

All Bases (and All Spaces) Covered: Addressing Outdoor Sleeping and Malaria Prevention in Rural Senegal



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Project Summary

- Malaria is a mosquito-borne illness that has a devastating effect on many tropical communities. To decrease disease transmission, the Senegalese Department of Health (with assistance from the World Health Organization (WHO) and the Roll Back Malaria initiative) performs a mass distribution of insecticide-treated mosquito nets for inside sleeping spaces, but not for outdoor spaces. In rural Senegal, a large majority of village populations start the night sleeping outside, as the insides of their huts get too hot during the day. This lack of coverage during outdoor sleeping leaves the population vulnerable to malaria transmission during a significant portion of the night.
- Through partnering with local health officials and workers, our organization provided mosquito nets for outdoor sleeping spaces for all of the villages in the Bandafassi district (21 villages total) in early 2019. Net distribution was accompanied by an educational demonstration performed by local health care workers and Peace Corps Volunteers.
- Over the next several years, Netlife (with the assistance of the Kedougou Region Health Department) will track rates of malaria transmission in the area of intervention as well as the longevity of the distributed outdoor nets.

Goal

- Goal: To decrease transmission of malaria in rural Senegal.



- (Area colored in red marks the Kedougou region of Senegal)

Objectives

- To provide mosquito net coverage for all outdoor sleeping spaces for the 21 villages in the Bandafassi district of Senegal.
- To implement an educational program on safekeeping and use of outdoor mosquito nets that is led by local health officials.
- To demonstrate a statistically significant reduction in malaria transmission in these villages over time as compared to villages in regions who do not receive outdoor sleeping space nets.
- To provide the Senegalese Department of Health with information that may improve global health and humanitarian practices on a large scale.

Background

- Malaria is a potentially fatal disease caused by *Plasmodium* species that is transmitted from person to person by mosquitoes. A significant proportion of malaria disease burden lies in sub-Saharan African countries such as Senegal.
- In countries with a heavy malaria burden, the disease may account for as much as 40% of public health expenditure. The use of insecticide treated nets is associated with significant reductions in all-cause child mortality and clinical episodes of malaria.
- Because of the high daytime temperatures in this area of the world, temperatures inside home dwellings can often reach sweltering levels, and outdoor sleeping at the beginning of the night while houses cool down (and while the mosquito is most active) is very common.
- Mosquito net mass distribution efforts as part of Senegal's universal coverage campaign are based on the WHO's recommendation of 1 net per 1.8 people. These nets do not cover outdoor sleeping spaces.



- Outdoor sleeping spaces with mosquito nets and a typical hut

Methods

- In 2012, the NGO Netlife's team surveyed 1700 family members in the Kedougou region and found that 1 net per 1.2 people provided more accurate coverage, based on cultural sleeping habits.
- In 2019, Netlife volunteers traveled to the Kedougou region of Senegal to provide 1,700 free mosquito nets for outdoor sleeping spaces in the Bandafassi district, bridging the coverage gap.
- Local health officials and Peace Corps volunteers were trained to provide educational sessions and distribute nets to villagers. Educational sessions included maintenance issues anticipated with using mosquito nets outside.
- Local health officials will perform follow-up visits on households to assess the status of the nets and whether they are being used and report their finding to the health district.
- Kedougou health officials have agreed to share their data on rates of malaria for the 8 districts in their region for further analysis.
- These data are already publicly reported.

Observations/Conclusions

- Netlife has previously distributed over 60,000 nets in Southeast Senegal, saving over 3,000 lives. Previous post-distributions surveys and observations indicate that the use of nets in the target areas is over 90%.
- By making available mosquito nets for outdoor sleeping spaces, Netlife can further decrease rates of malaria transmission, thereby decreasing morbidity, mortality, and overall health care expenditures in Senegal.
- These practices, if implemented in further universal coverage campaigns by both the Senegalese Department of Health and other similar organizations, could contribute significantly to the eradication of malaria in sub-Saharan Africa.



- Villagers in Bandafassi pose with an outdoor sleeping space protected by mosquito nets.

Future Direction

- Continue to promote distribution of mosquito nets for outdoor sleeping spaces in areas where outdoor sleeping is prevalent.
- With the assistance of local health care workers, assess the status of the outdoor nets and troubleshoot any issues that arise with their safekeeping/durability.
- Analyze the data provided by the Kedougou Region Department of Health over the next few years to determine if the Bandafassi district has less clinical rates of malaria, which could potentially be attributed to our intervention.
- Share our findings with the Senegal Ministry of Health and other organizations fighting malaria in similar populations.