LONG-LASTING INSECTICIDE-TREATED NET (LLINs) REPURPOSING PRACTICES AND THEIR PREDICTORS AMONG HOUSEHOLDS IN IBANDA DISTRICT, WESTERN UGANDA

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MPH-PRH
Introduction

• Globally, LLINs are one of the effectiveness tools in preventing malaria though have a life span, (Lorenz et al., 2020)

• In Africa, non-beneficial net repurposing has been established as being one of the factors that reduce LLIN effectiveness in their vector control endeavors (Topazian et al., 2021; Berthe et al., 2019).

• Uganda registered over 83% of the households with at least an LLIN by 2018 (MOH, 2021). However, cases of harmfully repurposed for old nets remain practiced though not frequently documented globally or regionally context, (RBM, 2020; Topazian et al., 2021).

• Ibanda district has been consistently reporting the Cases of net misuse and harmful LLIN repurposing (DTF 2020).
Statement of the problem

• Even with distribution of more than 120,000 LLIN in Ibanda, the DTF noted net use behaviour suggestive of widespread non beneficial repurposing in the district (2019-2020 report).

• Almost half of households keep their old LLINs in suitcases after receiving new ones from the task force (PDM 2019).

• In 2020, LLIN distribution teams in the district observed many cases of LLINs being used to construct chicken coups, and provide fencing for gardens and nursery beds.

• Similarly, non-quantified cases of old LLIN use were also registered by district net distribution teams in the first quarter of the year report, 2021.

• Such gaps in LLIN repurposing are highly likely to be antecedents of the fact that Ibanda district still registers the highest number of malaria cases in the Ankole region (Kigozi et al.,2020).

• Therefore if not addressed, the district remains among the highest burden in the region, Hence affect Uganda’s efforts to achieve SDG 2030 (3) (Good health and well-being).
Objectives and question of the study

Broad objective
To assess the LLINs repurposing practices and their predictors among households in Ibanda district – Western Uganda.

Specific objectives
• To determine the prevalence of LLINs repurposing practices among households in Ibanda district – Western Uganda.

• To establish the intra-household predictors of LLINs repurposing practices among households in Ibanda district – Western Uganda.

• To determine the programmatic predictors of LLINs repurposing practices among households in Ibanda district – Western Uganda.

Research question
• What is the prevalence and predictors of LLINs repurposing practices among households in Ibanda district – Western Uganda?
Theoretical framework (The Theory of Triadic Influence [Flay, 2009])

Personality → Social situation → Cultural environment → Interaction with institutions, information opportunities, social opportunities, health policies → Interpersonal bonding, behaviors of others in the community, and nature of health services in the community → Self-efficacy, attitudes, personal traits, demographic characteristics → Behavior
Conceptual framework

Intra-household characteristics
- Availability of alternative mosquito control mechanisms
- Economic activity engaged in by household
- Status of net purchase
- Children below five years in household
- Household size
- History of malaria in household
- Number of rooms in household
- Knowledge about LLIN malaria prevention
- Number of people sleeping under the net
- Perceptions
- Age of household head

Programmatic characteristics
- Health education about net use at point of distribution
- Behavior change communication related to net use
- Education about discarding of old nets
- Education about repurposing and its importance
- Information about enforcement agency
- Involvement of CHWs in net distribution
- Follow up visits
- Frequency of provision of new nets
- Accountability requests before new nets are provided
- Number of nets provided per visit

Intervening variables
- Socio demographic characteristics
- Intrapersonal characteristics

Dependent variables
- Repurposing practices
  - Beneficial (For use as vector barriers)
  - Non beneficial (Neutral or harmful)
## Methodology

<table>
<thead>
<tr>
<th>Study design</th>
<th>A community based analytical cross-sectional study</th>
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<tbody>
<tr>
<td>Study setting</td>
<td>Ibanda district</td>
</tr>
<tr>
<td>Sources of data</td>
<td>Primary</td>
</tr>
<tr>
<td>Study population</td>
<td>Household heads or their representatives who were recipients of LLINs</td>
</tr>
<tr>
<td>Sample size determination</td>
<td>Formula by Krejcie and Morgan (1970).</td>
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<tr>
<td></td>
<td>[s = \frac{X^2 \times P \times (1 - P)}{d^2 \times (N - 1) + X \times P \times (1 - P)}]</td>
</tr>
<tr>
<td></td>
<td>(X^2) = the table value of chi-square for 1 degree of freedom at the desired confidence level (3.841).</td>
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<td>(N) = the population size = 54,604 households in both counties</td>
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<td>(P) = the population proportion (assumed to be .50 since this would provide the maximum sample size).</td>
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<td>(d) = the degree of accuracy expressed as a proportion (.05).</td>
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<td>On substitution, (s = 381) Households</td>
</tr>
<tr>
<td>Sampling procedures</td>
<td>Stratification, Simple random sampling and systematic sampling were used</td>
</tr>
</tbody>
</table>
## Methodology

