

Conflict of Interest

The author has
declared no conflict
of interest.

Revision of the epidemiological situation of malaria in Burundi and the potential implications for future control.

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Malaria context in Burundi

- Major public health problem
- Repetitive devastating epidemics in highland areas
- Since 2004 , the national malaria control program use a Multi-disciplinary approach



Map No. 3753 Rev. 9 UNITED NATIONS
February 2016

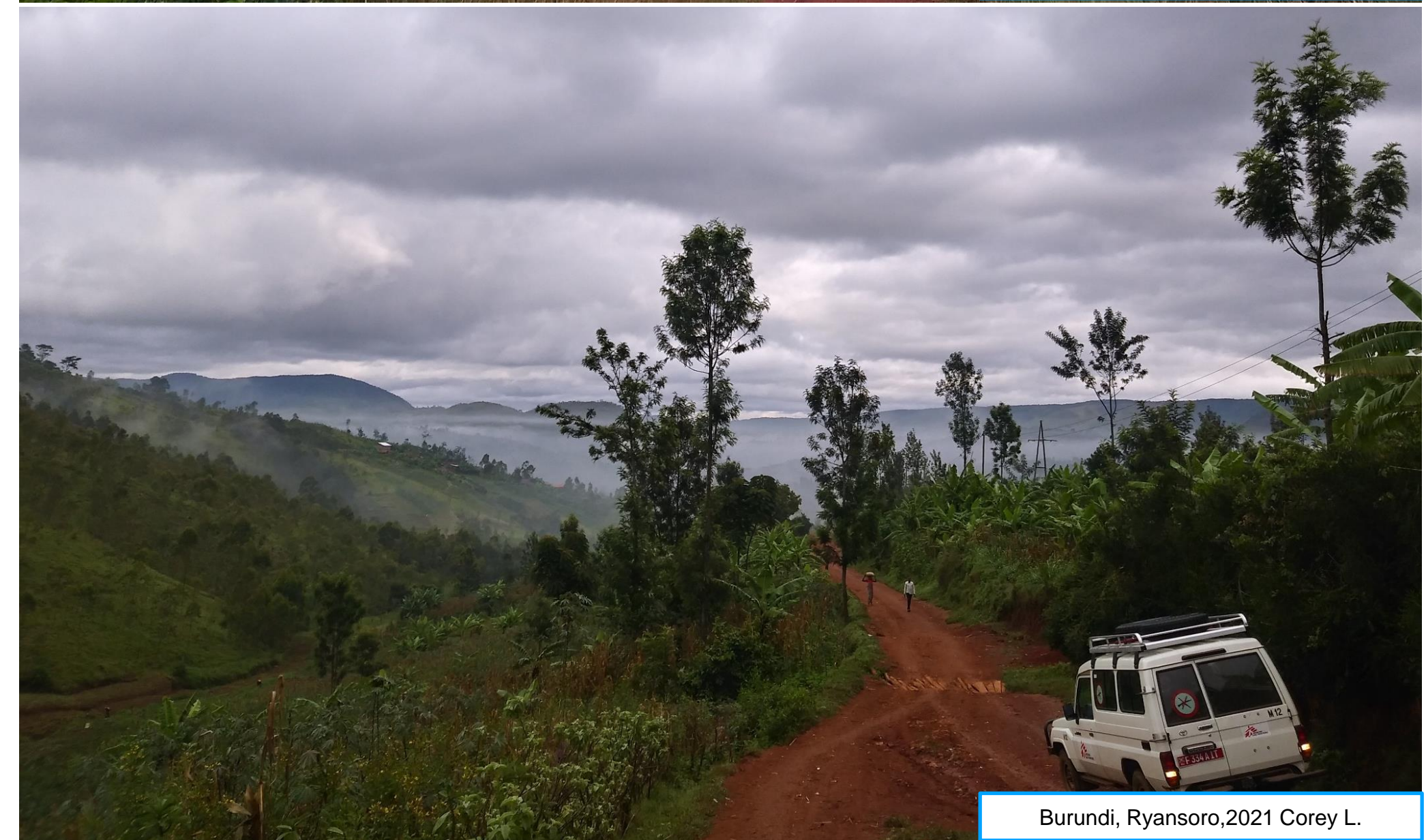
Department of Field Support
Geospatial Information Section (formerly Cartographic Section)

Introduction

- Focus on two health districts
 - Multi-year commitment
- Partnerships
 - ✓ Institute Tropical Medicine, Antwerp
 - ✓ Burundian National Control Program (PNILP)
- Informed decision-making
 - ✓ Strategic and effective approach



Burundi, Kinyinya, 2021 Corey L.



