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Letter to the Editor

Asymptomatic malaria infections among immigrants in malaria-elimination programmed areas of south eastern Iran may threaten malaria eradication

Dear Editor-in-Chief

Dear Editor, we read with interest the paper describing the infectious disease profiles of Syrian and Eritrean migrants presenting in Europe [1] and would like to describe our findings on asymptomatic malaria infections in migrants in South Eastern Iran.

The incidence of symptomatic *Plasmodium* infection has dropped dramatically over the past decade due to implementing control programs, including screening and mass treatment with new and effective anti-malarial medicines in endemic areas of the world. Efforts to reduce the incidence of symptomatic cases and reduce transmission are counter-balanced by new challenges such as emerging asymptomatic *Plasmodium* carriage or micro-parasitemia. Unfortunately, due to the limitations of current diagnostic tools, despite all the efforts made to identify asymptomatic cases, it is still a health problem [3–5].

In the past, malaria was considered a major health problem in Iran. Iran targeted elimination by 2020. Progress has been achieved during the five decades of operation, including a significant reduction of the incidence rate of malaria in the country over the last ten years. The trends declined from 1847 to 81 cases between 2010 and 2016 [2].

However, to achieve the success, we need to detect asymptomatic carriers among immigrants who contribute about 80% of national malaria prevalence in endemic areas in Iran annually.

A longitudinal cohort study was performed from October 2013 to April 2015 in the border areas of Saravan and Chabahar counties in Sistan & Baluchistan province in southeast of Iran. The aim of this study was to show the role of asymptomatic malaria individuals may contribute to the maintenance of *P. falciparum/vivax* infection in malaria–elimination programmed areas of south eastern Iran.

A total of 765 immigrants to south east parts of Iran were physically examined and blood samples were taken 3 times at 6-month intervals. Microscopic examination, indirect fluorescence antibodies test (IFAT), and Real-time PCR were used for detecting *Plasmodium* infection.

The results showed upon analysis of 765 immigrants, seven (0.9%) had specific malaria symptoms and microscopy, molecular, and serological tests were positive. *Plasmodium vivax* and *P. falciparum* were detected in five and two of these individuals, respectively. Among the 758 individuals without signs and symptoms of malaria, anti-*Plasmodium* antibodies were detected in five, while the results of microscopy and PCR were negative for all. Two out of the five seropositive individuals were excluded after a follow-up period due to back immigration. After six months of follow-up, three cases remaining in the study were still seropositive and only one of them was showed malaria-signs and symptoms (Fig. 1).

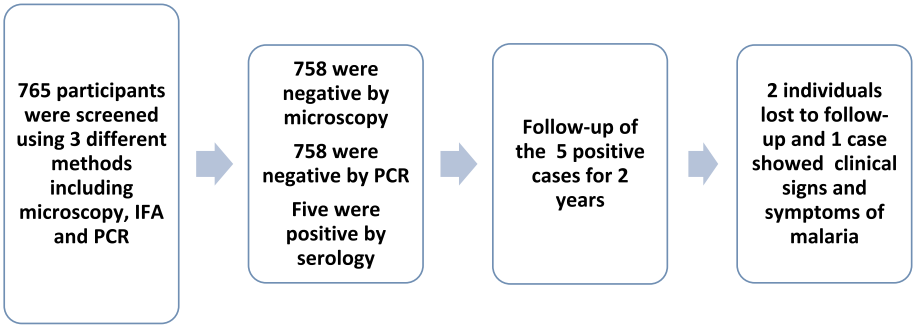

Fig. 1. Follow-up cohort and outcomes measured during 2 years of follow-up.

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