



Increase in the malaria entomological inoculation rate following indoor residual spraying withdrawal in Atacora, Benin

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Background

Vector control is a cornerstone of malaria prevention

Because of the high cost of VC interventions, the sustainability becomes a great challenge for the NMCPs



Has contributed to a significant decrease in malaria worldwide

High recurrent cost (median economic cost of protecting 1 person per year for any Vector Control intervention ranged from \$1.18 to \$5.70),

Lesong Conteh et al., 2021

Background...

- In Benin, malaria vector control mostly relies on long-lasting, insecticidal-treated bed nets (LLINs) and indoor residual spraying (IRS)

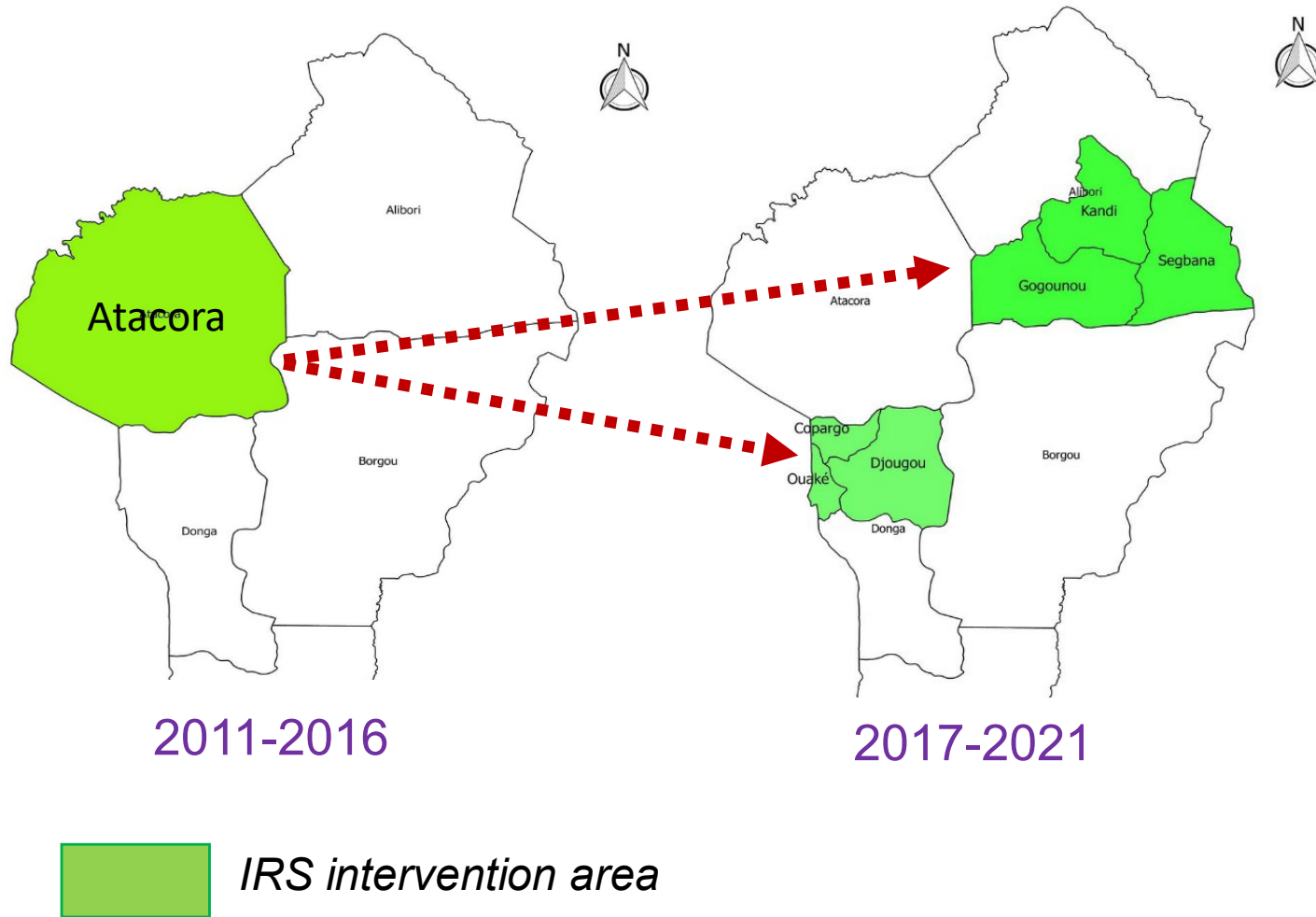


- Mass distribution Campaign
- Routine distribution (Pregnant women & children of about 1)



- Annually in northern Benin
- High transmission area

Background...