Burundi, Ryansoro, 2021 Corey L.

Methods

Analysis based upon:

- Routinely collected and reported malaria case data at weekly intervals by PNILP (2011-2019)
- Operational data on distribution of long-lasting insecticidal nets (LLINs) and case management
- This retrospective analysis met the criteria of the MSF Ethics Review Board for exemption from ethics review
- Received approval from the Burundian National Malaria Control Programme (PNILP)

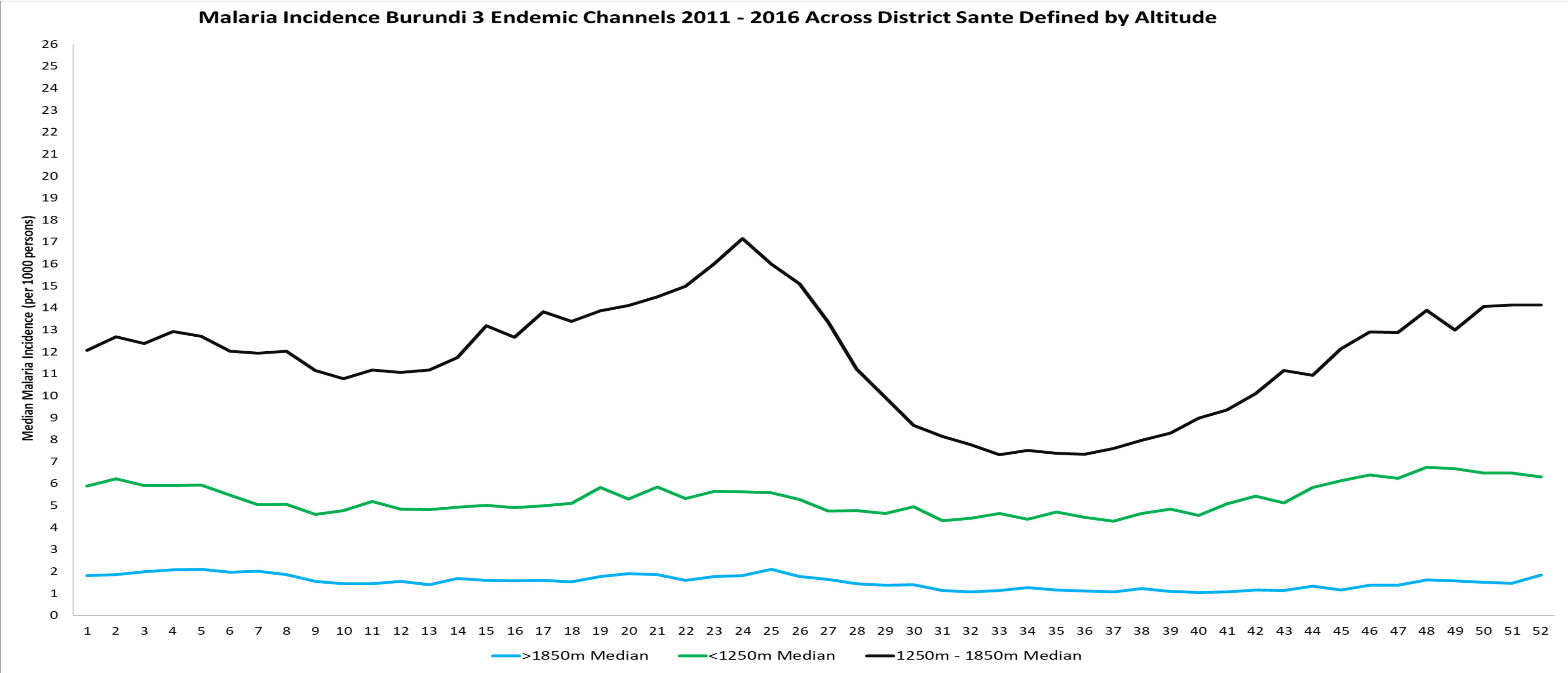
Methods

- Routine analytic techniques
- Generalized additive mixed model (GAMM)
- Spatial-temporal trend in malaria incidence rates across different strata
- Association between long-lasting insecticidal nets (LLINs) mass distribution campaigns and malaria incidence

