**////Title: A Critical Role for Linguistics in Malaria Control**

**////Stand-first**:

The introduction of new research or technologies for public health into a community is often challenging since complex scientific concepts coupled with jargon can cause disengagement and mistrust, whilst language barriers and cultural differences can complicate things further. Target Malaria is a not-for-profit research consortium that aims to develop and share new, cost-effective and sustainable genetic technologies to modify mosquitoes and reduce malaria transmission. Stakeholder engagement is one of Target Malaria’s three pillars. Researchers at Target Malaria co-developed with local communities a common glossary to improve engagement on new genetic approaches for malaria control in Burkina Faso, Mali and Uganda.

**////Body text:**

Research is vital in the progression of science and medicine, but the engagement with communities where the research takes place can be complex. It requires establishing a dialogue that is the foundation for the trust required for scientific collaboration between the researchers and the community hosting the research activities. Scientific jargon can result in confusion and disinterest, whilst a limited understanding of the research motives can cause community members to exhibit caution.

The engagement of stakeholders who have an interest in public health research, such as members of the community in which the research is to be conducted, is crucial if innovative scientific interventions are to be developed and successfully implemented. Challenges faced by researchers include poor understanding of scientific concepts or reasoning, low level of literacy or knowledge, and cultural diversity. Furthermore, areas in which there are several local languages pose unique challenges, as accurate translations of scientific terminology to reflect variations in dialect can be difficult but are critical for effective communication.

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Target Malaria employs social scientists (anthropologists, sociologists) and stakeholder engagement practitioners to conduct its engagement activities in Africa. The ability to translate scientific terms into local languages was identified early on as a limitation to such engagement. So, the team conducted a linguistics exercise in rural areas of Burkina Faso, Mali and Uganda – all with different local languages – with linguistic experts and community members. Using a multi-phase co-development approach, the team aimed to develop a common glossary of terms to increase understanding of the research project, which is a necessary basis for any future informed decision-making.

Target Malaria aims to co-develop and share genetic technologies to reduce the population of malaria mosquitoes. However, the translation of scientific terminology into other languages to describe the genetic modification of mosquitoes’ reproductive genes was challenging, particularly as often there was no equivalent existing term.

Furthermore, a consistent approach to translation was generally lacking. The primary aim of the linguistics exercise proposed by Target Malaria was to work together with language experts and community members to compile an easily understandable glossary that accurately reflected the scientific detail of the project, but also create a shared basis on which a constructive dialogue could be established, for the communities to share their own knowledge back with the project.

Crucially, community members actively contributed to the development and improvement of the glossary from the early stages of the project. This ensured that the concerns and expectations of the participants were considered and that the proposed technology was relevant.

Additionally, the achievement of a full understanding of the project amongst members of the community ensured that decisions on whether or not to participate in project activities would be fully informed, a vital component in the execution of ethical public health research.

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Villages in three African countries took part in the process of co-developing the glossary. To support this, the Target Malaria team established a partnership with linguistic experts from both public and private institutions who had prior experience in working on novel terminologies and extensive knowledge about the local languages. Once a suitable linguistics team had been identified, a five-step approach was implemented.

The first step was to identify a list of critical terms or concepts to be included in the glossary. Examples included gene, chromosome, mosquito, swarming and consent. The second step involved the scientific and community engagement teams briefing the linguists about the project to ensure they had an adequate grasp of the scientific approach and proposed technology. This proved time-consuming since it was imperative that the concepts and terminology, to which the linguists often had little previous exposure, were sufficiently understood to ensure accurate translation.

During step three, the linguists met with the project researchers to select the most appropriate translation for each word by verifying the scientific accuracy of each proposed term, leading to the creation of an initial draft of the glossary in each local language.

The fourth step involved a series of focus groups attended by local community members selected by community leaders who deemed them knowledgeable about the local language, eloquent, and trustworthy, and included both males and females. In the spirit of a genuine co-development approach, the focus groups comprised in-depth discussions between project researchers, linguists, and community representatives. The translations were tested to ascertain how well they were understood, whether they were culturally appropriate to each region, and whether the community members wished to amend them to improve their clarity.

The fifth step of this thorough and effective process saw the Target Malaria team finalise and share the refined glossary, followed by a proposal to publish the document developed in Mali to guide other stakeholders.

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This process revealed unexpected complexities and highlighted the importance of considering local languages and cultures. Some translations were initially misunderstood, including that genetic modification would be used to sterilise male mosquitoes and not physical castration. In many instances, translations included elaborate explanations of key scientific concepts and a broader description of the project science, rather than focussing on a single equivalent word. In other cases, an entirely new word was created.

This emphasised the importance of alignment between all stakeholders regarding the meaning of the terminology in the original language, and a basic understanding of the underlying concepts. It demonstrated that this process isn’t a simple translation exercise but is deeply rooted in cultural representations and thus that involving the communities from an early stage is very beneficial.

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The admirable work carried out by Target Malaria’s stakeholder engagement teams has demonstrated the strengths of a co-development approach involving communities and language experts who develop knowledge by working together. The project is a superb example of successfully using linguists and community members as collaborators in public health research, and this excellent case study can be utilised as a template to improve effectiveness in the process and reduce the time needed to implement future projects within the wider community.

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This SciPod is a summary of the paper ‘Co-developing a common glossary with stakeholders for engagement on new genetic approaches for malaria control in a local African setting’, from the Malaria Journal. <https://doi.org/10.1186/s12936-020-03577-y>

For further information, you can visit www.targetmalaria.org.