Long-Lasting Insecticidal Nets Supply Update

UNICEF Supply Division

August 2016
Long-Lasting Insecticidal Nets Supply Update - August 2016

This update reports on 2015 long-lasting insecticidal nets (LLINs) supply, deliveries, and 2016-2017 demand. UNICEF launched a new tender during 3Q 2015 to improve LLIN pricing for 2016, concluding with UNICEF issuing long-term arrangements to nine suppliers.

A more recent note covering LLINs exists. Please visit http://www.unicef.org/supply/index_54214.html

1. Summary

- UNICEF LLIN procurement in 2015 totalled 22.3 million nets, having reduced slightly from 26.5 million in 2014. However, UNICEF projects demand for 2016 to increase to reach approximately 40 million LLINs.
- The supply landscape remains stable and estimated aggregate production capacity is now significantly higher than market demand. Globally, LLIN deliveries reached approximately 207 million during 2015.
- The LLIN weighted average price (WAP) secured through UNICEF continues to decline. Over the past five years the WAP decreased by approximately 40%, from US$ 4.20 in 2011 to reach US$ 2.40 in 2015, enabling significant savings for programmes and partners.
- UNICEF concluded its LLIN tender during 3Q 2015 and issued long-term arrangements (LTAs) to nine suppliers. UNICEF anticipates that over the course of this latest tender, the LLIN WAP could decrease to below US$ 2.00.
- Several new products are under development or undergoing World Health Organization’s Pesticide Evaluation Scheme (WHO-PES) evaluation. Among these are new LLIN technologies that could help stem the rise in insecticide resistance.

2. Background & Recent Procurement Trends

UNICEF’s previous LLIN Supply Updates provide general epidemiological and market background, detailing supplier-specific pricing and, at that time, the impact delayed funding had on procurement activity. Rebounding from a previous decline, UNICEF’s procurement through 2012-2015 reversed an annual decline since 2009.

UNICEF articulates supply trends as either number of nets procured or number of nets delivered. Substantial differences can occur between annually reported LLIN deliveries and LLIN procurement due to long-lead delivery times for shipments by sea (between two to eight weeks depending on the volume) and their subsequent transit to community distribution points.

In 2015, UNICEF procured approximately 22 million LLINs on behalf of 32 countries, the majority of which are in sub-Saharan Africa (SSA) (Figure 1). Year-to-year demand can vary significantly for each country due to some large-scale rollout projects and countries procuring LLINs on a two-three year cycle. While procurement through UNICEF has ranged between 20 and 30 million LLINs per year, its share of global LLIN procurement declined to 13% due to increasing centralised procurement by other major partners, notably the Global Fund to Fight AIDS Tuberculosis and Malaria (the Global Fund) and the United States (US) President’s Malaria Initiative (PMI) (Figure 2).

The Net Mapping Project, developed by the Alliance for Malaria Prevention (AMP), a multi-sectorial partnership within the Roll Back Malaria (RBM) Partnership initiative, monitors the global delivery of
LLINs on a quarterly basis.\(^1\) The 2015 reported figure for LLINs distributed across SSA reached 178 million, exceeding the annual target of 150 million by nearly 20%. The significant growth in the global LLIN market can be attributed to two major buyers, the Global Fund, PMI, in addition to UNICEF and other miscellaneous procurers.

**Figure 1** UNICEF’s Global ITN Procurement Trend 2011-2015

**Figure 2** Sub-Saharan Africa Deliveries: Total versus UNICEF 2011-2015

Source: Net Mapping Project / UNICEF Supply Division.

