

## **Mortality patterns and site heterogeneity of severe malaria in African children.**

### **Abstract:**

In this study we aimed to assess site heterogeneity of early, intermediate, and late mortality prediction in children with severe *Plasmodium falciparum* malaria in sub-Saharan Africa. Medical records of 26,036 children admitted with severe *Plasmodium falciparum* malaria in six hospital research centers between December 2000 to May 2005 were analyzed. Demographic, clinical and laboratory data of children who died within 24 hours (early), between 24 and 47 hours (intermediate) and thereafter (48 hours or later, late mortality) were compared between groups and survivors. Overall mortality was 4.3% (N=1,129). Median time to death varied across sites ( $P<0.001$ ), ranging from 8 h (3 h-52 h) in Lambaréné to 40 h (10 h-100 h) in Kilifi. Fifty-eight percent of deaths occurred within 24 hours and intermediate and late mortality rate were 19% and 23%, respectively. Combining all sites, deep breathing, prostration and hypoglycemia were independent predictors for early, intermediate and late mortality ( $P<0.01$ ). Site specific independent predictors for early death included prostration, coma and deep breathing at all sites ( $P<0.001$ ). Site specific independent predictors for intermediate and late death largely varied between sites ( $P<0.001$ ) and included between 1 and 7 different clinical and laboratory variables. Site heterogeneity for mortality prediction is evident in African children with severe malaria. Prediction for early mortality has the highest consistency between sites.