

## Incidence, recurrence and predictors associated with recurrence of low birth weight in Northern Tanzania

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### Background

Low birth weight (LBW) is an important indicator of newborn survival and is associated with higher risk of infant mortality, morbidity and long term health consequences later in life. Little has been explored on the recurrence of LBW and associated risk factors in developing countries including Tanzania. This study aimed to determine incidence, recurrence and associated risk factors for in Northern Tanzania.

### Methods

This was a retrospective cohort study using maternally-linked data from Kilimanjaro Christian Medical Centre (KCMC) medical birth registry. A total of 48,008 births from 8,417 women who delivered live born between 2000 and 2014 were followed for subsequent deliveries. Recurrence risk with 95% CI for LBW and associated risk factors were estimated in a multivariate log binomial model while accounting for correlation between births of the same mother.

### Results

Incidence of LBW was 7.9%. The recurrence rate of LBW was 24.9% compared with 5.9% for those who had normal birth weight babies in first pregnancy. This corresponded to a relative risk of 3.7 (95% CI: 3.10 - 4.52). Some maternal conditions in the first pregnancy were associated with increased risk of LBW in the subsequent pregnancy. These include; HIV positive status (RR 2.0; 95% CI 1.26 - 3.21), preterm birth (RR 1.2; 95% CI 1.03 - 1.63) and preeclampsia (RR 1.8; 95% CI 1.26 - 2.45). Only preeclampsia in the first pregnancy was associated with increased risk of recurrent of LBW (RR: 1.6 95% CI 1.01-2.54).

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### Conclusion

Although the incidence of LBW is low in the study population, but the recurrence risk is high. Preeclampsia in the first pregnancy was associated with recurrent LBW. Early prenatal identification of women at risk of preeclampsia to address modifiable risk factors and counsel mothers on persisting risk factors for recurrence will mitigate the risk of recurrence of LBW.