- From 2011 to 2016, an IRS programme has been implemented in Atacora
- In 2017 the program was withdrawn from two other regions
- With hope that gains would be relatively sustained because of the seasonality of malaria transmission

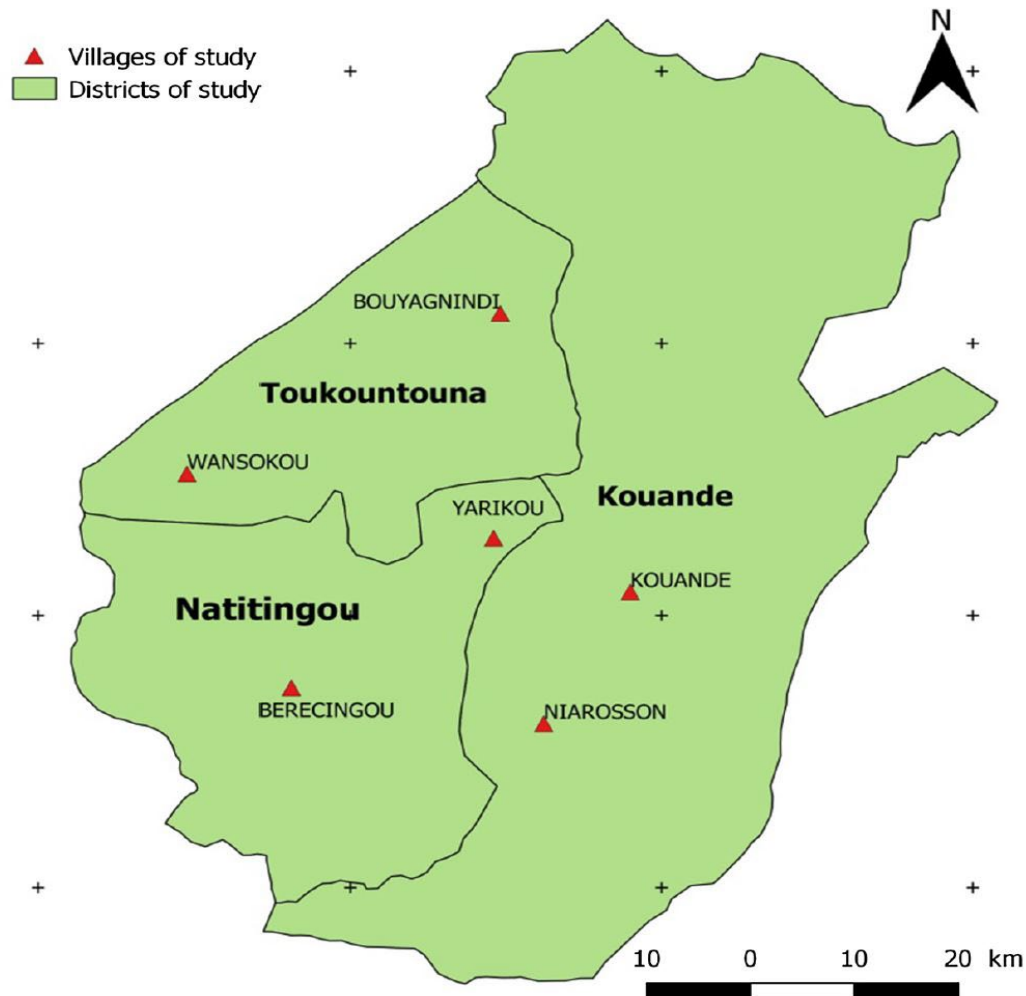
Background...



What would be the vulnerability of populations to malaria after the withdrawal of IRS?

Methods

Study area



- Data were collected in three districts in Intervention area in 2016 (during the last IRS campaign) and in 2018 (2 years after the withdrawal of IRS).

