

Malaria Prevalence in the Middle East

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Dear editor,

The species of *Plasmodium* parasitic protozoans cause the infectious disease of malaria in humans and animals. The most common cause of this disease is *Plasmodium falciparum*, with the most severe clinical signs and deaths. Malaria is transmitted by female *Anopheles* mosquitoes (1). Approximately all the countries in the MENA region are at risk of malaria, except for Egypt, UAE and Jordan. The disease often affiliates travelers to most of the countries of the Middle East. Malaria has been known to be endemic in the lowlands of Saudi Arabia, and three species of *Anopheles* mosquitoes have been identified in this region (2-4). However, the risk of malaria is very low in parts of North Africa and the Middle East that are most visited by tourists. Malaria occurs in several endemic regions of Iran, including provinces of Kerman, Hormozgan, and Sistan and Baluchestan (5-7). In south of Iran *Anopheles culicifacies* was the most frequent vector of malaria with a frequency of 37.5%, followed by *A. dthali* (18.3%) (8). There have been no reports of malaria in Iraq since 2009. The Asir region of Saudi Arabia is endemic for malaria, although in 2014, 46 imported cases were detected in Saudi kingdom, with *P. falciparum* being predominant (9). Moreover, during late 2011 over 600 patients were detected as malaria positive in Abu Dabi, UAE, most of which came from Pakistan, India and Sudan. Malaria cases have sharply decreased in Syria from 2000 to 2010, and nearly no cases have reported in 2012 (10). There has been continued presence of imported malaria in Jordan, mainly from East Africa (Sudan and Eritrea) and South East Asia (11).

References

1. Dondorp AM, Nosten F, Yi P, Das D, Phylo AP, Tarning J, et al. Arte-

misinin resistance in *Plasmodium falciparum* malaria. *N Engl J Med*. 2009;361(5):455-67. doi:10.1056/NEJMoa0808859. [PubMed: 19641202]

- Macan TT. Malaria survey of the Arakan region of Bengal and Burma. *Parasitology*. 1950;40(3-4):290-7. [PubMed: 14785970]
- Hanafi-Bojd AA, Azari-Hamidian S, Vatandoost H, Charrayh Z. Spatio-temporal distribution of malaria vectors (Diptera: Culicidae) across different climatic zones of Iran. *Asian Pac J Trop Med*. 2011;4(6):498-504. [PubMed: 21771707]
- Sedaghat MM, Linton Y, Nicolescu G, Smith L, Koliopoulos G, Zounos AK, et al. Morphological and molecular characterization of *Anopheles (Anopheles) sacharovi* Favre, a primary vector of malaria in the Middle East. *Syst Entomol*. 2003;28(2):241-56.
- Naddaf SR, Oshaghi MA, Vatandoost H, Assmar M. Molecular characterization of *Anopheles fluviatilis* species complex in the Islamic Republic of Iran. *East Mediterr Health J*. 2003;9(3):257-65. [PubMed: 15751917]
- Hanafi-Bojd A, Vatandoost H, Philip E, Stepanova E, Abdi A, Safari R, et al. Malaria situation analysis and stratification in bandar abbas county, southern iran, 2004-2008. *Iran J Arthropod Borne Dis*. 2010;4(1):31-41. [PubMed: 22808386]
- Vatandoost H, Oshaghi MA, Abaie MR, Shahi M, Yaaghoobi F, Baghaei M, et al. Bionomics of *Anopheles stephensi* Liston in the malarious area of Hormozgan province, southern Iran, 2002. *Acta Trop*. 2006;97(2):196-203. doi: 10.1016/j.actatropica.2005.11.002. [PubMed: 16329986]
- Hanafi-Bojd AA, Vatandoost H, Oshaghi MA, Haghdoost AA, Shahi M, Sedaghat MM, et al. Entomological and epidemiological attributes for malaria transmission and implementation of vector control in southern Iran. *Acta Trop*. 2012;121(2):85-92. doi: 10.1016/j.actatropica.2011.04.017. [PubMed: 21570940]
- Musa IR, Gasim GI, Eltoum AO, Adam I. Imported malaria at Buraidah Central Hospital, Qassim, Saudi Arabia: a retrospective analysis. *Travel Med Infect Dis*. 2014;12(6 Pt B):733-7. doi: 10.1016/j.tmaid.2014.04.006. [PubMed: 24813715]
- Biagini GA, Fisher N, Shone AE, Mubarak MA, Srivastava A, Hill A, et al. Generation of quinolone antimalarials targeting the *Plasmodium falciparum* mitochondrial respiratory chain for the treatment and prophylaxis of malaria. *Proc Natl Acad Sci U S A*. 2012;109(21):8298-303. doi: 10.1073/pnas.1205651109. [PubMed: 22566611]
- Suleiman M, Katiba R, Hayel M, Ghassan K. Epidemiology of imported malaria cases in Jordan between 2000 and 2005. *JRMS*. 2009;16(3):10-5.