

Guangyu Lu

Dr. sc. hum.

Malaria elimination in China: Analysis of previous outbreak characteristics and evaluation of the national malaria surveillance strategy

Einrichtung: Public Health

Doktorvater: Prof. Dr. med. Olaf Müller

Malaria has been highly endemic in China until the mid-20th century, with about 30 million cases of new infections reported annually during the 1950s. Due to China's subsequent rapid socioeconomic development and ongoing malaria control efforts malaria has largely decreased. However, at the beginning of the 21st century, malaria has re-emerged in the central east of China, with some sporadic malaria outbreaks and a later sustained, large-scale outbreak. In 2010, China launched its national plan to eliminate malaria by the year 2020. Surveillance is amongst the most important interventions for elimination programs, and in 2012 China has initiated a promising 1-3-7 malaria surveillance strategy which refers to reporting of cases of possible infection within one day, to case investigation within three days, and to focus investigation within seven days.

The primary objective of this study is to contribute toward strengthening of the malaria elimination program in China. To achieve this, first a systematic review has been undertaken to identify previous malaria outbreaks and to better understand what factors drove such outbreaks. Secondly, qualitative interviews were conducted with

malaria experts, policy makers and health care staff in two selected provinces of China to investigate challenges and lessons learned during the implementation of national malaria surveillance strategy.

The findings from the systematic review point to population migration, environmental, vector- and host- related factors, and operational problems having been the main causes of malaria outbreaks during the period 1990-2013. This highlights in particular the importance of better addressing malaria in migrants and mobile populations, but also the importance of establishing a strong malaria control capacity at all levels of the health system. The main challenges identified from the qualitative interviews were related to the logistics of the health care services, to aspects of malaria diagnosis, and in particular to the increasing number of migrant workers returning from malaria endemic countries in Africa. Main lessons learned were the importance of capacity building, of supervision and motivation, of quality control, and of intersectorial collaboration. Interestingly, since the launch of the nationwide 1-3-7 malaria surveillance strategy and despite a marked increase in the number of imported malaria cases, not a single outbreak of malaria has occurred in China.

In conclusion, given China's promising socioeconomic development, the overall strengthening of the health system, and assuming long-term political commitment, it is likely that China will succeed in its goal of becoming and remaining malaria-free.