

Defining the biomedical, environmental and social risk factors for human infection with Plasmodium knowlesi; opportunity

PI: Dr Drakeley, London School of Hygiene and Tropical Medicine

Abstract: Until recently, medical science has attributed malaria infections in humans to only four parasite species. However, molecular investigations during a malaria epidemic in Malaysian Borneo in 2004 confirmed the causative agent as Plasmodium knowlesi, a parasite formerly thought to only infect primates. Studies have since detected P. knowlesi in human populations in several other Southeast Asian countries.

The primary hosts of P. knowlesi are macaque species that are widely distributed across Southeast Asia and in which infection is benign. P. knowlesi infections in humans however can cause severe and fatal disease. Moreover recent studies in Sabah, Malaysia, have suggested that transmission is not confined to adults or the forest fringe as previously described. We hypothesize that the change in land use patterns has led to this apparent increase in cases and changing epidemiology. The appearance of other primate-associated pathogens within human populations has been linked with activities such as deforestation (eg Yellow fever) and hunting (eg Ebola). A common feature of these zoonoses is that community perceptions of disease risk strongly impact on the economic activities that drive exposure, and demonstrate the value of an integrated approach to prevention and control.