INTRODUCTION

The Department of Science and Technology-Food and Nutrition Research Institute (DOST-FNRI) conducts periodic National Nutrition Surveys (NNS). One of the components of NNS is the Anthropometry which includes measurements of length/height. For several years, the wooden infantometer and microtoise are utilized to measure length/height. With technology progressing in a rapid pace, emergence of innovative modifications on these instruments raised the competitive criteria for selection with the basis on ease of use, economic cost, and most importantly, the quality of data produced.

In 2015, the FNRI acquired new instruments for measuring length/height such as the medical plastic infant measuring board and stadiometer. To ensure the reliability of data, it is important to establish that the new instruments are as accurate as the ones being currently used before they are purposely adopted in nutrition surveys.

The study aimed to determine whether the measurements obtained from the new instruments are within the same degree of differences and are within acceptable level of agreement with the current instruments before they are used in the nutrition surveys.

MATERIALS and METHODS

- **Instruments**
  - Old vs. New
    - Wooden Infantometer
    - Medical Plastic Infant Measuring Board
    - Microtoise
    - Stadiometer

- **309 Study Participants**
  - Children below 2 years old (Brgy. Central Bicutan),
  - Children 2 to 5 years old (DOST Day Care Center),
  - Children 6 to 19 years old (Bataan Central Elem. School and Bataan Montessori, Inc.),
  - Adults 20 years and above (DOST-FNRI)

- **Analysis**
  - Scatter Plot
  - Correlation Analysis
  - Bland-Altman Plot
RESULTS

The Bland-Altman plots show the mean overall difference in measurements from the two instruments (bias). In evaluating the agreement between measurements, the differences should be equal to zero to conclude that the two sets of measurements are similar. The differences from all age groups were lesser and greater than zero but were relatively small. Bias from all age groups did not exceed 0.5 cm (-0.245, 0.019, -0.023, 0.161, 0.161 and -0.060cm, respectively) and are within the limits of agreement approximately 95% of the time.

The scatter plots showed the mean of measurements were tightly scattered along the line. The correlation coefficients for each age group ($r = 0.20, 0.08, 0.03, 0.00$ and $-0.04$, respectively) indicated strong association between the two sets of measurements.
RESULTS

Testing for differences in measurements

Across age groups, despite having both negative and positive bias, values are below ±0.5 cm which was the acceptable difference set for this study.

CONCLUSION and RECOMMENDATION

The old & new instruments are within the same degree of differences and acceptable level of agreement between measurements.

Characteristics
- Ease of use
- Ease of transport

The measurements between the old and new instruments were comparable.

The new instruments for length/height may thus be used in lieu of the current instruments provided that standard techniques are followed to limit measurement errors.