### 3. Current Market Update

#### 3.1. UNICEF’s View of Demand

For 2015, UNICEF procured approximately 22 million LLINs for 32 countries. For 2016, UNICEF forecasts the procurement of 40 million nets for delivery to 29 countries (Figure 2). The anticipated increase in 2016 is due to LLIN demand being cyclical and based on campaign delivery modalities, as well as the increasing availability and stability of financing, notably from the Global Fund. The Global Fund is channeling the procurement of some large projects in 2016 through UNICEF (e.g. Chad, Côte d’Ivoire, and Sudan) rather than other agents.\(^2\)

**Figure 3** Estimated LLIN Needs in SSA during 2014-2017

Funding predictability has improved compared to 2012 and has achieved over 80% during 2014-2015, supplementing UNICEF’s ability to procure additional LLINs to meet country needs. It has also ensured supplier production capacity to accommodate the high global demand expected through 2017. For 2016, the African Leaders Malaria Alliance (ALMA) identifies a need for approximately 179 million LLINs, of which 119 million are already funded (Figure 3).

Source: ALMA.

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2. The increase in LLIN demand is not in response to the current Zika virus outbreak. UNICEF will be publishing an information note on Zika virus and UNICEF’s response shortly. The latest Zika virus situation reports are available [here](#).
Many countries rely on their own in-country registration requirements and do not accept that WHOPES recommendations are sufficient to allow use of pesticide-containing products like LLINs. As a result, the limited number of products that have secured in-country product registration often determines country product choice. For example, some countries have only one LLIN product registered (i.e. Sudan and Bolivia), which limits choice, and from a procurement standpoint, limits flexibility and availability. In-country registration requirements can be a barrier to access affordable LLINs. To ensure supply security, UNICEF strongly encourages countries to register multiple products from different suppliers. To help target these efforts, in 2016 UNICEF is compiling a comprehensive list of LLIN registration requirements and will publish this in due course.

3.2. Supplier Base and Capacity

UNICEF relies on WHOPES recommendations of LLIN products as a precursor to procurement. WHOPES promotes and coordinates the testing and evaluation of pesticide safety, efficacy, and the operational acceptability of public health pesticides. In the context of LLINs, the scope of WHOPES’ work covers norms, standards, life-cycle management, and the specifications for quality control. WHOPES currently recommends fifteen LLIN products manufactured by fourteen separate suppliers. WHOPES has an additional eight LLIN products from eight suppliers (of which one is a new supplier) currently under evaluation for recommendation. Four of these products under WHOPES evaluation are already in Phase III trials. However, the WHOPES evaluation process can take up to 2-3 years to complete.

Suppliers with WHOPES-approved products estimated their aggregate total global installed production capacity of recommended standard-sized LLINs to be approximately 300 million nets per year (though in practice, requirements for non-standard size nets and customization reduce the available capacity).³

During 3Q 2015, UNICEF concluded its LLIN tender issuing nine LTAs to nine suppliers for 2016 (Table 1). All awarded suppliers have been established for some time, and supplied UNICEF during the previous tender.

Table 1 UNICEF LTAs with Suppliers 2016

<table>
<thead>
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<th>Supplier</th>
<th>LTA Duration</th>
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<th>End Date</th>
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<td>VKA Polymers</td>
<td>12 months</td>
<td>01/01/2016</td>
<td>31/12/2016</td>
</tr>
</tbody>
</table>

Source: UNICEF Supply Division.

3.3. Price and procurement trends

UNICEF publishes a retrospective list of LLIN prices for each LLIN supplier that holds an LTA with the organization.⁴ However, published prices do not reflect volume discounts, price decreases, nor increased costs due to incurred customization during the LTA period.

³UNICEF has three standard LLIN sizes: i. Rectangular 190 x 180 x 150 cm (LxWxH), 110-150 denier, colour white; ii. Rectangular 180 x 160 x 150 cm (LxWxH), 110-150 denier, colour white; Conical 1050 x 220cm (CxH), 110-150 denier, white.

⁴ LLIN price based on LLINs: 190 x 180 x 150 cm; minimum 100 denier; colour white.
The WAP for LLINs secured by UNICEF declined by 40% over the past 5 years, reducing from US$ 4.20 in 2011 to reach US$ 2.40 in 2015 (Figure 4). UNICEF expects the estimated WAP for 2016 to reach below US$ 2.00 following the results of the recent tender.

