

Qualitative assessment to understand community's acceptance, preferences and sustainability of guppy fish (*Poecilia reticulata*), Pyriproxyfen (Sumilarv® 2MR), and community engagement for dengue control in Kampong Cham, Cambodia, 2016

Key messages

- The majority of participants preferred guppy fish over other interventions available in the community.
- Pyriproxyfen was the second most preferred intervention, however concerns still existed over dead larvae that require additional sensitization campaigns in the community.
- Results suggest that a well-developed Communication for Behavioural Impact strategy could result in high acceptance of guppies and PPF in similar communities.

Introduction

Dengue is the most rapidly spreading mosquito-borne viral disease in the world, and Cambodia has one of the highest per-capita incidence rates in the region. Without a widely available vaccine or therapeutics, vector control is the most effective way to fight dengue in Cambodia. Increasing resistance to commonly used insecticides has been reported and alternatives are needed. Three community-based interventions have recently been trialed in Cambodia: distribution of larvae eating guppy fish, a controlled release pyriproxyfen (PPF) matrix (Sumilarv® 2MR) – an insect growth regulator that inhibits larvae growth, and Communication for Behavioral Impact (COMBI) activities to promote uptake of guppy fish and PPF.

Methods

The trial explored community perceptions, acceptability, and willingness to pay for vector control tools such as guppy fish and PPF after COMBI activities had taken place through a qualitative assessment. Nine in-depth interviews and 12 focus groups discussions (FGD) were conducted with 105 community members, volunteer health workers, and health centre staff. Free listing was performed to identify and rank all vector control tools available in their community.

Results

The majority of community members in the FGDs (50/80 or 62.5 percent) preferred guppy fish due to ease of use and rearing, quick reproduction, and propensity to eat larvae. Respondents were willing to pay 100-500 riel (\$0.02-0.1 USD) for a pair of guppies. The next commonly preferred method was PPF (28/80 or 35 percent) due to its long-lasting effectiveness, convenience and easy maintenance. However, as PPF doesn't kill larvae, there were some concerns over the persistent presence of larvae. These concerns can often be addressed by using community sensitisation activities to explain that PPF-exposed treated larvae do not become adults and do not carry disease. Additional concerns about access, availability and affordability of PPF were raised by FGD participants. The least preferred methods included mosquito coils, and chemical sprays due to the smell and health concerns.

The following quotes from focus groups and key informant interviews highlight community perceptions of the interventions:

"We love guppies as they are attractive, easy to keep and visibly clean the water from larvae."

"Whenever we see the volunteer we request them to put the guppies in our jars as soon as possible to eliminate the larvae"

"PPF is easy to use. When we need to clean the container, we take it out, clean the container and put it back with less hassle."

"We don't have fear of insecticides or the smell of PPF, however if we use abate it has a very bad smell".

"People do not feel happy when they see the larvae aren't dead after the use of PPF."

"We know PPF works well as fewer mosquitos are around, however, we are afraid the presence of larvae may contain parasites that can spread the disease".



Photo: Qualitative Assessment Focus Group

Conclusion

- COMBI activities were effective in creating demand for, and promoting the use of, guppies and PPF and encouraged community participation.
- A well-developed COMBI strategy can result in high acceptance of guppies and PPF.
- However, the findings also indicate that sustained PPF use requires community sensitisation activities that describe the interventions, visualise live or moribund larvae and dead pupae, and explain that adult mosquitos, rather than larvae, are central to disease transmission.

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