

“A journey of a thousand miles begins with a single step”: The first steps of Podoconiosis research in Kenya

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SDGs recognize *Global Health* - NTDs, ~ Podoconiosis

- SDG 3 - the health goal - focusing on equity, community outreach and UHC
- NTDs formally recognised as a target for global health action in SDGs
- Podoconiosis now in the list of NTDs by WHO (2011)

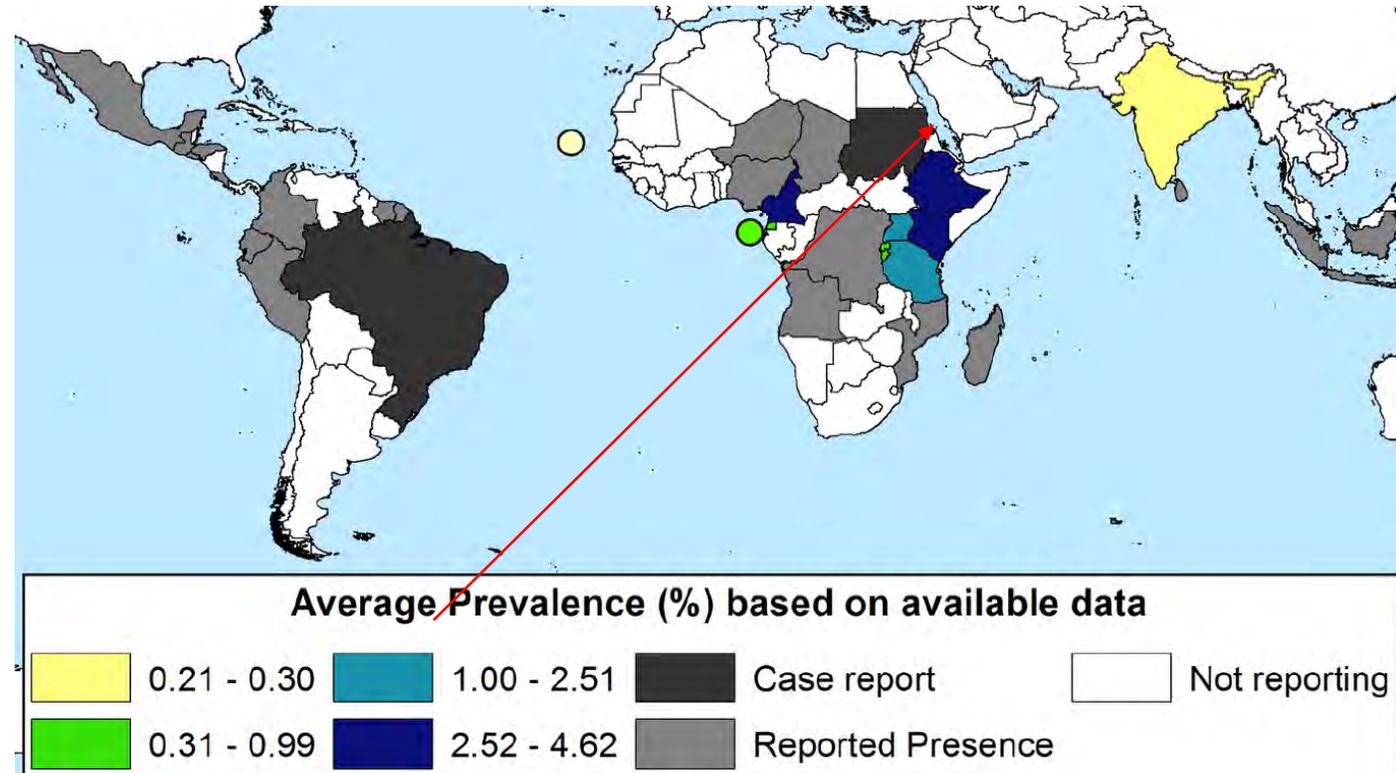
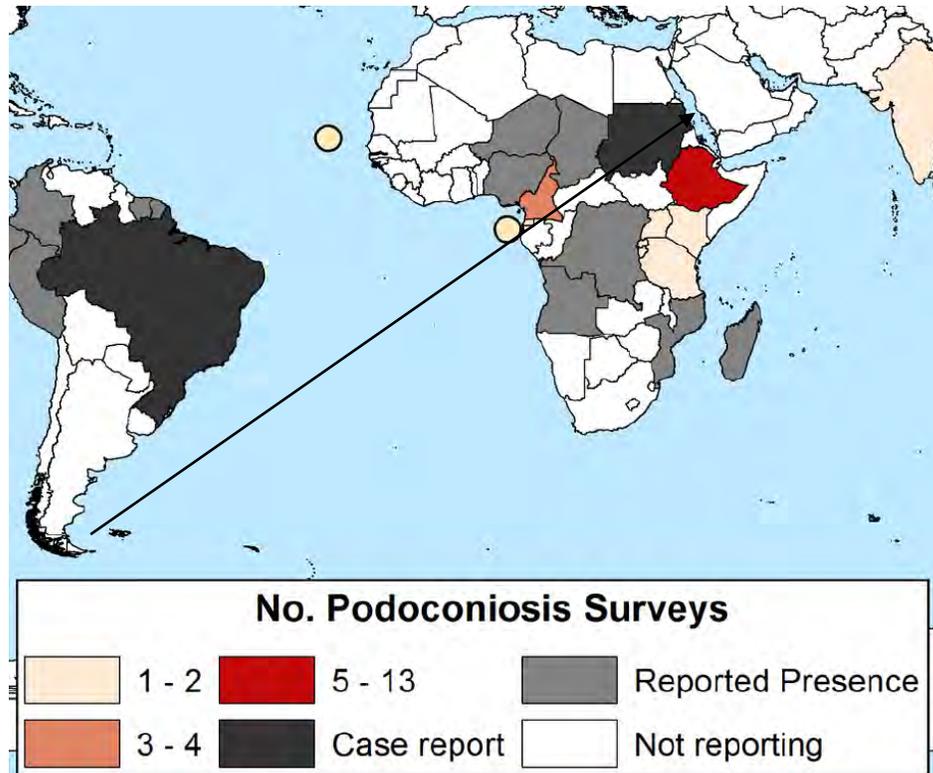