<table>
<thead>
<tr>
<th>Study variables</th>
<th>Dependent variable was <strong>repurposing practices</strong>. <em>Intra-household</em> and <strong>programmatic characteristics</strong> were the independent variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data collection methods</td>
<td><strong>Face to face</strong> Structured interview</td>
</tr>
<tr>
<td>Data collection tools</td>
<td>Researcher Assistants -administered questionnaire</td>
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</table>
| Quality control | Pre-test of the data collection tools  
Training of research assistants |
| Data analysis | **Univariate, bivariate and multivariate** regression analysis for quantitative data |
| Ethical considerations | Clearance from the university and Ibanda district as well a respective sub counties and villages.  
**Informed** consent  
Voluntary participation  
Confidentiality and anonymity |
RESULTS
Objective 1: To determine the prevalence of Long-Lasting insecticide treated net repurposing practices among households in Ibanda district – Western Uganda

- Beneficial repurposing (Net still used for vector control), 14 [4%]
- Non-beneficial repurposing (Harmful or neutral), 367 [96%]
Objectives 2 and 3: Intra-household and programmatic predictors of Long-Lasting insecticide treated net repurposing practices among households in Ibanda district – Western Uganda

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Variable</th>
<th>Beneficial [14]</th>
<th>Non-beneficial repurposing (Neutral or harmful) [367]</th>
<th>cOR (95% CI)</th>
<th>P value</th>
<th>aOR (95% CI)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intra-household</strong></td>
<td>Have any children below five years in household</td>
<td></td>
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<tr>
<td>Yes</td>
<td>5(1.9%)</td>
<td>265(98.1%)</td>
<td>0.21(0.07 - 0.65)</td>
<td>0.00*</td>
<td>0.007</td>
<td>0.20(0.07 - 0.64)</td>
<td>1.000</td>
</tr>
<tr>
<td>No</td>
<td>9(8.1%)</td>
<td>102(91.9%)</td>
<td>0.65</td>
<td></td>
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</tr>
<tr>
<td><strong>Programmatic</strong></td>
<td>Health education about net use at point of distribution</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>9(8.0%)</td>
<td>104(92.0%)</td>
<td>4.55(1.49 - 13.90)</td>
<td>0.008*</td>
<td>0.010</td>
<td>4.66 (1.448 - 15.02)</td>
<td>1.000</td>
</tr>
<tr>
<td>No</td>
<td>5(1.9%)</td>
<td>263(98.1%)</td>
<td>13.90</td>
<td></td>
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</tr>
<tr>
<td><strong>Programmatic</strong></td>
<td>Educated about net repurposing and its importance</td>
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</tr>
<tr>
<td>Yes</td>
<td>10(5.7%)</td>
<td>165(94.3%)</td>
<td>3.06 (0.94 - 9.94)</td>
<td>0.063</td>
<td>0.048</td>
<td>3.43(1.01 - 11.64)</td>
<td>1.000</td>
</tr>
<tr>
<td>No</td>
<td>4(1.9%)</td>
<td>202(98.1%)</td>
<td>9.94</td>
<td></td>
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</tbody>
</table>
Conclusion

• **Repurposing practices** of old LLINs among households in Ibanda is still very low with only 1 in every 27 households repurposes its old nets beneficially.

• Both **intra-household** and **programmatic characteristics** predict repurposing practices; where **programmatic** take more precedence.

• The **intra-household predictor (only one)**; the number of children below five years in household.

• **Programmatic predictors (two)**; and Health education about **net use at DP** and **net repurposing & its importance**
Recommendations

- MOH mandate to **Intensity SBCC at DPs** with key messages for LLINs beneficial repurposing should be explored.

- DTF should enforce SBCC during **health education & sensitization** related to net repurposing by **net distributors** before LLINs are given to households.

- **Community mobilization** and **interpersonal communication** channels should be done at household level to further emphasize **beneficial repurposing practices** by the VHTs.

- A **qualitative study** should be conducted in order to explore the reasons behind **non-beneficial repurposing** & the fact that **harmful repurposing** was the most wide-spread practice in Ibanda.
Thank you.