

High incidence of asymptomatic cases during an outbreak of *Plasmodium malariae* in a remote village of Malaysian Borneo

ABSTRACT

An outbreak of *Plasmodium malariae* occurred in Sonsogon Paliu village in the remote area of Ulu Bengkoka sub-district of Kota Marudu, Northern Sabah, Malaysian Borneo from July through August 2019. This was the first outbreak of malaria in this village since 2014. On 11th July 2019 the Kota Kinabalu Public Health Laboratory notified the Kota Marudu District Health Office of a Polymerase Chain Reaction (PCR) positive case of *P. malariae*. This index case was a male from Sulawesi, Indonesia working for a logging company operating in Sonsogon Paliu. During the resulting outbreak, a total of 14 symptomatic cases were detected. All of these cases were positive by thick and thin blood smear examination, and also by PCR. During the outbreak, a mass blood survey screening was performed by light-microscopy and PCR. A total of 94 asymptomatic villagers 31 (33.0%) were PCR positive but thick and thin blood smear negative for *P. malariae*. Both symptomatic and asymptomatic cases received treatment at the district hospital. When symptomatic and asymptomatic cases were considered together, males (29/45, 64.5%) were infected more than females (16/45, 35.6%), the male:female ratio being 1.8:1. Adults were the predominant age group infected (22/45, 48.9%) followed by adolescents (19/45, 42.2%) and children under five years of age (4/45, 8.9%). This report illustrates that symptomatic and submicroscopic cases pose a challenge during *P. malariae* outbreaks and that PCR is a valuable tool for their identification. The rapid identification and control of imported malaria is crucial for the continued control of malaria in Malaysia.