Podoconiosis

- Podoconiosis an excellent example of geo-environmental disease dependent on long-standing social contexts
 - poverty, inadequate health care, poor sanitation and hygiene, inadequate housing, education, & information
- Global estimates ~>4 million cases in Africa, parts of Latin America and SE Asia
- Multi-pronged burden
 - Individual morbidity, multimorbidity, physical debilitation, care need, stress, stigma, loss of productivity
- Global knowledge on epidemiology of the disease is limited
- In Kenya – low suspicion index by clinicians and little awareness among communities

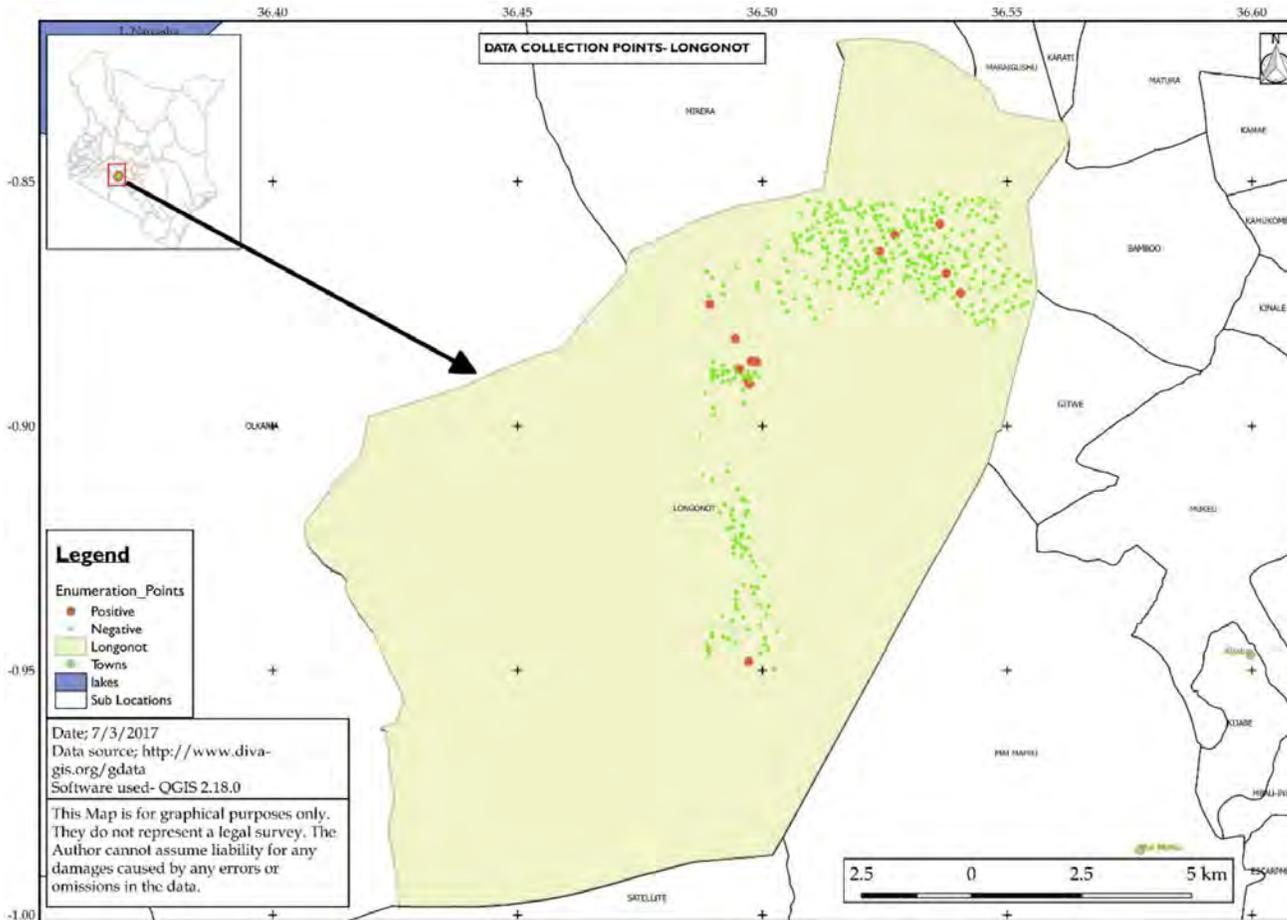


Nascent Podocooniosis reporting & research in Kenya



Podocooniosis not reported within the routine health management information systems

Podoconiosis household survey in Kenya, 2016



Study site ecology

- Mt. Longonot region in Nakuru County Rift Valley
- Close to Mt Longonot, a strato-volcano
- Altitude 2776m asl
- Temperature - largely 12-26°C
- Rainfall: 1800 to 2000mm per year
- Fits Podoconiosis ecological requirements

Study features

- Study design - cross-sectional
- Sample size - estimated using a formal significance calculation technique, n= 385
- One person randomly selected from a household on a suitable inclusion criteria
- Podoconiosis diagnosis – used clinical algorithm of ruling out lymphatic filariasis and specific clinical elephantiasis features consistent with Podoconiosis
- Socio-demographic info – collected using a structured questionnaire
- Random soil sampling – to determine soil mineral concentrations



RESEARCH ARTICLE

Soil iron and aluminium concentrations and feet hygiene as possible predictors of Podoconiosis occurrence in Kenya

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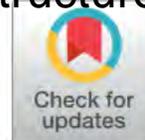
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Abstract

Background

Podoconiosis (mossy foot) is a neglected non-filarial elephantiasis considered to be caused by predisposition to cumulative contact of uncovered feet to irritative red clay soil of volcanic origins in the tropical regions. Data from structured observational studies on occurrence of Podoconiosis and related factors are not available in Kenya.



