

Tracking Malaria Hotspots in Madagascar: One Health Research Initiative

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Madagascar One Health Research Initiative
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Introduction

- Ongoing 3-year study examining the relationship between malaria rates and nutritional status across micro-regions in Madagascar
- Aims to further understand malaria hotspots so outbreaks can be better targeted and prevented

Objective of Internship

One of my main goals for the summer was to gain a better understanding of global health field work and how “One Health” concepts can be applied to prevent disease outbreaks. These experiences will help me explore different ways to pursue my interests in infectious disease.

Work profile

- The researchers track malaria and nutritional outcomes across different study sites to measure prevalence at different time points
- I helped read and record rapid malaria tests in the mobile clinic at 5 field sites
- I also contributed to mosquito tracking (setting up light and hole traps, collecting larvae, and sorting by species)

Reflection

Overview

- Main work involved reading rapid test results in the mobile clinic and with mosquito tracking
- Improved basic field work and data analysis skills and learned the basis of malaria **disease ecology** and transmission



From left to right: collecting mosquito larvae samples from rice fields, trapping mosquitoes in the morning, sorting by species with a mobile lab



Left: boat used to get to more remote field sites

Broader Lessons

- Complexity of **malaria hotspots** and surveillance
- **Challenges** of global health work in remote and developing areas (traveling, conditions, access to care)
- Importance of “**One Health**” in malaria research (tracking human, environmental, and animal factors)

Importance of Collaboration

- Collaboration **within the malaria team** (between doctors, researchers with various specialties, and research participants)
- Potential for **collaboration with other Princeton projects** (including the HMEI project that focused on toxoplasmosis in carnivores)



HMEI and GHP students together outside of Isalo National Park (pc Benjamin Rice)

Looking ahead

I have always been interested in infectious disease from a medical perspective, but this internship allowed me to explore the importance and challenges of field work and disease surveillance. In the future, I hope to incorporate similar ideas of “One Health” into my ID career.

Questions

- How can the project be extended to include toxoplasmosis surveillance?
- General application of the results to improve health outcomes

Conclusion

Human, environmental, and animal health are related and can be studied together to better understand the complexities of malaria disease ecology.

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