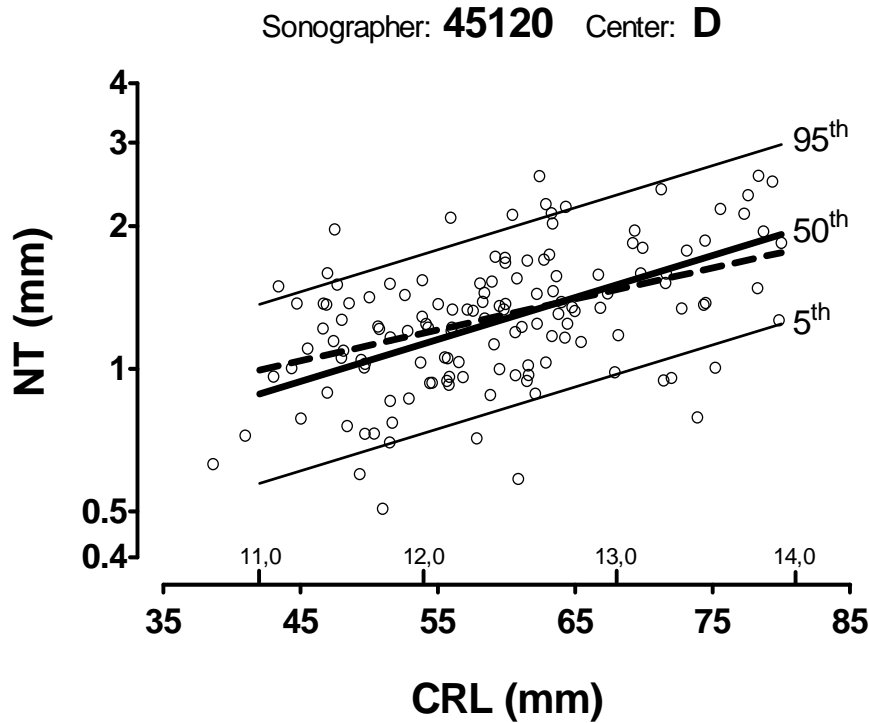
Additional comments:

By: _____

Sonographer/Center-Specific Audit

Prepared For: Anywhere Hospital Lab
 Sonographer: **45120 (Andrew Dostie)**
 Center: **D**
 Date: November 30, 2007
 Study Period: May 1, 2007 through October 29, 2007

		<u>target range</u>
Number of NT measurements:	136	≥ 50
Percent increase in NT (mm) per week:	22%	15% - 35%
Median NTMoM:	1.02	0.90 - 1.10
(weeks 11-13: 1.08, 1.01, 1.00 respectively)		
Log standard deviation of NTMoM:	0.121	0.080 - 0.130



Comments:

- All parameters are within acceptable limits.

Additional comments:

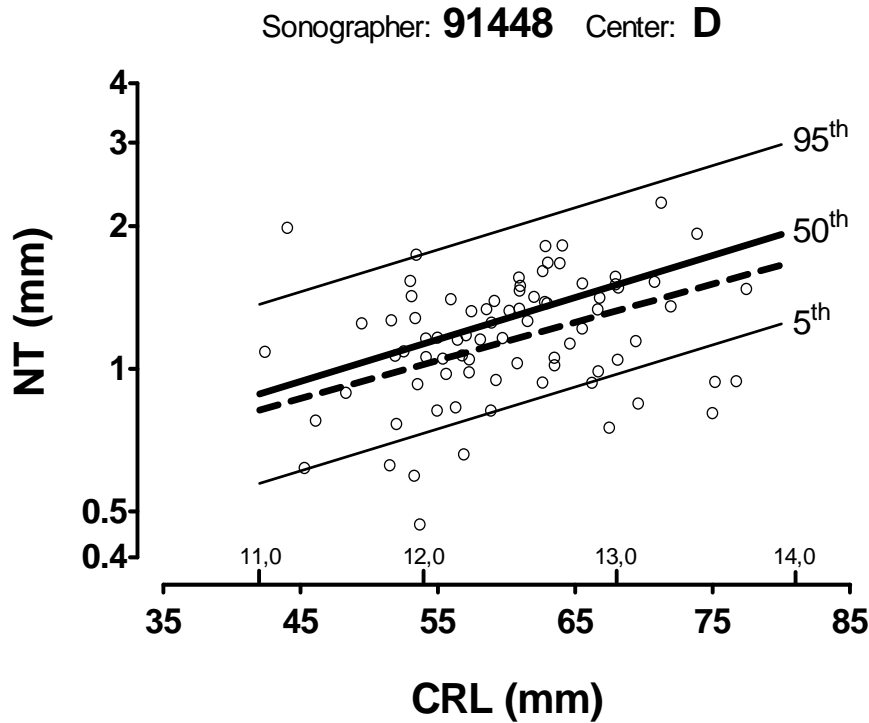
By: _____

This is what you want to see.

Sonographer/Center-Specific Audit

Prepared For: Anywhere Hospital Lab
 Sonographer: **91448 (William Rice)**
 Center: **D**
 Date: November 30, 2007
 Study Period: May 1, 2007 through October 29, 2007

		<u>target range</u>
Number of NT measurements:	80	≥ 50
Percent increase in NT (mm) per week:	27%	15% - 35%
Median NTMoM: (weeks 11-13: 0.89, 0.95, 0.81 respectively)	0.93	0.90 - 1.10
Log standard deviation of NTMoM:	0.124	0.080 - 0.130



Comments:

- All parameters are within acceptable limits.

