

## Editorial



# To Eradicate Malaria on the Korean Peninsula, Accurate Democratic People's Republic of Korea Malaria Statistics Are Needed

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On the Korean peninsula, indigenous *Plasmodium vivax* malaria has long occurred, but it was eradicated in 1984 in Republic of Korea (ROK) through a joint project with World Health Organization (WHO). However, the epidemic began again after the first patient occurred in 1993 in northern part of the ROK near demilitarized zone (DMZ), and there are still about 500–600 patients every year. Among OECD countries, indigenous malaria only occurs in Mexico and ROK. WHO has selected 21 countries, including ROK, to eradicate malaria by 2020. However, ROK's goal is being postponed because it is difficult to achieve the goal within the given time. This year, the Korea Centers for Disease Control and Prevention (KCDC) announced a five-year action plan to combat malaria. And announced that ROK will get malaria elimination certification from the WHO until 2024.<sup>1</sup> To be certified for elimination of malaria, there should be no indigenous malaria cases from 2021 and this condition must be maintained for three years continuously. To attain this ambitious goal, KCDC will strengthen malaria patient management, monitor and control vector mosquitoes, expand research and development in malaria, activate cooperation and communication systems with relevant ministries for the fight against malaria, and establish cooperation with Democratic People's Republic of Korea (DPRK) and international organizations.

Indigenous malaria in ROK is occurring 89% in the DMZ region. Considering that vector mosquitoes typically have an active radius within 3–4 km and DMZ is 4 km wide, the malaria outbreaks in ROK and DPRK are closely related. Therefore, in order to eliminate malaria again on the Korean peninsula, the cooperation between ROK and DPRK is essential. And having and sharing an accurate data to understanding of the current situation and the transmission dynamics should be the first step of this process. However, the data related to malaria in DPRK is still very limited.

In this issue, Kim et al.<sup>2</sup> reported data on DPRK's malaria incidence at the province level by collecting all the data from the WHO's annual World Malaria Report, and WHO and KCDC documents. The data were analyzed for consistency and compared with the malaria incidence data of ROK. The malaria incidence of the three provinces in DPRK near DMZ which is very close to the northern part of ROK was 52.1–315.3 per 100,000, followed by Pyeonganbuk-do (14.7–113.5 per 100,000), which is bordered by China. Until 2011, incidence of malaria

in provincial level in DPRK fluctuated every year and reliability of the data were low. One of the reason for this instability was the collapse of the DPRK's health care system due to economic collapse during these periods. But reliability and validity of the incidence data have been improved since the support from the Global fund started in 2010. In DPRK, massive primaquine preventive treatment (MPPT) was carried out from 2002 to 2007 in malaria-risk areas, resulting in a significant improvement in malaria incidence.<sup>3,4</sup> Successful MPPT done in DPRK during this period might be another reason for negative correlation between ROK and DPRK malaria incidence data before 2011.

This study is valuable in several aspects. First, it helped us understand the DPRK malaria incidence in provincial level that has not been well known. Secondly, the result can be used as an objective basis for assessing the reliability of the North Korean malaria data published in various ways. Thirdly, this work adds another piece to the evidence that the current malaria situation in ROK and DPRK are strongly related. Lastly, it will be valuable in development of strategic framework and key interventions for malaria control in Korea peninsula. Stratification of malaria risk up to 2011 in DPRK was not based on Ri level which is the lowest administrative level.<sup>5</sup> As a result, limited fund resources and supplies for malaria control could not be rationalized to malaria transmission areas for effective control. But after 2013, spatial and temporal mapping of malaria risk had been done.<sup>6</sup> International support such as Global fund contributed not only to the reduction of number of malaria patients but also to the accuracy of the malaria incidence data.<sup>2</sup> Sharing more accurate data and specific information will be the one of the key components in control and eliminate malaria in Korean peninsula in the near future.

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