

## **Effectiveness of community-based larviciding program on malaria vector abundance on Bioko Island, Equatorial Guinea.**

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Recommended as a supplement to the core vector control interventions of IRS and ITNs, several African countries are introducing larval source management (LSM) into their malaria control programs. Vectors resistance to insecticides and the change in the biting behavior of the vectors to more of outdoor biting have renewed the interest in LSM. However, the operational delivery strategy that will realize the full potential of LSM in reducing malaria transmission in sub Saharan Africa is still not clear. The Bioko Island Malaria Control Project (BIMCP) in Equatorial Guinea introduced a pilot larviciding program using community volunteers to assess the sustainability and the impact on malaria vector densities on Bioko Island. After community engagement in each community, community members were identified and recruited as volunteers with the help of the community leaders. The community-based larviciding program was introduced in 2015 in 13 communities where community volunteers were willing to participate. In phase I of the program in 2015, the volunteers were fully supported by the BIMCP. The community volunteers were trained and assisted in identifying, monitoring, and treating all potential breeding sites, including those that they had missed to treat. However, during phase II of the program in 2016, the community volunteers took ownership of conducting all larviciding activities while the BIMCP monitored and evaluated the program. Though there was no significant difference in the average number of breeding sites monitored in the two phases (N=1,033 in phase I and N=970 in phase II), the treatment coverage was lower in phase II than in phase I by about 25%. This was also reflected in the total amount of larvicide consumed in phase I (5,585.8kg) as compared to phase II (2,936.9kg). The average human biting rate of the vector also doubled from an average of three bites per person per night in phase I to six bites per person per night in phase II. A community-based larviciding program in Bioko Island can significantly reduce the vectors abundance on the Island only through strong operational and managerial expert support.