Figure 4 UNICEF Procurement and WAP Data and Forecast 2011-2016

To achieve these results, UNICEF collaborated with the Global Fund in recent years across a range of dimensions – reducing the range of products procured (from 44 different colours, sizes and shapes of LLINs to less than ten); synchronizing demand forecasts and procurement horizons with country budgeting cycles; and sending consistent signals to LLIN manufacturers by co-hosting a recent industry meeting. Along with the aforementioned improvements in funding predictability, these efforts have facilitated efficient market functioning and competition leading to favourable pricing trends.

Source: UNICEF Supply Division

3.4. Durability

Current WHO laboratory testing guidelines expect LLINs to retain biological activity for a minimum number of 20 standard washes under laboratory conditions and a three-year minimum period of use under field conditions. At present, WHOPES evaluations do not differentiate between LLIN products based on their relative durability, as the assumption is that they have undergone the relevant field trials, and that they are all sufficiently and comparatively durable. However, LLIN serviceable life depends on various factors in addition to textile durability and insecticide efficacy, such as a net’s attrition rate and damage to the net, depending on the way households use the net. Following the publication of WHO’s guidance on monitoring LLIN durability in 2013, numerous reports were published documenting that there are variations in longevity between different products and brands. Despite the latest reports on WHO monitoring guidance, the results of the studies comparing findings are not yet clear.

Some progress has been made in defining criteria that could inform future procurement decisions using laboratory-based LLIN evaluation results as a basis. In 2014, Results for Development (R4D) made significant progress in analysing the root causes of LLIN failures. They identified potential laboratory tests that could inform the target product profile of a more durable future LLIN. However, field durability has been shown to be difficult to measure, and very country- and culture-specific. As a result, in the recently conducted tenders, there was not enough robust durability data on products to inform procurement decisions. UNICEF remains willing to apply definitive and harmonised global

5 Data based on all LLIN products (standard and customized) and adjusted to account for rebates and other product costs.
durability indicators into future procurement activities once these have been developed and agreed with partners and industry. In the meantime, UNICEF will support of the work led by global partners to develop durability indicators, and will encourage suppliers’ engagement in these endeavours.

4. Issues and Challenges

- Some countries do not have multiple registered LLIN products. Countries that have a limited supplier base have an increased risk to supply insecurity and an increased WAP.
- Between 2010 and 2013, WHO reported resistance of Anopheles mosquitoes to at least one of the four insecticide classes recommended by 53 countries. Insecticide resistance in Anopheles has spread geographically and now affects all malaria-endemic regions. Resistance increased in intensity by x1000 - particularly for pyrethroids, which is an insecticide used in all WHOPES-recommended LLINs. Two of the new LLIN products currently undergoing WHOPES evaluation are treated with a piperonyl butoxide (PBO) synergist. The use of PBO enhances the effect of pyrethroid insecticides in LLINs to counter growing malaria insecticide resistance.
- Performance specifications using a harmonized set of global durability indicators have yet to be finalized and applied through WHOPES evaluation criteria, or global procurement.

5. Next Steps

- UNICEF will work with partners to ensure correct use of existing interventions and availability of new tools in order to maintain the effectiveness of malaria vector control.
- UNICEF will work with partners and governments to improve and diversify the number of LLIN products registered in countries, to mitigate risks to supply insecurity.
- UNICEF will further engage with partners to work towards different LLIN categorization on evidence-based durability to inform appropriate product selection and reduce long-term costs, and maximise effectiveness.
- UNICEF’s will continue to foster collaboration with global partners, including the Global Fund, and PMI, to improve aggregate forecasts, monitor implementation, and ensure alignment of policy and practice to stabilize and make more certain LLINs demand, and increase market efficiency.

For further questions or additional information, please contact:

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Other UNICEF information notes can be found at: [http://www.unicef.org/supply/index_54214.html](http://www.unicef.org/supply/index_54214.html).

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