HIV: Current Research

Extended Abstract

# An assessment of fishing communities around Lake Victoria, Uganda, as potential populations for future HIV vaccine efficacy studies: an observational cohort study

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## Abstract

An effective HIV vaccine is still elusive. Of the 9 HIV preventive vaccine efficacy trials conducted to-date, only one reported positive results of modest efficacy. More efficacy trials need to be conducted before one or more vaccines are eventually licensed. We assessed the suitability of fishing communities in Uganda for future HIV vaccine efficacy trials. The Methods are used for a community-based cohort study was conducted among a random sample of 2191 participants aged 18–49 years. Data were collected on socio-demographic characteristics, HIV risky behaviors, and willingness to participate in future HIV vaccine trials (WTP). Venous blood was collected for HIV serological testing. Retention/follow rates and HIV incidence rates per 100 person years at-risk (pyar) were estimated. Adjusted prevalence proportion ratios (PPRs) of retention and odds ratios (ORs) of lack of WTP were estimated using log-binomial and logistic regression models respectively. The results for Overall retention rate was 76.9% (1685/2191), highest (89%) among participants who had spent 5+ years in the community and lowest (54.1%) among those with <1 year stay. Significant predictors of retention included tribe/ethnicity, baseline HIV negative status, and longer than 1 year stay in the community. Overall WTP was 89.1% (1953/2191). Lack of WTP was significantly higher among women than men [adj.OR = 1.51 (95% CI, 1.14-2.00)] and among participants who had stayed in fishing communities for 10 or more years relative to those with less than one year [adj.OR = 1.78 (95% CI, 1.11 - 2.88)]. Overall HIV incidence rate per 100 pyar was 3.39 (95% CI; 2.55 - 4.49). Participants aged 25–29 years had highest incidence rates (4.61 - 7.67/100 pyar) and high retention rates between 78.5 and 83.1%. In a combined analysis of retention and incidence rates participants aged 30+ years had retention rates ~80% but low incidence rates (2.45 - 3.57 per 100 pyar) while those aged 25–29 years had the highest incidence rates (4.61 - 7.67/100 pyar) and retention rates 78.5 - 83.1%. So there is high HIV incidence, retention and WTP among fishing communities around L. Victoria, Uganda which make these communities appropriate for future HIV prevention efficacy studies including vaccine trials.

**Keywords:**
HIV-1 incidence, Retention, Willingness to participate, Fishing communities, Uganda

Our assessment indicates that fishing communities around Lake Victoria, Uganda, are potential populations for future HIV vaccine efficacy studies. In these communities we found an overall HIV-1 incidence rate of 3.39/100 pyar, a retention rate of 77%, and WTP of 89.3%. The overall incidence rate in this fishing community general population is about 4–5 times higher than that estimated for the national general population of Uganda and 3 times higher than the rate observed in some long term cohorts in Uganda . Some sub-groups in these fishing communities have incidence rates as high as 7.7/100 pyar . Other population groups in Uganda with comparable levels of HIV incidence include female sex workers and long distance truck drivers which are highly selected and gender skewed groups, making it difficult to generalize findings from these populations**.**

Contrary to the belief that fisher folk are difficult to retain given their mobile nature, we were able to retain 77% at a 12 month inter-survey interval using passive follow up. This result is very encouraging in that with active follow up at shorter intervals such as those in a vaccine efficacy trials, retention rate is expected to be much higher than that observed in this study. Retention was higher among participants who had stayed for more than one year in the communities which may imply that recent migrants tend to be less stable and may cause challenges in follow up studies. The retention rate we found in this general population of fishing communities is consistent with that found among fisherfolk that were screened for high risk behaviours (76%) and in other population-based studies in Uganda . In a combined analysis of retention and incidence rates participants aged 30 or more years had retention rates ~80% with incidence rates ranging between 2.45 and 3.57 per 100 pyar

while those aged 25–29 years had the highest incidence rates (4.61 - 7.67/100 pyar) and high retention rates between 78.5 - 83.1%. Retention was lowest among young adults aged 18–24 years.

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This finding appears to indicate that among fishing communities around Lake Victoria, Uganda, maximization of both HIV incidence and retention occurs among participants aged 25–29 years. In actual vaccine efficacy trials, efficient recruitment and retention of large numbers of participants is crucial in for the success of the study . Our observed retention rate of 77% could be improved by methods such as frequent participant contact and active tracing, shorter follow up intervals, and use of mobile telephone technology which have improved retention in other high risk and marginalized population groups . However, given the unique characteristics of fishing communities it would be prudent to evaluate the effectiveness of those strategies in enhancing retention before adopting them in actual trials.

The strength of this study is that it was conducted in a randomly selected general population of fishing communities. We note that the study is not without limitations. First, a long inter-survey period of 12 months does not represent the shorter follow up intervals typically seen in the early period of vaccine trials. Second, the hypothetical assessment of WTP does not necessarily reflect actual willingness observed in real vaccine trials . Third, retention rates were assessed at one follow up visit (due to the design of the study) and as such represent a cross-sectional assessment at the one follow up visit.

## Conclusions

The finding of high HIV incidence, good retention rates, and high WTP, indicates that fishing communities are potential populations for HIV prevention efficacy trials including vaccines and combination interventions.

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