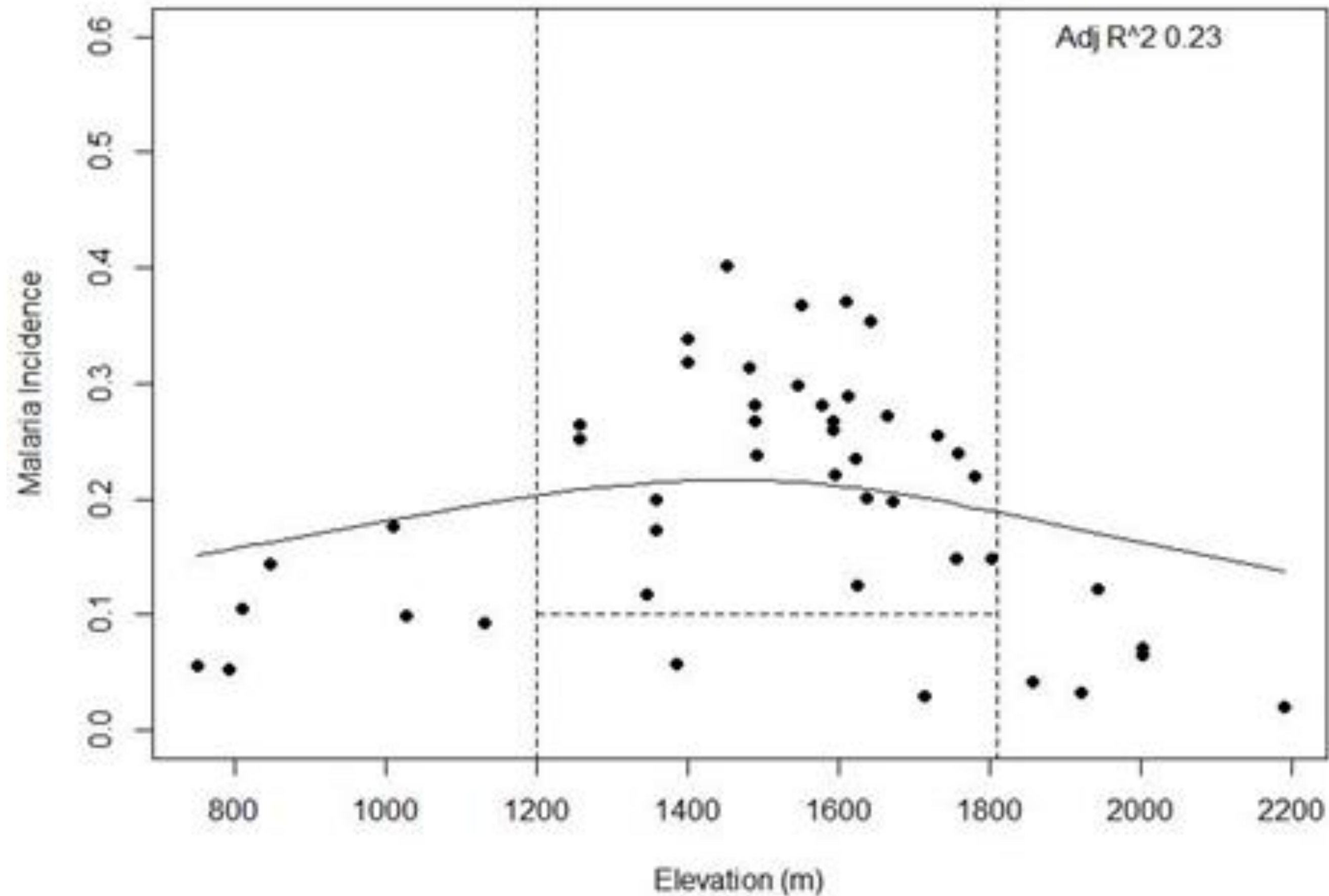
Results: Creation of Endemic Channels



