ACCURACY OF REPEAT NEWBORN SCREENING TEST FOR THE DIAGNOSIS OF G6PD DEFICIENCY AMONG PRETERM NEONATES IN SOUTHERN PHILIPPINES MEDICAL CENTER, DAVAO CITY, PHILIPPINES

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Objective: To determine the *accuracy* of the initial screening test for *G6PD deficiency* (>24th hour of life) and the *repeat* screening test (28th day of life) among *preterm* neonates in Southern Philippines Medical Center (SPMC) in Davao City

Design: A retrospective cohort study design was used, which included the screening data for *G6PD Deficiency* and confirmatory results of all preterm neonates.

Setting: The study was conducted in SPMC, a tertiary hospital in Davao City.

Participants: This study included all *preterm* neonates (<37 weeks age of gestation) screened for *G6PD deficiency*. There were no exclusion criteria for this study.

Main Outcome Measures: The main outcome measures were sensitivity, specificity, PPV, and NPV of the initial and *repeat* screening tests.

Results: Overall, 4,507 *preterm* neonates had initial screening. Of the 187 who screened positive, 39 underwent confirmatory test. Thirty-seven (37) were confirmed G6PD-deficient, while two (2) were confirmed G6PD-normal. Of the 4,320 who initially screened negative, 792 had *repeat* screening. Of these, 32 screened positive, but only 14 had confirmatory test- all were confirmed G6PD deficient. There was no significant difference between the proportion of confirmed positive cases in the initial (94.9%) and *repeat* testing (100%). Individually, the two screening tests are highly accurate. The initial screening test had a sensitivity and PPV of 97.5% and 86% respectively, while the *repeat* screening test had a sensitivity and PPV of 100% and 89% respectively. The ROC curve analysis showed *repeat* screening test (AUC of 0.667) yielded better diagnostic performance than the initial test (AUC of 0.431).

Conclusion: This study supports the implementation of the repeat testing protocol at 28 days of life in preterm neonates. The *repeat* screening showed high accuracy in detecting true G6PD deficient preterm neonates missed on initial screening. A prospective study with a larger sample size is recommended. Studies to determine the appropriate age of gestation cut-off values for detecting G6PD deficiency among preterm neonates is also recommended.