# Surveillance of the Efficacy and Durability of LLINS Used for Malaria Control in Tanzania

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**Introduction:** Long-lasting insecticidal nets (LLINs) are an effective tool against malaria vectors. In Tanzania, LLINs coverage trends have increased over the years. According to WHO standards, LLIN is supposed to remain effective for 3 to 4 years. Thus, it is often assumed that mass distribution campaigns at 3-year intervals are enough to maintain adequate net coverage levels throughout the 3-year interval. Recent longitudinal studies and surveys have revealed that this assumption of a uniform 3-year lifespan may be over-optimistic. We conducted surveillance to determine the useful life of LLINs in terms of insecticidal efficacy and durability in 22 sentinel districts across Tanzania.

**Methods:** This was a retrospective simple sampling household LLIN survey. In each of the 22 sentinel districts selected for study, 150 systematically sampled houses were surveyed. One net from each of these households was collected and replaced with one Olyset net. Household surveys monitored net use and physical integrity, while nets were sampled and tested using cone bioassay tests for insecticidal efficacy.

**Results:** The results from this survey show that although most of the nets were still insecticidal, many nets were physically damaged after two and a half years of use. Using the hole index criteria, over three-quarters of the nets still present in households were classed as unusable and ineffective after only two and a half years of potential use.

**Conclusions:** The results of this study have important implications for malaria vector control programs using ITNs/LLINs. First, the results suggest that most bed nets deteriorate faster than the commonly assumed lifespan of 3 years. This highlights the need for change in the timing for net is the replacement. Secondly, there is a need for a biannual LLIN monitoring system as this will provide early, timely and actual information on the deteriorating protective efficacy status of the distributed LLIN in the field rather than just working on the basis of the present presupposition that LLIN will remain effective after three years of field usage.


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