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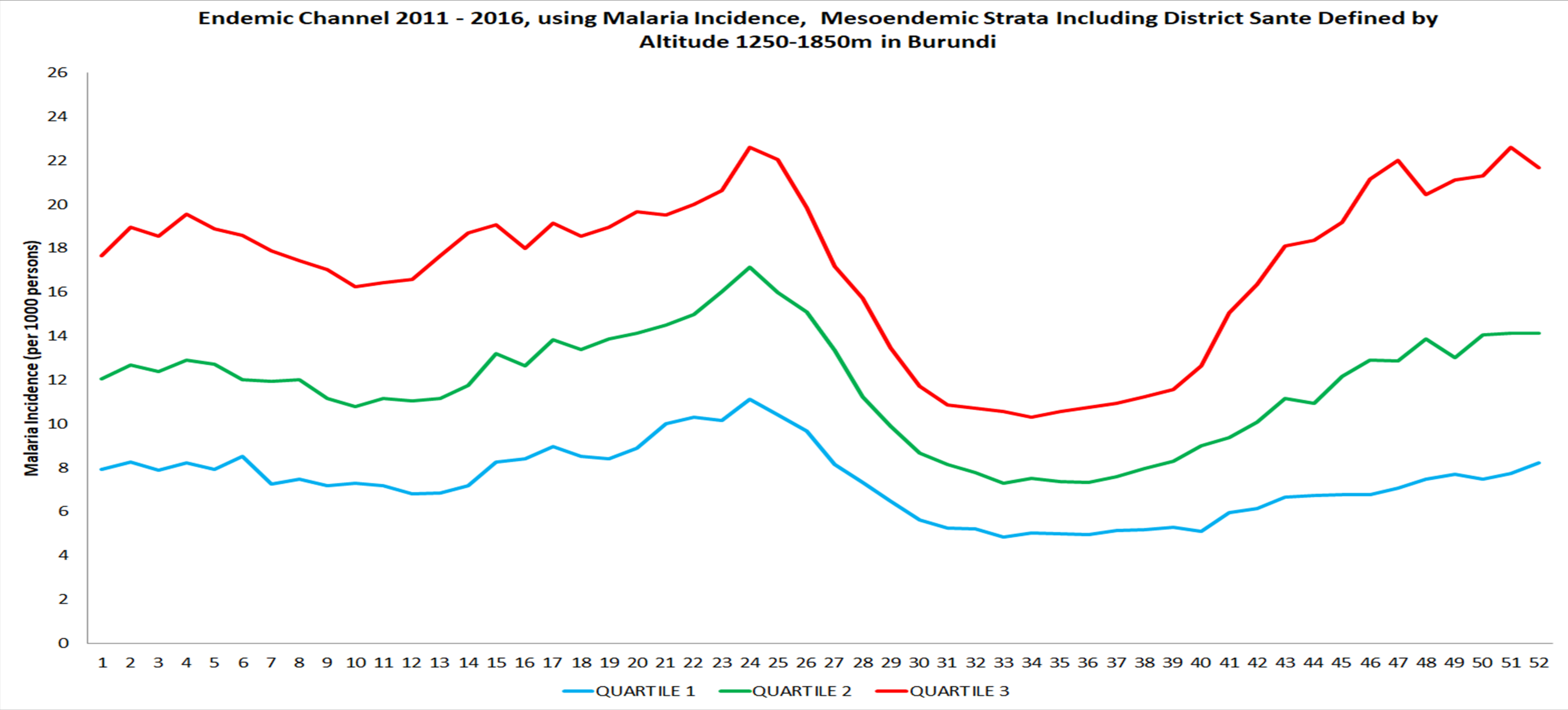
Results: Spatial heterogeneity