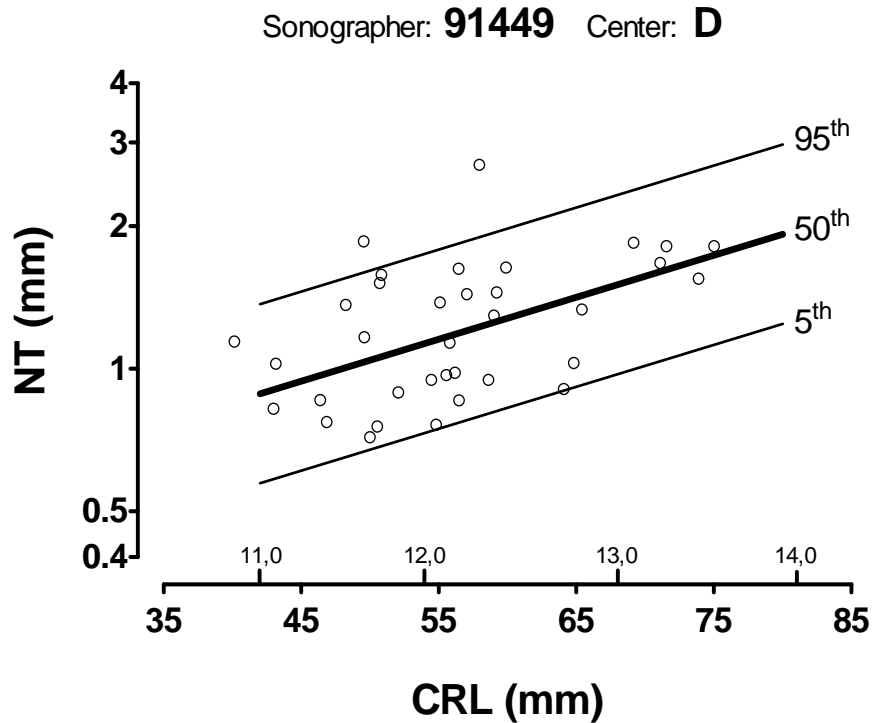
Additional comments:

By: _____

Sonographer/Center-Specific Audit

Prepared For: Anywhere Hospital Lab
 Sonographer: **91449 (Lisa Mitchell)**
 Center: **D**
 Date: November 30, 2007
 Study Period: May 1, 2007 through October 29, 2007

		<u>target range</u>
Number of NT measurements:	35	≥ 50
Percent increase in NT (mm) per week:	N/C	15% - 35%
Median NTMoM:	1.04	0.90 - 1.10
(weeks 11-13: 1.00, 1.00, 1.07 respectively)		
Log standard deviation of NTMoM:	N/C	0.080 - 0.130



Comments:

- NT MoM is 'ok', but too few measurement for other assessments.

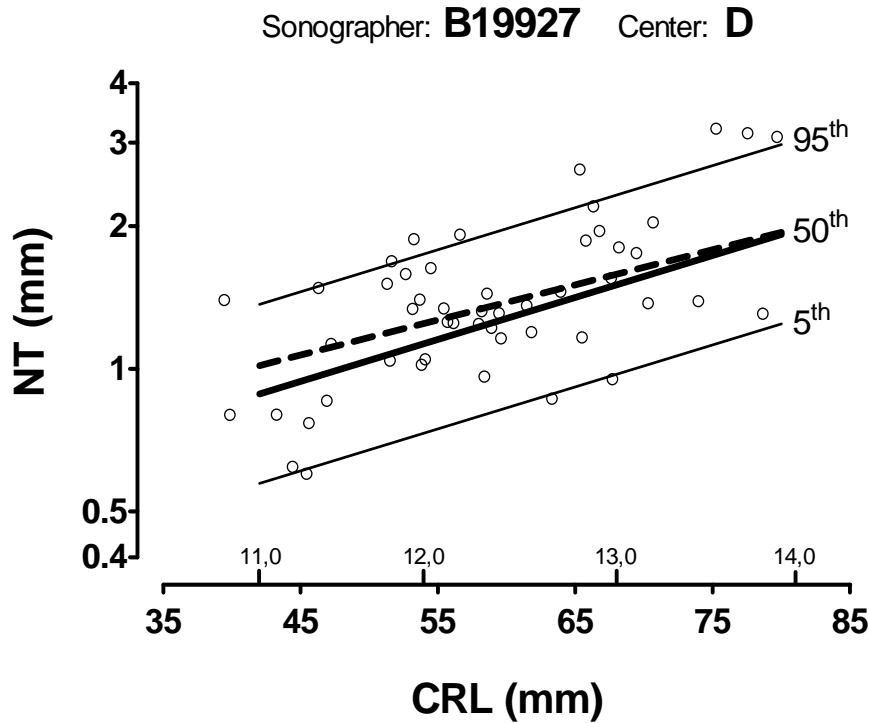
Additional comments:

By: _____

Sonographer/Center-Specific Audit

Prepared For: Anywhere Hospital Lab
 Sonographer: **B19927 (Dorothy Smith)**
 Center: **D**
 Date: November 30, 2007
 Study Period: May 1, 2007 through October 29, 2007

		<u>target range</u>
Number of NT measurements:	50	≥ 50
Percent increase in NT (mm) per week:	25%	15% - 35%
Median NTMoM: (weeks 11-13: 0.90, 0.97, 1.00 respectively)	0.98	0.90 - 1.10
Log standard deviation of NTMoM:	0.133	0.080 - 0.130



Comments:

- NT MoM log SD appears to be out of range.

Additional comments:

By: _____