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In recent years, scientists have found an alternative to significantly decrease dengue transmission by the mosquito *Aedes aegypti*. By transferring Wolbachia, a bacteria that stops the dengue virus from surviving in their mosquito hosts, into *Aedes aegypti* mosquitoes and then releasing them to the general population, scientists dream of eliminating dengue worldwide.

But releasing mosquitoes to communities requires a high amount of trust. How do we convince people that spreading mosquitoes can eliminate dengue when they have long came to understand that *Aedes* mosquitoes transmit dengue?

The answer? Careful preparation and community engagement.

I lead the Eliminate Dengue Project in Yogyakarta (EDP-Yogya), the first project to use Wolbachia to reduce dengue cases in Indonesia, the most dengue-vulnerable country in Asia. Funded by Tahija Foundation, EDP-Yogya works in collaboration with EDP-Global led by Professor Scott O'Neill, based at Monash University.

Two districts in Sleman, Yogyakarta became our release sites. For two years since 2011, while we prepared for the first small-scale release of Wolbachia infected mosquitoes, we carried out intensive community engagement.

Community engagement

We worked closely with the smallest community unit, called Rukun Tetangga (RT) to gain trust. An RT consists of about 20 to 30 households. We held face-to-face community meetings to educate the community on dengue-related subjects, both piggybacking on their existing meetings and arranging special meetings.

We formed community referral groups to be able to discuss key issues raised by the community as well as issues to be put to the community. As the project develops, members of this group are often called on as resource persons for other communities.

We also adopted the saying “seeing is believing”. Community members visit our insectary and diagnostic laboratory to gain a better understanding about Aedes mosquitoes and Wolbachia. These visits to our lab create a strong sense of transparency. We hide nothing from our community.

Two years into the preparatory phase, we built a stakeholder inquiry system (SIS) to capture any community concerns, opinions and complaints as the project moves closer to the mosquito release. We use various mediums from direct face-to-face conversation, short text messages, telephone and email. We monitor concerns daily and we develop protocols to address these concerns.

Finally, building trust also involves sharing information back to the community. Every two months, progress and activities in a specific hamlets are communicated via newsletters (“Pawartos”), distributed to all households in the community.

Community consent

Enhancing community understanding in a community-based project like EDP-Yogya is a prerequisite toward acceptance of the project. However, improved community understanding about dengue and Wolbachia intervention does not imply approval from the community.

Consent must be obtained from the research participants. We collaborate with EDP Global at Monash University, and for the first release in Sleman district, the Independent Review Board requests individual consent from each household member. We obtained approval from nearly 4,500 people.

From the Sleman trial, we learnt that obtaining individual consent can generate conflicts in the community. Culturally, communities in these areas use collective decision-making process when dealing with community issues. The protocol protects the rights of people who refuse the release over those who approve.

Additionally, obtaining individual consent required tedious work. Although we managed to obtain more than 95% approval, this approach is impractical to do in a larger scale.

Finally, a low percentage of household members who rejected the intervention turned out to have influenced the release areas. When one household rejects the mosquito release, we do not release the mosquitoes in that household and its surrounding areas within the radius of a 25-50 square meters. As a result, 5% of the population that doesn't approve does not translate to 5% of the area not released, but somewhat larger.

Based on the experience in Sleman, for Bantul release we obtained community consent but still allowed individuals to reject. All RTs in Jomblangan and Singosaren (Bantul district) gave consent and no households refused the release.

We also changed the method to releasing young *Aedes* eggs instead of adult mosquitoes. We engaged the community to hatch Wolbachia-infected eggs, placed in buckets, in their households. Involving the community to hatch
Aedes
eggs in their own houses creates a higher sense of ownership.

Result

Weekly monitoring of the local *Aedes* mosquito found the bacteria spread through more than 80% of the local population. The mosquitoes have remained infected, showing that the establishment of Wolbachia in the population is sustainable.

Our observation on dengue cases in the community revealed that once most mosquitoes are infected by Wolbachia, there was no evidence of local dengue transmission. This means that those who have had dengue could have been infected from outside the release areas.

Without community involvement and consent, it would have been impossible to achieve this positive result. Our next step is to carry the successes in Sleman and Bantul to a larger population: the city of Yogyakarta with around 450,000 residents. By 2020, we hope Indonesia will adopt the use of Wolbachia in dengue-prevention nationwide.

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