

Is there a need to expose Olyset® nets to sun after washing?

In a recent paper¹, it has been confirmed that mortality of mosquitoes exposed to Olyset® nets measured by WHO cones test was significantly reduced by washing but rapidly restored when washed nets are exposed to heat for reactivation. Actually, permethrin which is incorporated within the Olyset netting fibres has a stronger excito-repellent effect than most other pyrethroids². This effect interferes with mosquito behaviour during bio-assays. Further, mosquitoes exposed to treated nettings can eventually be killed and/or repelled (avoiding contact with insecticide) based on the residual concentration of permethrin at the surface of fibres and the test method used. In real life situations, it is through a combination of killing and repellent effects as well as blood-feeding inhibition on vector mosquitoes that Olyset nets prevent malaria transmission.

Highly variable results have been obtained by different laboratories that were recently involved in testing this product using WHO cones (unpublished WHOPES multi-centre study, 2005). To avoid this problem and limit the risk of under-estimating efficacy of long lasting insecticidal nets (LLINs) similar to Olyset, a group of experts recently recommended to WHO a more comprehensive scheme for testing LLINs that includes a new test (tunnel test) in addition to the cone test³. Alternative test methods are also being developed.

Notwithstanding these debates on LLIN testing, there is evidence pertaining to the efficacy of Olyset nets in preventing malaria. All field trials reviewed by WHO have demonstrated good epidemiological impact of this product⁴. In a current trial in the United Republic of Tanzania, a complete and continuous interruption of transmission has been obtained since Olyset nets were distributed 18 months ago (LSHTM, communication to WHO). Olyset net efficacy lasts up to 7 years as observed in Côte d'Ivoire, Senegal and the United Republic of Tanzania^{5,6}. Exposing Olyset nets to sun in a plastic bag after washing may accelerate permethrin migration as stressed in the recent paper mentioned above. However, based on epidemiological results of field trials, there is no strong justification to impose this additional step. Furthermore, accelerated migration of permethrin could eventually shorten duration of the insecticidal property that is a comparative advantage of this product.

¹ Gimnig J.E. *et al.* Laboratory wash resistance of long-lasting insecticidal nets. *Tropical Medicine and International Health*, October 2005, 10-25

² Hougard J.M. *et al.* 2003. Comparative performances, under laboratory conditions, of seven pyrethroid insecticides used for impregnation of mosquito nets. *Bull World Health Organ.* 81(5):324-33.

³ Guidelines for laboratory and field testing of long-lasting insecticidal mosquito nets. WHO/CDS/WHOPES/GCDPP/2005.11

⁴ Report of the fifth WHOPES working group: review of Olyset Net and Bifenthrin 10% WP. WHO/CDS/WHOPES/2001.4

⁵ N'Guessan R. *et al.*, 2001. Olyset Net efficacy against pyrethroid resistant *Anopheles gambiae* and *Culex quinquefasciatus* after 3 years' field use in Côte d'Ivoire. *Medical and Veterinary Entomology*, 15, 97-104.

⁶ Tami A. *et al.*, 2004. Evaluation of Olyset insecticide-treated nets distributed seven years previously in Tanzania. *Malaria Journal*, 3 (19), 24pp.