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Findings

- 13 participants clinically positive for Podoconiosis ~ prevalence of 3.4% [95% CI, 1.8%, 5.7%], (range 0% and 18.8%) across the five villages.
- Univariable analyses ($P < 0.1$): (i) age, (ii) gender, (iii) education level, (iv) frequency of washing legs, (v) frequency of wearing shoes, (vi) soil pH, and (vii) village.
- Soil minerals protective ($P < 0.1$). Protective factor???
- Multivariable analyses, only frequency of wearing shoes and village significant ($P < 0.05$)
- Interactions between aluminium and iron



Discussion

- Prevalence of 3.4% demonstrates presence of Podoconiosis in Kenya
- Age, gender, education level, frequency of washing legs, frequency of wearing shoes, soil pH, and geographical variation are consistent factors associated Podoconiosis epidemiology in many studies.
- Findings suggests that control & prevention require addressing modifiable factors through multi-component interventions, e.g. feet hygiene education & promotion at young ages in high risk areas.
- Underlying social contexts and systems e.g. poverty, food insecurity – requires interventions to be integrated with progressive social policies e.g. improving literacy, etc (relevant SDGs 1, 2, 3, 4, 5, 6, 8, 10, 16, & 17).



Discussion

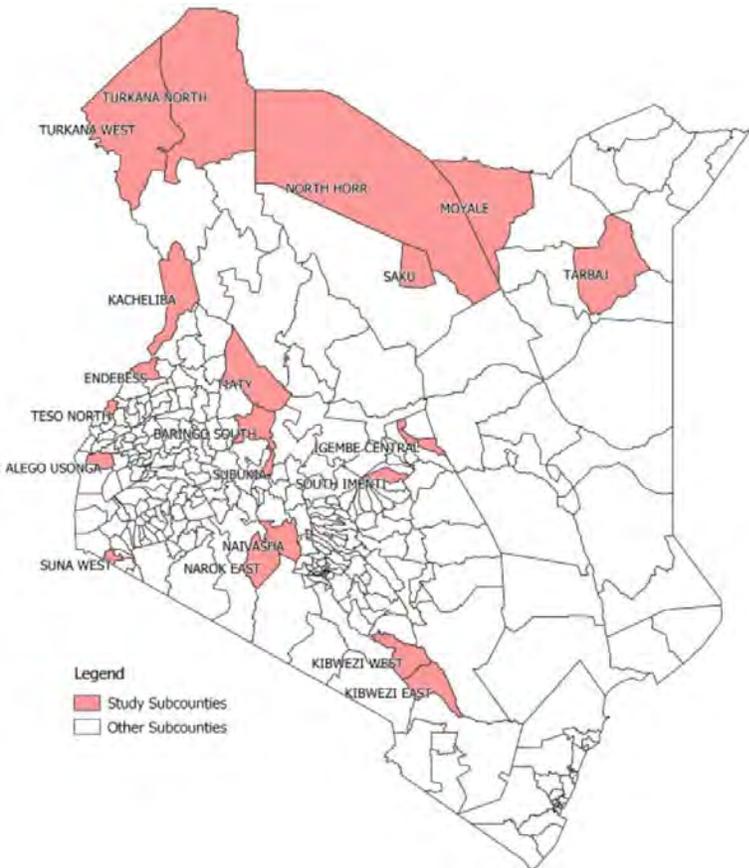
- We came to opposite conclusions on soil minerals associations
- Further studies are warranted to authenticate these findings
- Strength - a robust modelling approach was used to identify factors associated with Podoconiosis
- Limitation: cross-sectional nature - Antecedent-consequent bias
- Nevertheless, chronic conditions with onset time is difficult to determine – cross sectional studies are appropriate
- Cluster sampling at the household level should have been implemented