Methods

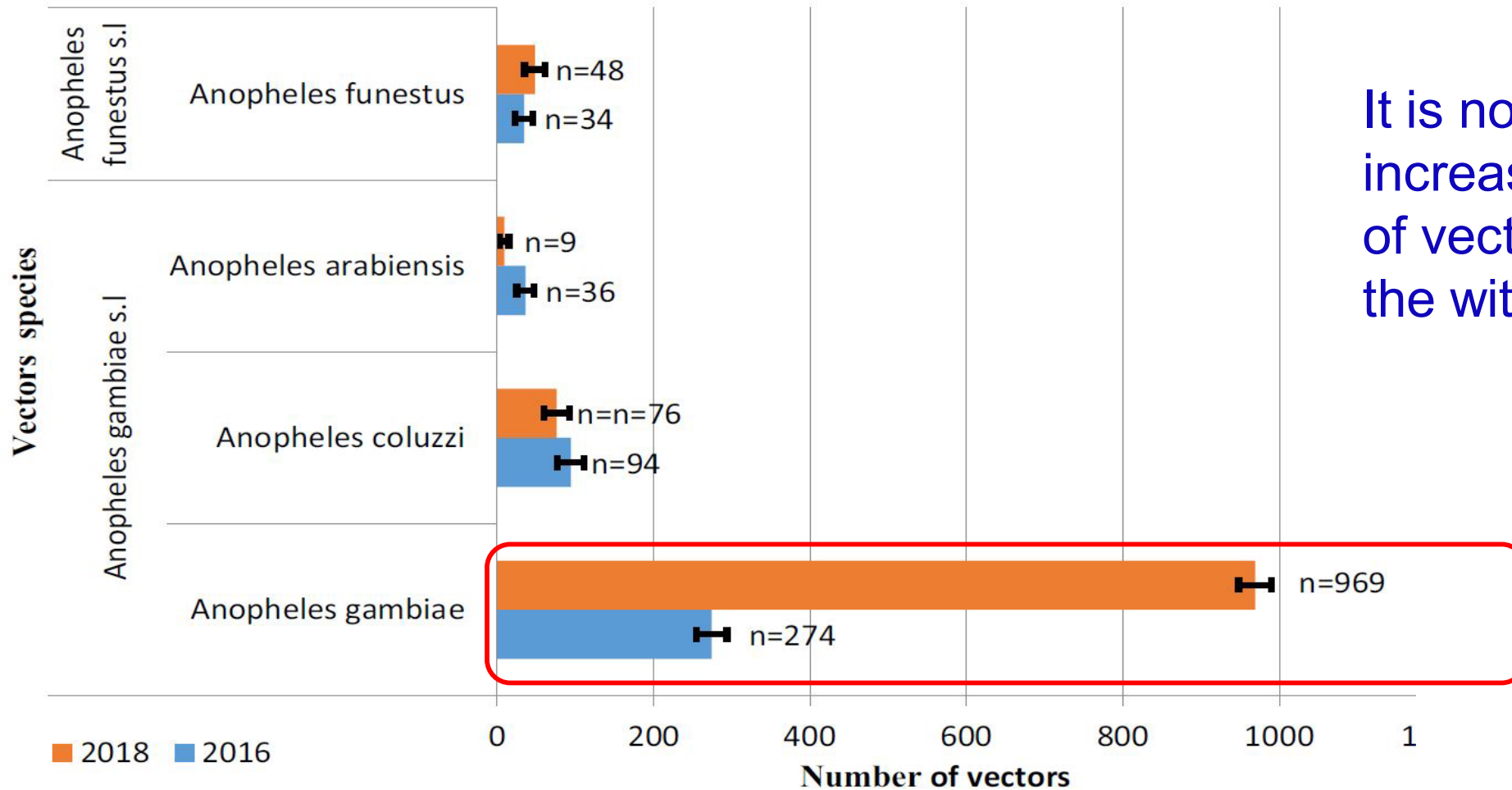
- The entomological indicators of malaria transmission were compared between 2016 (before IRS) and 2018 (after IRS) in the implementation area)



- Monthly mosquito collections were performed through HLCs for 24 months
- Collected mosquitoes were identified at species level based on morphological criteria
- molecular species identification using polymerase chain reaction (PCR) assays was performed.
- The percentage of mosquitoes that were positive for sporozoites based on an ELISA test.

