

## Development of a Practical Screening Measure for the Prediction of Low Birth Weight and Neonatal Mortality in Upper Egypt

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**Abstract :** Objectives: Reducing neonatal mortality by 2030 is still a challenging goal in developing countries. low birth weight (LBW) is a significant contributor to this, especially where weighing newborns is not possible routinely. The present study aimed to determine a simple, easy, reliable anthropometric measure(s) that can predict LBW) and neonatal mortality. Methods: A prospective cohort study of 570 babies born in districts of El Menia governorate, Egypt (where most deliveries occurred at home) was examined at birth. Newborn weight, length, head, chest, mid-arm, and thigh circumferences were measured. Follow up of the examined neonates took place during their first four weeks of life to report any mortalities. The most predictable anthropometric measures were determined using the statistical package of SPSS, and multiple Logistic regression analysis was performed.: Results: Head and chest circumferences with cut-off points  $< 33$  cm and  $\leq 31.5$  cm, respectively, were the significant predictors for LBW. They carried the best combination of having the highest sensitivity (89.8 % & 86.4 %) and least false negative predictive value (1.4 % & 1.7 %). Chest circumference with a cut-off point  $\leq 31.5$  cm was the significant predictor for neonatal mortality with 83.3 % sensitivity and 0.43 % false negative predictive value. Conclusion: Using chest circumference with a cut-off point  $\leq 31.5$  cm is recommended as a single simple anthropometric measurement for the prediction of both LBW and neonatal mortality. The predicted measure could act as a substitute for weighing newborns in communities where scales to weigh them are not routinely available.

**Keywords :** low birth weight, neonatal mortality, anthropometric measures, practical screening

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