Discussion

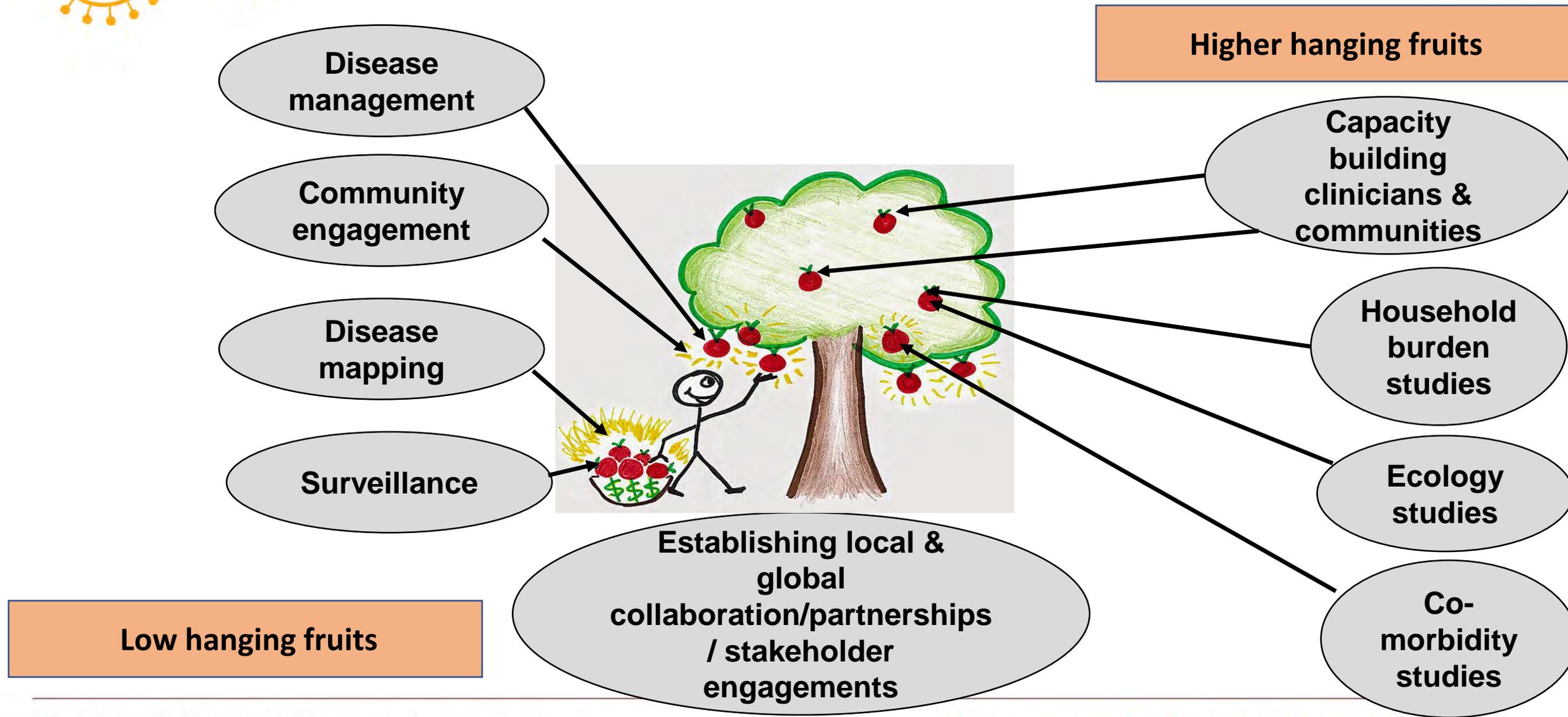
- Small study – wide implications
- Big gap on data, awareness and disease management exists within the health sector in Kenya
- Strategic Podo-specific programmes need to be initiated
- Stakeholder engagements – institutions, roles – Government, Academic, Communities Members, Non-governmental organisations, other Not-for-profit organisations

Current work-Podoconiosis & Lymphatic filariasis mapping



- Rationale – Increased reports of clinical elephantiasis in traditional non-LF areas
- Total sub counties (districts) = 20;
- 2 villages to be selected purposively in each sub-county
- In each village – households selected randomly
- Cluster sampling of individuals >15 years within households.
- Targeting >2000 households and >4000 participants
- Outcomes: Prevalence of elephantiasis, LF and Podoconiosis; revised mapping of LF, new map for Podoconiosis, integrated map

Ideas for the near future



First
International
Podoconiosis
Conference

Acknowledgements

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We call out for global partnerships/collaborations to walk further and faster together in this journey to eliminate Podoconiosis

