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Receptivity for malaria transmission in a highly vulnerable district: A potential challenge for prevention of reintroduction efforts in Sri Lanka

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Sri Lanka has eliminated indigenous malaria cases since October 2012. Currently, the biggest threat to the elimination efforts is the risk of resurgence due to imported malaria. In 2012 there were 70 imported malaria cases, followed by 95, 49 and 36 in 2013, 2014 and 2015, respectively. The majority of these cases were reported from the Western Province, having risen from 62.1% in 2013 to 65.3% and 66.7% in 2014 and 2015, respectively. In this backdrop in the Western Province, receptivity to malaria, which persists due to high abundance of primary and secondary vectors, is a parameter critical for decision making. The current study was designed to assess the receptivity to malaria in the Gampaha District, which recorded 38.9%, 30.6% and 27.7% of the total reported cases in 2013, 2014 and 2015, respectively.

The assessment was done by collecting information on critical entomological parameters such as vector larval abundance, man biting and indoor resting behavior of malaria vectors that contribute significantly to determine receptivity to malaria. Possible breeding sites of Anopheles mosquitoes were surveyed and indoor resting and human biting malaria vectors were sampled from March 2015 to April 2016 in four localities of Meerigama MOH area of the Gampaha District.

A total of 1656 Anopheles larvae of 14 species were collected from 22 breeding sites. The major malaria vector Anopheles culcifacies was found in rock pools (98.7%) followed by river margins (1.3%) of Ma oya river. During the surveys, outdoor human biting A. culicifacies were found in the months of January (0.2 per bait per hour) and March (0.08 per bait per hour) 2016, while indoor resting A. culicifacies (0.04 per man hour) were found in February 2016.This preliminary report records the present status of malaria receptivity in the study sites with an increase of receptivity observed from January to March 2016. An increase of receptivity coupled with vulnerability in the Western province could pose a significant challenge to the malaria free status in the country. Strengthening of entomological surveillance in the Western Province along with high level of vigilance would be critical for maintenance of malaria free status of the country.

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