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An integrated community interventional-evaluative model for neglected diseases in East Pokot district, Kenya

Northeastern University Honors Program
Northeastern University Integrated Initiative for Global Health

Abstract

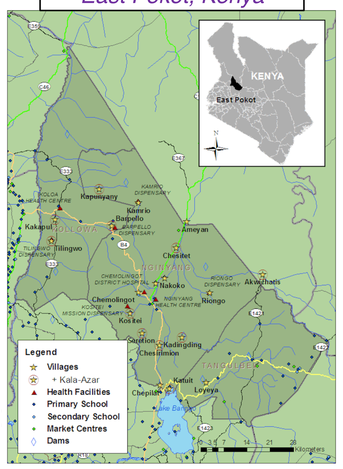
Previous studies (2012, 2013) in East Pokot, Kenya showed high endemicity of visceral leishmaniasis (VL) and other neglected tropical diseases (NTDs) thus revealing a need to develop an effective program for disease control in this hard-to-reach population using community strategies

Background

- VL is one of several NTDs[1] caused by a parasitic protozoan, *Leishmania donovani*, transmitted by a sandfly vector (*left image*)

- Endemic in 88 countries, incidence of 700,000 and 350 million at risk,[1] VL is the second leading cause of parasitic death after malaria[3] with 90% fatality rate within 2 years if left untreated, [4] killing more quickly than AIDS.
- In Kenya about 4,000 cases of leishmaniasis occur annually, majority in children aged 5 years and young adults in 22 hot arid and semi-arid regions
- We obtained funding from Izumi Foundation for a 2-year (2014-2016) intervention in **East Pokot** (*map; above right photo*)

East Pokot, Kenya



Methods

Diagnosis and Treatment

- Procurement of VL diagnostic kits rK39 and medicine to treat common ailments, e.g., malaria
- Annual screening campaigns
- Referral of cases to **Kimalel Health Centre** (outside the map) for case management
- Follow-up of VL patients

Public Health Education

- Public health education campaigns
- Distribution of materials: posters/brochures
- Community public health awareness through their involvement in the interventions

Training

- Training clinicians to screen for VL with rK39

array of rK39 (left), education (right)

- Training of community health workers (CHWs) to conduct public health education campaigns and vector control activities

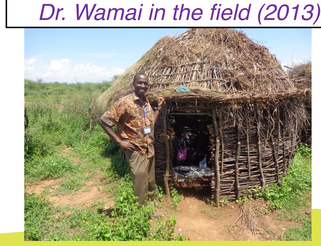
Create Healthy Environments

- Environmental vector control (clearing of bushes, anthills and animal burrows)
- The F (face washing) and E (environment) components of the SAFE strategy

Operations Research

- Epidemiologic Mapping
- Household (KAP) Survey
- Facility Survey
- Systems Analyses

Dr. Wamai in the field (2013)



Expected Results

Health Training

- 10 District Hospital clinicians on use of rK39 in lab and field
- 15 CHWs on conducting public health education and vector control activities

Distribution of Kits

- 500 VL diagnostic kits to District Hospital annually

Campaigns

- 20 Health Education Campaigns

Testing for VL in lab

Environmental Control

- Clearing of bushes/anthills to reduce sandfly population

Target Population

- 2,740 households (7,890 individuals)

Progress

- National meeting for key agencies
- District meeting for implementing partners
- Site mapping and community mobilization
- Procurement of rK39 kits from France

Mid- to -Long-Term Goals

- Constructing 20-bed VL ward at District Hospital
- Research site for Northeastern faculty/students to engage in operations research

Co-authors: Joseph K. Wang'ombe, Hellen Nyakundi, MPH; Mercy Mugo, Ph.D; Bernhards Ogutu, Ph.D; Davis Wachira, MD; Monique Wasunna, Ph.D; Elija Plilan; *Kalazar* Chirchir, Moses Atuko and Chirchir Termes

References:
1Hotez P. *Forgotten People, Forgotten Diseases: the Neglected Tropical Diseases and their Impact on Global Health and Development*. ASM Press; 2 edition. 2013
[2]Hotez PJ, Kamat A. Neglected Tropical Diseases in Sub-Saharan Africa: Review of Their Prevalence, Distribution, and Disease Burden. *PLoS Negl Trop Dis*. 2009;25(3):e412.
[3]Desjeux P. Leishmaniasis: current situation and new perspectives. *Comp Immunol Microbiol Infect Dis* 2004;27:305-318.
[4]Araujo VE, Morais MH, Reis IA, Rabello A, Carneiro M. Early clinical manifestations associated with death from visceral leishmaniasis. *PLoS Negl Trop Dis* 2012;6: e1511