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Statistical Assessment of Malaria Risk Factors Using Cox Proportional Hazard Approach

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ABSTRACT The Cox proportional hazards (PH) model with time-dependent covariates has been widely used in medical and health related studies to examine the impacts of time-varying risk factors on survival. The study aimed to model the relapsing time using biographical, sanitation, environmental and preventive information as covariate risk factors. The Kaplan-Meier method, log-rank test and the Cox proportional hazards (PH) model to examining the covariates. The results indicates that the model $h(t) = h_0(t) \exp(1.91613X_{dump} - 0.49633X_{spr} + 0.81466X_{info})$ was found to fit the data better, as confirmed by the result of the global test that present reasonable and significant results (Likelihood Ratio: 18.2264, $p < 0.0004$; Score: 17.6569, $p < 0.0005$ and Wald: 19.3975, $p < 0.0002$). In conclusion it was found that, 'dumping site' ($p < 0.0106$; 95% C.I: 1.545-29.451), 'spray used' ($p < 0.0220$; 95% C.I: 0.391- 0.915), and 'information related to source of malaria' ($p < 0.0012$; 95% C.I: 1.380-3.725), have a significant effect on the relapsing time of patients under investigation.