

## Factors Associated with Long-lasting Insecticidal Net use in Households with Detected Malaria Cases in Zanzibar, 2012-2019

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### ABSTRACT

Mosquito nets remains an important tool to reduce malaria risk at both the individual and community level in Zanzibar. However, the 2017 Malaria Indicator Survey (MIS) data indicates that Long-Lasting Insecticidal Net (LLIN) use, especially among children (67.2%) and pregnant women (63.4%), remains low. This study aimed to identify factors associated with LLIN use among persons in Zanzibar where malaria cases were detected. Data from the malaria case-based surveillance system were collected from August 2012 to December 2019. Net density was calculated by dividing the number of LLINs by the number of residents per household. LLIN use was defined as the proportion of residents that slept under an LLIN the night before the visit. We conducted univariate and multivariate logistic regression analyses of the association between LLIN use and explanatory factors (age, sex, pregnancy, net density, indoor residual spraying, and a number of sleeping places). A total of 81,473 participants were included in the analysis, of which 53.9% (43,914) reported to have slept under a LLIN the previous night. The average number of residents per LLIN was 2.83 (95% CI 2.81-2.84), with the highest [3.14 (95% CI 3.09-3.17)] in 2014 and lowest [2.39 (95% CI 2.36-2.42)] in 2017. Factors associated with decreased LLIN use included: age<sup>2</sup> 5 years [OR=0.35; 95% CI 0.31-0.39]; males [OR=0.77; 95% CI 0.75-0.80], net density <0.5 [OR=0.24; 95% CI 0.16-0.35], net density 0.5-1.0 [OR=0.63; 95% CI 0.43-0.93], participants without LLINs [OR=0.03; 95% CI 0.02-0.04] and number of sleeping places in household [OR=0.94; 95% CI 0.93-0.95]. Pregnancy was associated with increased LLIN use [OR=1.12; 95% CI 1.03-1.22]. These findings suggest that improved access to LLINs is needed to achieve universal coverage above 80%. Improved behavior change communication targeting male and older household members could be conducted to re-emphasize LLIN use.

