

WHO recommended long-lasting insecticidal nets (LLIN)

Netprotect	DuraNet	Dawa Plus 2.0	Interceptor	Olyset	PermaNet 2.0	Permanet 3.00	Yorkkool	Royal Sentry	MAGNet	LifeNet
STATUS OF WHOPES (WHO Pesticide evaluation scheme) RECOMMENDATION (August 2011): An interim recommendation implies that the product has undergone satisfactory completion of laboratory and small-scale field-testing. Long term testing under operational conditions is required for full recommendation. Several nets are currently undergoing Phase III (PIII) testing and evaluation which aims to determine efficacy, longevity and fabric integrity in real-life situations, as well as community acceptance of an LN. LN is the code used by WHO in its specifications for LLINs.										
Interim (PIII)	Interim (PIII)	Interim (PIII)	Interim (PIII)	Full	Full	Interim (PIII)	Full	Interim	Interim	Interim
INSECTICIDE: Three main insecticides are used to treat long lasting bednets but manufacturers may also use trade names on their websites when referring to the generic names listed below. Permanet 3.0 uses an additional insecticide in combination with deltamethrin in the expectation that mosquitoes will gradually develop resistance to the existing insecticides. It is important to consult with the Ministry of Health in your programme area to ensure that the insecticides used in the proposed LLINs are acceptable i.e. that they are both licensed and effective . There have also been problems with the purchase of counterfeit nets in some programmes. To verify that nets are genuine, check the packaging and the smell of insecticide on the nets and if in doubt, contact HD health advisors on the need for an insecticide detector kit.										
Deltamethrin incorporated into polyethylene	Alpha-cypermethrin incorporated into polyethylene	Deltamethrin coated on polyester	Alpha-cypermethrin coated on polyester	Permethrin incorporated into polyethylene	Deltamethrin coated on polyester	Combination of deltamethrin coated on polyester with strengthened border and deltamethrin and PBO incorporated into polyethylene (roof)	Deltamethrin coated on polyester	Alpha-cypermethrin incorporated into polyethylene	Alpha-cypermethrin incorporated into polyethylene	Deltamethrin incorporated into polypropylene
MATERIAL: Most nets are either made from polyester or polyethylene and come in varying denier. The denier refers to the thickness of the yarn and the higher the denier the thicker the yarn. For the same denier polyethylene yarn is thicker than polyester yarn. Thicker yarns are more likely to last longer but people may complain that they are too hot or claustrophobic. The polyethylene Olyset net (>150 denier) is the thickest net available but can last up to 7 years. Polyester nets of less than 100 denier are not recommended. Lifenet uses a different plastic known as polypropylene that it claims, is as strong but not as thick as polyethylene.										
118 denier	145 ±5% denier	75 or 100 denier	75 or 100 denier	>150 denier	75 or 100 denier	100 denier – roof 75 denier - sides	50, 75 or 100 denier	150 denier	150 ±7% denier	?
COLOUR: The intended users should be consulted on the colour as this may influence uptake. In some countries white nets are used to protect the dead and the colour may be associated with death and so undermine effective use. Coloured nets also do not show the dirt and are easier to keep clean.										
Standard in white; light/dark green, light/dark blue; other colour also available on request	White, blue or green	White, blue, pink and green. Custom colours available upon request.	White or blue	Blue, green and white	White, Yellow, Pink, Khaki, Blue, Dark Blue, Dark Green, Dark Green, Green Madagascar, Light Brown	White with blue roof	White, blue, green –others on request	White, blue, green – others on request	White, blue, green – others on request	?
SHAPE: All nets except for Permanet 3.0 are available in conical or rectangular shapes. A rectangular Permanet 3.0 is only available at present (September 2011). Permanet 2.0 is available as a hammock. Conical nets are easier to install as they have one central hook. It is important to have an understanding of how they will be used and the size of the shelter before choosing the shape. A table of net sizes and other technical data has been compiled by the RBM Partnership and is available at: http://www.rbm.who.int/psm/procurementLLINs.html										
COMPANY AND PLACE OF MANUFACTURE: Several manufacturers have factories in various locations around the world. Contact details and location of production for all of the manufacturers is available at: http://www.rbm.who.int/psm/procurementLLINs.html										
Intelligent Insect Control France	Clarke Mosquito Control USA	Tana Netting Thailand	BASF USA	Sumitomo Chemical, Japan	Vesterggard Frandsen Switzerland	Vesterggard Frandsen Switzerland	Yorkkool International Limited China	Disease Control Technologies USA	V.K.A. Polymers India	Bayer CropScience France
PRICING/COST: The price of a LLIN ranges between US\$4.5 -8 . Pricing is influenced by the size and expected lifespan of the net as well as by the number of nets ordered and should be negotiated with the supplier. A recent study claimed that IRS (indoor residual spraying) was 6-10 times more costly per DALY and death averted than LLINs with 5 years of useful life.										
OTHER: The type of packaging may also influence choice of net but this may also be negotiable with the manufacturer. All nets meet fire safety regulations . The thicker polyethylene nets will be heavier to transport and will take up more space than the lighter polyester nets. Prolonged storage of nets should be avoided.										
						Packed in oxo-biodegradable bag			Packed in oxo-biodegradable bag	