Results

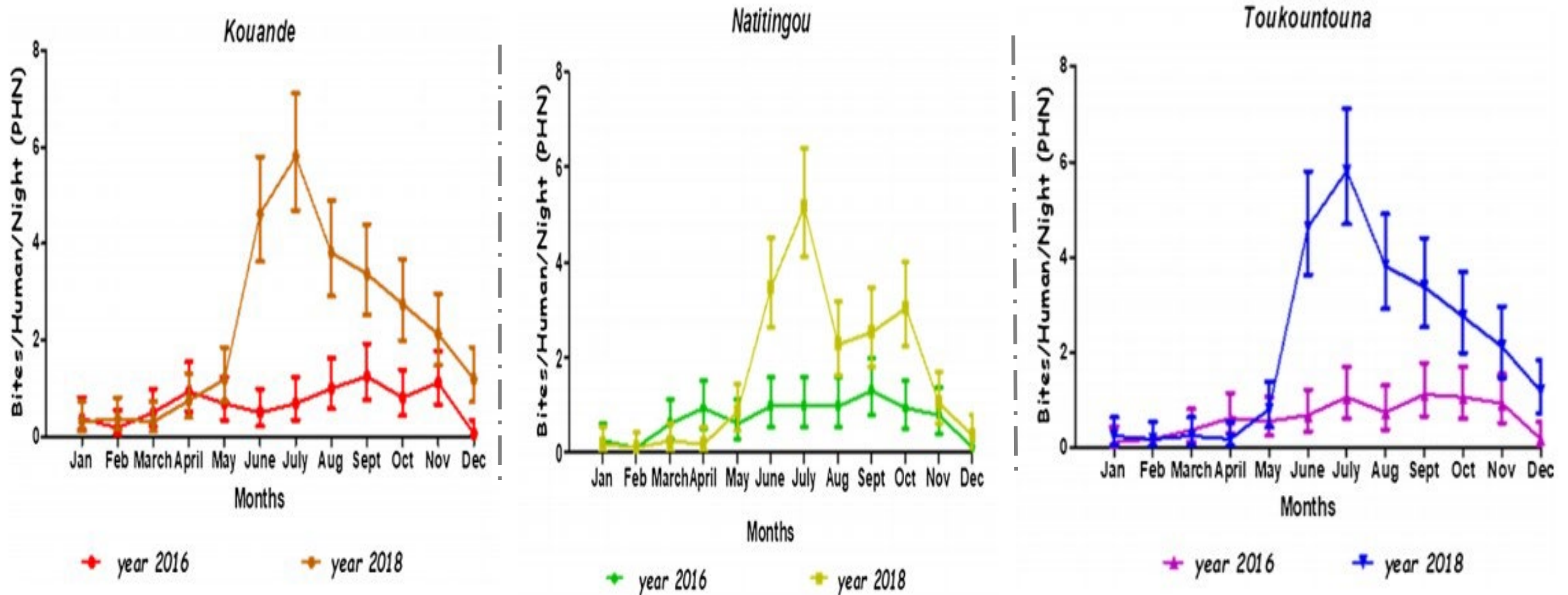
Vector abundance



It is noticed a drastic increase (~3 times higher) of vector abundance after the withdrawal of IRS.