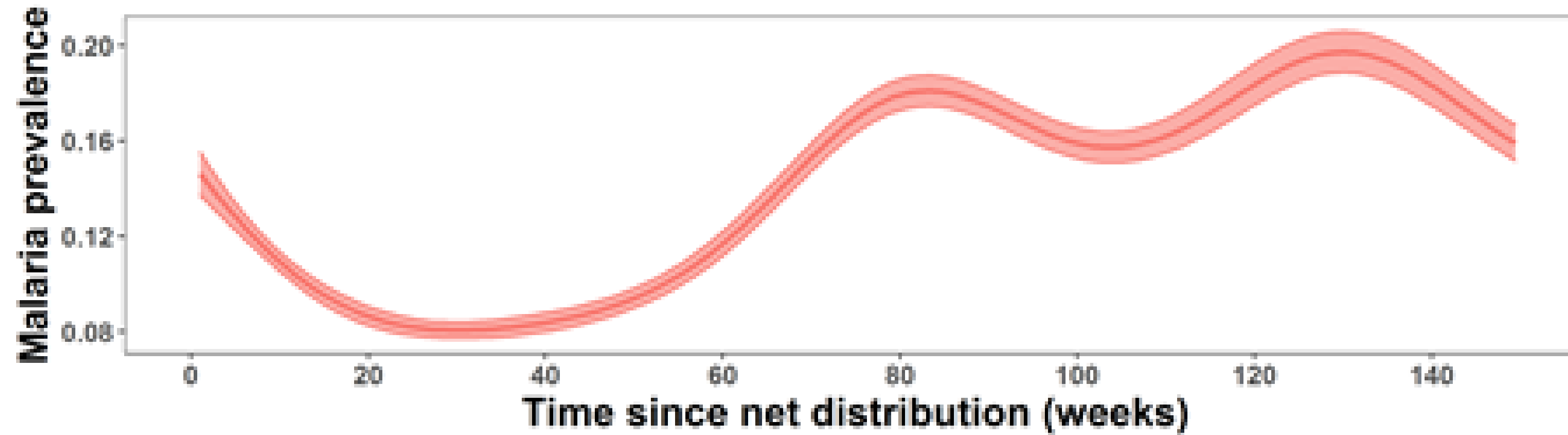
- Variation in malaria incidence at health district level
- Function of altitude
- High incidence areas congregated in concentrated in “Highland” strata

Results: Endemic Channel using malaria incidence in mesoendemic strata

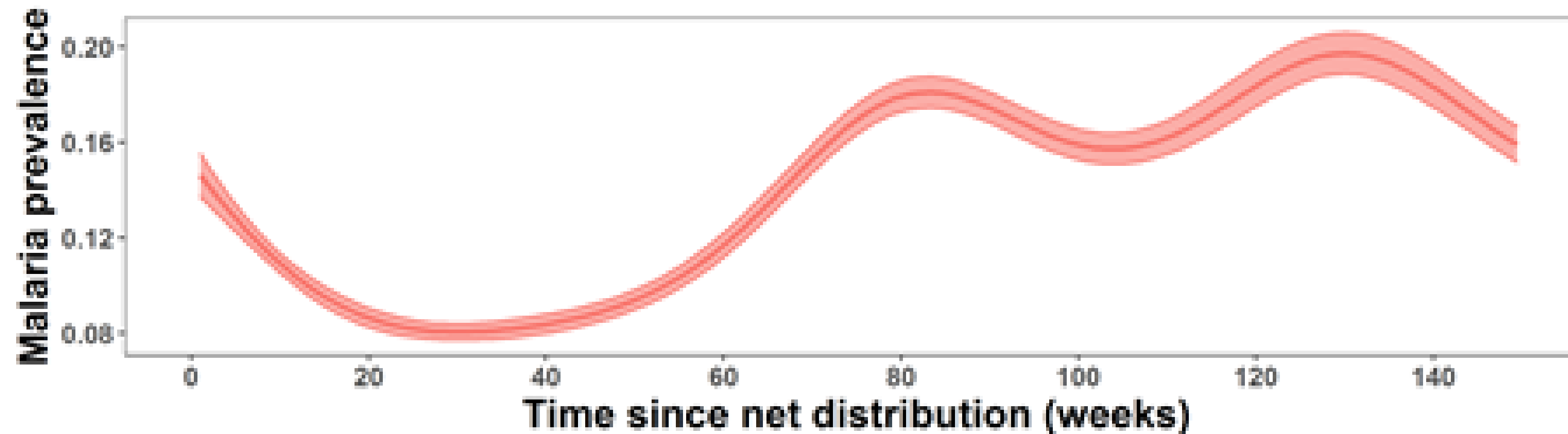
Results: Endemic Channel using malaria incidence in mesoendemic strata



