Greater funding needs to be allocated toward mosquito nets to prevent malaria

In a house in Moyo village in northern Uganda, Sharon Mazria hangs a long-lasting insecticidal net (LLIN) where her grandchildren sleep each night. She's determined to guard them against one of their communities — and sub-Saharan Africa's — biggest killers.

"People underestimate malaria until they lose someone to it or become bedridden," she told Vestergaard. "For the common person, mosquito nets are the easiest and most convenient way to reduce its spread."

But a cost hike in one of the world's most cost-effective and valuable public health tools, which has helped prevent nearly 68% of all malaria cases across Africa and saved more than seven million lives, threatens progress made against the disease.

In 2021, global logistics and shipping challenges have sharply increased the cost of delivering mosquito nets. The average cost of shipping a standard large container (a 40-foot-equivalent unit, or feu) has surpassed $10,000, some four times higher than the cost a year ago. Such cost rises have eaten away at budgets that didn't allow for them. And costs are expected to remain high in 2022.

Furthermore, prices for oil and oil derivatives have rebounded from 10-year lows in 2020. This includes the main raw materials for mosquito nets polyester and polyethylene, which have risen by around 60% over the past few months. Yarn index prices have not yet caught up with the rise in oil prices and the market is temporarily benefitting from a high level of inventory compared to demand. Yarn prices are expected to climb further over coming months, which may lead to an adjustment of the price of mosquito nets in the range of 10-30%.

Will cost hikes disrupt the roll-out of new more effective mosquito nets?

These cost increases affect malaria programmes as they roll out more effective piperonyl butoxide, a liquid organic compound used in pesticide formulations and dual-active ingredient mosquito nets to fight mounting insecticide resistance.

An evolution in malaria prevention tools is long overdue and is critical both in decreasing a stagnant or, in some places, rising malaria incidence rate, and in accelerating progress towards elimination. But these new tools have a higher cost and donors must invest additional funding to finance their deployment.

A major portion of the funding available for malaria prevention goes to mosquito nets. A perfect storm is looming which combines multiple factors that will increase the cost of mosquito nets. They include more expensive innovative mosquito nets with increased efficacy against insecticide resistance, exploding shipping costs, significant increases in raw material costs as well as additional programmatic costs due to COVID-19 sanitary measures. Without additional funding from donors, malaria programmes will be forced to distribute fewer mosquito nets or reduce the rollout of new more efficacious tools, putting millions of lives at risk.

Costs have gone down for a decade. The malaria community now needs to come to terms with prices fluctuating.

Although humble in terms of physical structure, the mosquito net is highly sophisticated in design. It has become the developing world's backbone in the fight against malaria, and more broadly of family disease protection. The great strides in vaccine development and chemoprevention will certainly transform progress against malaria in the future, but mosquito nets will remain essential for at least the decade to come. For about $5, a single mosquito net can be delivered to a rural village to protect an average of two people for up to three years. Since 2004, over two billion LLINs have been delivered around the world.

It took the malaria industry 15 years to learn how to make mosquito nets that efficiently protect against this ancient disease. Today, The Global Fund to Fight AIDS, Tuberculosis and Malaria along with the United States Presidential Malaria Initiative (PMI) fund most of the world's mosquito nets.

For a decade, these buyers have prioritised price reduction in order to help achieve universal coverage goals to provide mosquito nets to populations at risk of malaria. Over time, prices of nets have dropped significantly from about $5 in 2008 to $1.85 in 2021, according to UNICEF figures. By 2019, 68% of households in sub-Saharan Africa had at least one insecticide-treated net (ITN), with prices having reached historic lows. But prices are now rising and will only continue to do so in the medium term.

In the past, LLIN producers have been able to reduce prices by optimising manufacturing processes and scaling their economies as the market has grown. LLINs are now considered a mature product; profit margins have decreased while few options to optimise manufacturing processes remain. Margins are now so low that producers cannot absorb any increase in raw material prices.

Cost cutting has already affected the quality of mosquito nets in the market as a whole, which has shaken the malaria community. With suppliers facing the prospect of manufacturing at a loss, supply could be severely disrupted.

While costs for manufacturers are becoming untenable, price revisions are challenging to implement due to various reasons. These include donors' long-term budget cycles, price competition according to market dynamics, and contractual mechanisms in place.

With limited budgets and the COVID-19 pandemic increasing rivalry for aid dollars, donors will be forced to make hard decisions. They will also need to come to terms with price fluctuations.

Strategic engagement of industry can create additional value for the malaria community.

Adjusting price setting expectations will allow donors an opportunity to engage more strategically with the industry. Keeping prices artificially low will only compromise the integrity of a healthy market.

Donors can also leverage their purchasing power to build a strategic supply chain that will

ensure reliable suppliers can produce high quality LLINs at scale in a sustainable manner. This will also enable suppliers to create additional value, for example by holding stock for donors to significantly reduce lead times.

In addition, manufacturers must be incentivised to remain engaged, invest in more sophisticated technology, such as dual-active ingredient nets, and innovate the products of tomorrow. But it will not be feasible for them to develop advanced nets if their price remains at $2.

As always, the more complicated the technology, the greater the cost. And with low profit margins and price expectations misaligned with the industry's need for a return on investment, sophisticated products are no guarantee.

More than 100 years ago, malaria was a disease that was commonly found in Europe and North America. Since then, 40 countries have eradicated it. Together, we've come a long way, cutting the annual death rate from one billion to nearly half a million — 409,000 — over the previous two decades. Yet the disease remains one of the biggest killers of children under five in Africa. The World Health Organization, which will publish the next World Malaria Report in December, has reiterated that eradicating malaria is a worthwhile goal. But with current tools, it says a world without this disease is far away.

Nevertheless, mosquito nets are a tool that has saved millions of lives and they will remain critical in the fight against malaria for the foreseeable future. As Francis Andega, a community leader in Moyo, told Vestergaard in March: "It breaks my heart each time we lose a community member to an illness as preventable as malaria. If you sleep under a mosquito net, you are protected."