Community Healthcare, Population Demographics and their Relation to Bed Net Usage in Kisumu County, Kenya

By James McClure & Charlie Fisher, under the guidance of Dr. Steve Wandiga

SIT SCHOOL FOR INTERNATIONAL TRAINING

Background

The presence of malaria as an endemic disease within the context of Kenya's robust community health network offers a unique opportunity to study malaria. Our study location was in Kisumu County, which is the area with Kenya's highest malaria burden. Surveys were distributed with the help of Kisumu's network of Community Health Volunteers (CHVs). Data collected was used to determine demographic factors related to bed net usage and hospital accessibility.

Methodology

The survey was developed to identify demographic, geographic, and socioeconomic factors such as income, occupation, income, occupation, sub-county of residence, and household bed net usage.

⬇

A member of the research team accompanied CHV workers within their respective localities to effectively distribute the survey house-to-house.

⬇

Short 2 to 5 minute surveys distributed within five of the 7 sub-counties of Kisumu County, Kenya, survey language was in both English and Kiswahili.

⬇

Multivariate regression using our variables of interest from the survey was employed with R statistical software to predict likelihood of bed net usage.

Findings

Bed Net Usage

- Bed net usage was relatively high across all 5 sub-counties surveyed (85.4% on average).

- East and West Kisumu were below average in bed net usage (82.5% and 84% respectively).

- Education was a statistically significant predictor of bed net usage

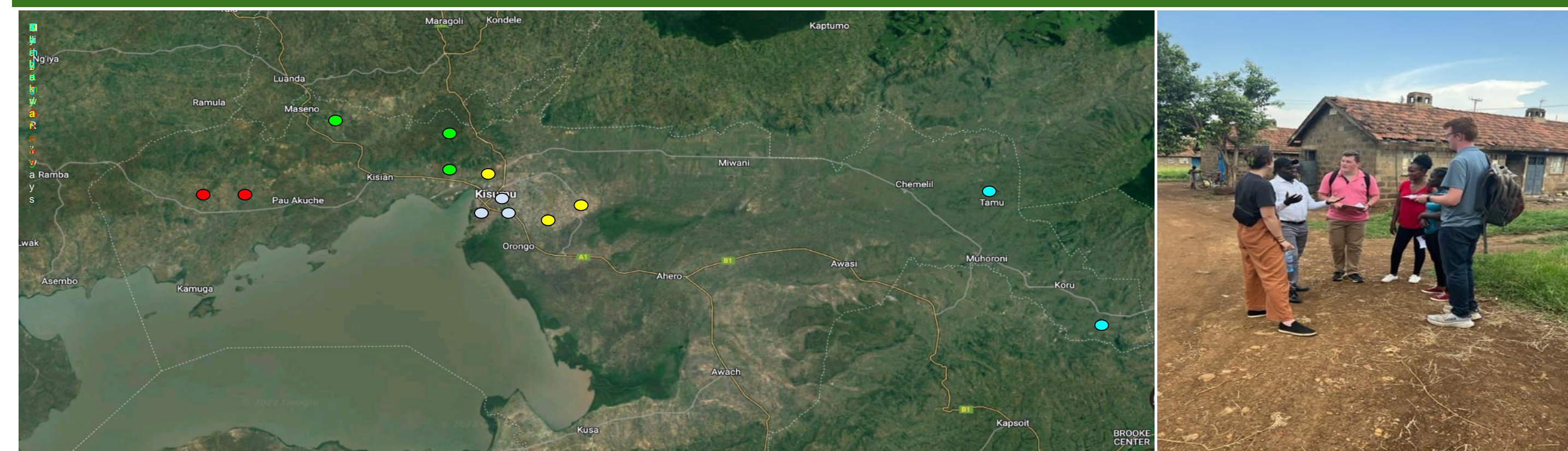| Level of Education	β (Outcome = Bed Net Usage)	Standard Error	P-value
(Intercept)	0.60000	0.09062	1.07e-10
Primary	0.26826	0.09460	**0.00479**
Secondary	0.24324	0.09422	**0.01016**
University/ Tertiary	0.30625	0.10068	**0.00250**

Community Healthcare

- Kisumu County's robust community healthcare approach facilitates effective bed net distribution to county residents and allows malaria patients to access treatment without accessing a healthcare facility via the "Test and Treat" approach.

- Lack of compensation for CHV trainings and inconsistent medication across sub-counties.

Hospital Accessibility

- Variation in hospital accessibility for malaria treatment suggests that malaria treatment medication distribution via approaches such as "Test and Treat" should target Seme and West Kisumu.

- Average hospital accessibility for malaria treatment surveyed in Seme and West Kisumu was lower than the sample average.

Hospital Accessibility for Malaria Treatment (infection in last 3 months)	Percentage of Sample that Accessed Malaria Treatment in a Hospital
Overall	83.7%
Central	89.7%
West	81.4%
East	95.0%
Seme	70.3%
Muhoroni	80.0%

Study Area

Study Area: The color-coded dots (labeled respectively by their locality) represent the study area in Kisumu County. The locations are color-coded as follows. Red: Seme, Green: Kisumu West, Yellow: Kisumu East, Gray: Kisumu Central, Blue: Muhoroni

Implications

- Future bed net distribution campaigns should target the sub-counties of Kisumu East and West.
- Community case management is effective in treating malaria patients without transportation to healthcare centers.
  - Reliance on adequate compensation for healthcare volunteers and antimalarial medication supplies.
- Government investment in educational interventions in Kisumu County could create additional gains in reduction of the malaria burden through bed net usage.