Results: GAAM Effect of LLIN Distributions in 2014 & 2017



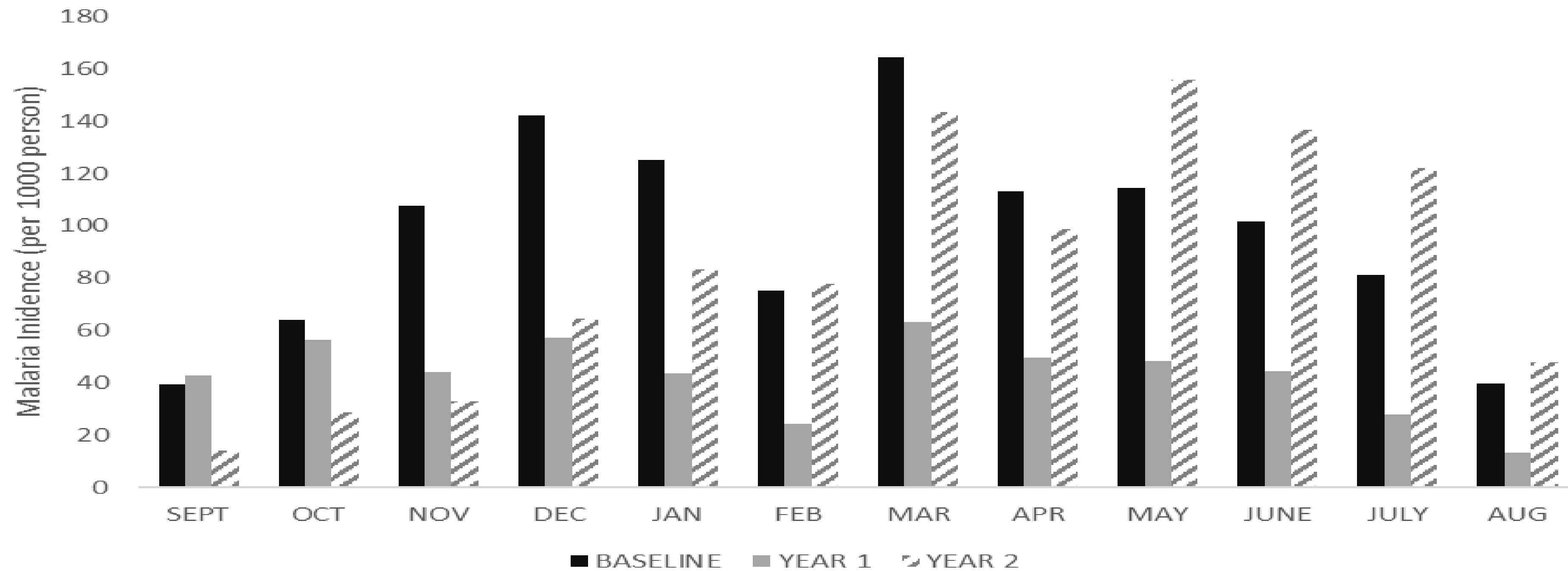
Results: GAAM Effect of LLIN Distributions in 2014 & 2017



- In Highland Strata LLINs are effective malaria control measure
- The epidemiological effect is short-lived
- Return to normal levels of transmission; or surge exceeding normal transmission levels as defined by Endemic Channel

Results: Malaria incidence in year 1- 2 post LLIN Distribution

Routine Reported Malaria Incidence in 3 Highland DS, Gitega Province, 2 Years Post-LLIN Distribution



Conclusion

- Analysis of routinely collected data; is essential for informed decision-making to maximize malaria control efforts
- LLINs are effective as malaria control intervention in different epidemiological strata in Burundi, but this effect is likely shorter than 1 year
- A multidisciplinary operational research agenda is required to understand what is really happening

Acknowledgments

I want to acknowledge all those involved in this presentation

Thanks, Merci, Murakoze !