Results

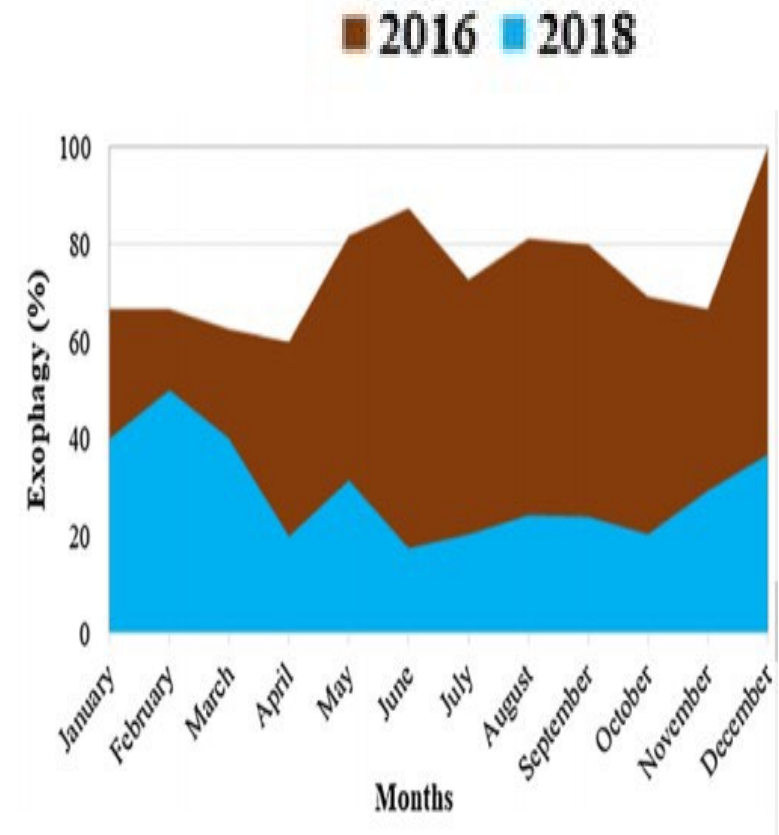
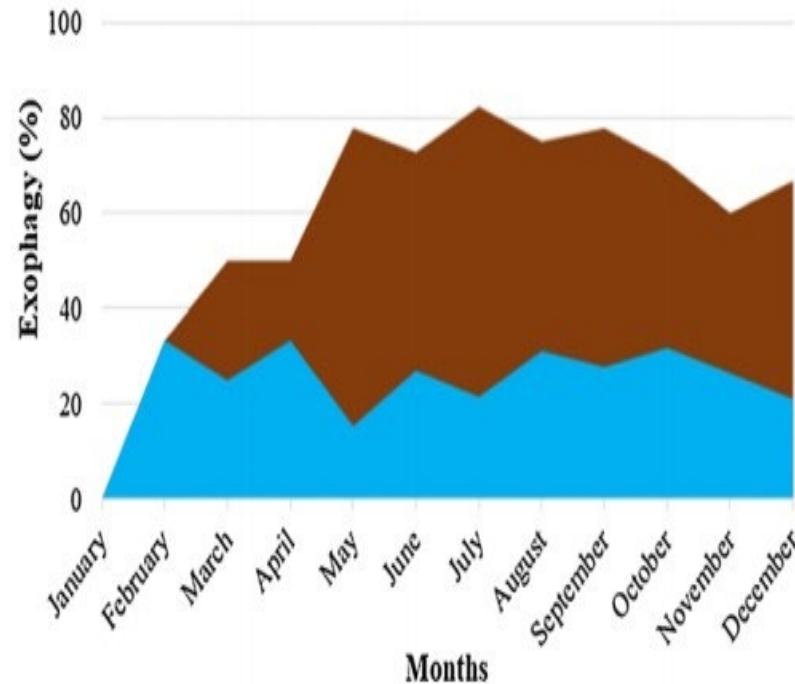
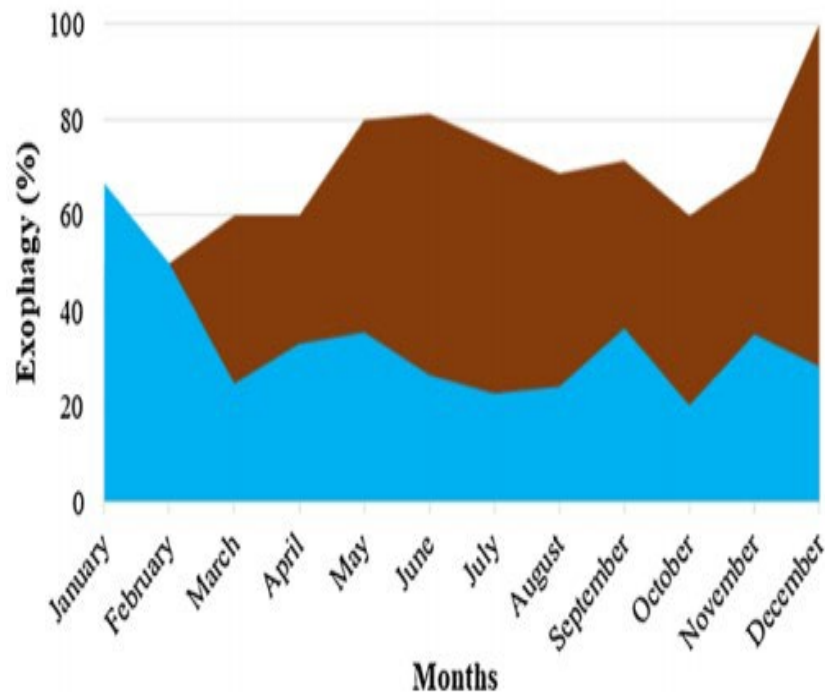
Shift in Entomological Inoculation Rate after IRS withdrawal



A significant increase of entomological inoculation rate was recorded After IRS cessation in 2018

Results

Change in vector biting behaviour



- *A significant decrease of exophagy rate observed after IRS withdrawal.*
- *Vectors bite more indoors after the IRS withdrawal*

Conclusion



- It is obvious that the withdrawal of IRS confers a vulnerability of the population with regard to the malaria transmission
- After VC withdrawal, adapted measures should be taken according to the context not only to maintain the gains capitalized with VC interventions, but also to avoid any rebound of transmission
- Contingency plan must then be implemented to minimize the resurgence of malaria transmission
- Robust monitoring is needed to better understand how when and where IRS can be safely withdrawn

Thank
you! 😊