



Measuring Growth in Stable Preterm Newborns: A Comparison of Two Methods

Benjamin Crain; Amy Mackley; MSN; Kaitlin Kenaley, MD;
Neal Goldstein, PhD; Stephen Pearlman, MD
Christiana Care Health System, Newark, DE



INTRODUCTION

- Head and linear growth strongly correlate with neurodevelopmental outcomes in premature infants
- Currently, nurses in NICU use printable tape measures to measure head circumference (HC) and length
- While weight is measured every other day using a scale that is precise, HC and length are measured weekly in the NICU using a potentially less precise method
- **Our project aim** is to determine if a new practice can be used to measure infant growth parameters more accurately and precisely to improve quality of care.

MATERIALS & METHODS

- **Inclusion criteria:** newborns born at less than 37 weeks gestational age, not on CPAP or ventilator, and without major congenital malformations.
- Head lasso (Seca) for HC and pediatric new born pandaemie (Ellard Instrumentation) for length were tools used. We also measured HC and length using the same tape measure that nurses use.
- Weekly measurements done during infants' care times and within 24 hours of nurse measurements of HC and length.

RESULTS

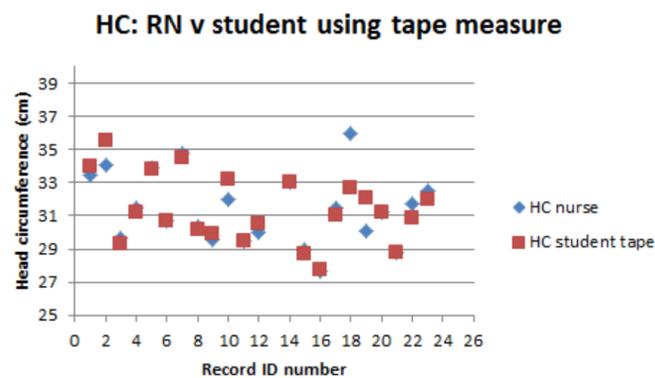


Figure 1: Compares the nurses HC measurements to student's (using tape measure). It has a Pearson correlation of :0.683. The average difference between the nurses and student's measurements is 0.57 cm

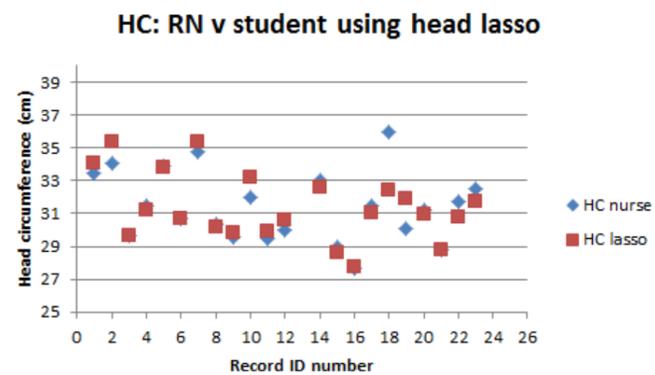


Figure 2: Compares the nurses HC measurements to student's (using head lasso). It has a Pearson correlation of 0.676. The average difference between the nurses and student's measurements is 0.65 cm

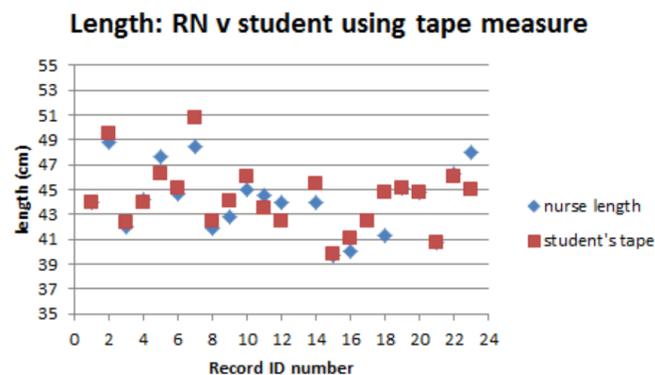


Figure 3: Compares the nurses length measurements to student's (using tape measure). It has a Pearson correlation of 0.721. The average difference between the nurses and student's measurements is 0.99 cm

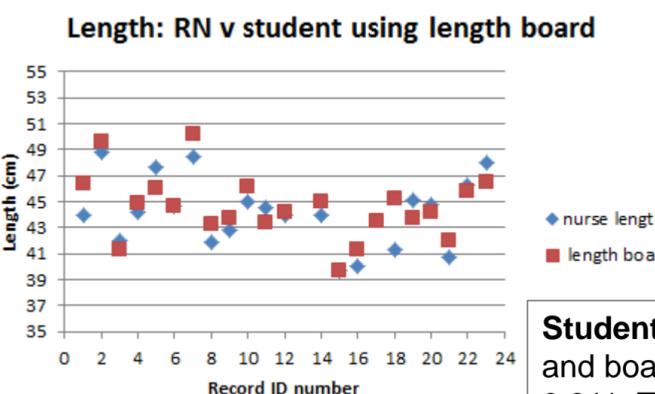


Figure 4: Compares the nurses length measurements to student's (using length board). It has a Pearson correlation of 0.699. The average difference between the nurses and the student's measurements is 1.11 cm

Student's Measurements: The tape length and board length has Pearson correlation of 0.911. The HC measured using the tape and lasso has Pearson correlation of 0.985

CONCLUSIONS

- 1) Measurements done by student with either method were highly correlated with nurse measurements
- 2) High correlation between the student's measurements using both methods may suggest bias
- 3) No babies experienced any negative effects during growth measurements
- **Future directions:** Have the nurses do the measurements with the length board and head lasso to compare their measurements with the tape measure to the new tools.

CLINICAL IMPLICATIONS

- Implementation of head lasso and length board in NICU for HC and length measurements is feasible, easy, and safe
- Earlier detection of growth problems may allow for dietary adjustments
- Although using the head lasso and length board may not be more precise, there may be more benefits that were not measured

LIMITATIONS

- Narrow range of qualified babies made enrollment difficult
- Babies in the study commonly were discharged shortly after enrollment
- Nurse measurements sometimes missing or are not done within 24 hours of student measurements

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