

Modeling potential drivers of ITN coverage gaps in sub-Saharan Africa

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Internal

For more detail, read here:



ARTICLE

https://doi.org/10.1038/s41467-021-23707-7 OPEN

Maps and metrics of insecticide-treated net access, use, and nets-per-capita in Africa from 2000-2020

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https://www.nature.com/articles/s41467-021-23707-7

Check for updates

Definition of metrics

Access: proportion of people who could sleep under a net in their household, assuming two people per net Use: proportion of people who do sleep under a net Use rate: use among those with access Nets per capita: nets/population



Brief note on the modeling





Net use *overall* is low...





...but so is access.





Use among those with access is relatively high.



2020 Use Rate (%)





IDM INSTITUTE FOR DISEASE MODELING

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Why is access so low?



Efficient allocation of nets is challenging.







Efficient allocation of nets is challenging.







Net retention times are short.

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Net retention times are short



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Retention time finding led to current work on durability.



Lack of physical integrity seems to be the primary driver for early net loss.

Reasons for loss of nets

Respondents were asked to provide the reason for the loss of the net. The vast majority of nets that were destroyed or thrown away were described as "too torn" (86% and 93%, respectively). Of nets that were given to others, 71% of respondents said it was because the net was not needed. For the 19 nets that were sold, seven were sold because the household needed money, seven because they were not needed, and four were reportedly sold because they were too torn. Three quarters of the nets that were used for other purposes were described as too torn. Even for the few (148) nets that were relatively new (under a year old) and used for another purpose, 66% were used for other purposes because the net was reportedly too torn.

> Koenker et al. Malaria Journal 2014, 13:464 http://www.malariajournal.com/content/13/1/464



RESEARCH

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What happens to lost nets: a multi-country analysis of reasons for LLIN attrition using 14 household surveys in four countries

 $\label{eq:Hannah Koenker^1, Albert Kilian^{2,3}, Celine Zegers de Beyl³, Emmanuel O Onyefunafoa⁴, Richmond A Selby⁵, Tarekegn Abeku³, Megan Fotheringham⁶ and Matthew Lynch¹$



What type of burden reduction could we expect from more durable nets?

More durable nets that are retained for more time may substantially improve ITN effectiveness at preventing malaria transmission.

The duration of net **retention** and net **blocking** are both important.

Currently exploring cost effectiveness assessments and comparing more durable nets to other strategies such as more frequent distributions.



Concluding thoughts

Net use reflects a complex political, logistical, and cultural landscape.

Overall, net access is a higher barrier to high coverage than net use.

Achieving high access faces challenges of both distribution efficiency and short retention times.

Policymakers are exploring more durable nets, more frequent distributions, and more... what solutions are you considering?



Thank you so much.





Peter Gething Samir Bhatt Camilo Vargas-Ruiz Mauricio Van Den Berg Caitlin Bever Daniel Bridenbecker

