Editorial

Yellow Fever importation to China – a failure of pre- and post-travel control systems?

The Chinese Centers for Disease Control and Prevention (CDC) tallied a total of 11 imported yellow fever (YF) cases to China up to April 1st, 2017. This issue of the International Journal of Infectious Disease (IJID) features a paper describing 4 of these cases in male Chinese workers who returned to Beijing from Luanda, Angola (Cui et al., 2017). The careful whole genome sequencing and analyses show that all YF infections were acquired in Angola and that none had mutations in the E protein amino acids thereby confirming the effectiveness of the 17D-YF vaccine.

Two major ramifications emerge: 1) three of the four cases were confirmed by detection of viral genome in urine while their blood samples tested negative; and 2) none of these workers received yellow fever vaccination prior to travel. Domingo et al recently reported the first isolation of YF-17D genome in urine samples of vaccine recipients (Domingo et al., 2011). The documentation of wild-type YF virus genome by Cui et al (Cui et al., 2017) confirms the potential of viral shedding in the urinary tract, which parallels the detection of viral RNA in urine samples of Zika virus-infected persons (Paz-Bailey et al., 2017). This report illustrates the utility of urine in detecting YF virus, a promising improvement in diagnostics. Nevertheless, whether YF virus is infectious and transmissible via exposure to urine and whether sexual transmission could also occur, would require further investigation.

At the same time, alarm bells should be ringing regarding the second issue. Despite the success of YF vaccination in controlling outbreaks and protecting persons living in or traveling to YF-endemic areas (Collins and Barrett, 2017), large numbers of Chinese workers appear to travel to yellow fever endemic areas of Africa without a pre-travel yellow fever vaccination. Indeed how can workers be sent to outbreak areas (World Health Organization (WHO), 2017) without vaccination? The first imported case to Beijing was notified to the WHO via the national International Health Regulations (IHR) focal point in China on the 13th of March 2016 (World Health Organization (WHO), 2016). The next questions - how can workers enter China on return from a yellow fever endemic area such as Angola without showing proof of vaccination?

Both these situations may facilitate the importation of yellow fever to vulnerable areas. Workers for large international firms in Africa are vulnerable for infectious diseases such as yellow fever and malaria and need to be protected and have adequate pre-travel preparations. For workers in Angola, yellow fever vaccination should be a condition of employment. This should be mandatory for employers who contract workers for endemic areas in Africa, a matter for occupational health providers as well as public health officials. The introduction of new pathogens into naïve receptive geographic regions should trigger trepidation over the potential development of a public health emergency of international concern.

The IHR play a major role here and more resources are needed to ensure that the IHR are adhered to and respected. Should employers be mandated to ensure that workers going to yellow fever endemic areas are vaccinated? Are current border controls adequately checking returning travellers? Here the complexity of the situation increases. The WHO report from April 22nd, 2016 details the return route of two yellow fever infected individuals. They returned to China via Dubai and the United Arab Emirates. Should they have been stopped here coming from an YF area without immunization?

With the broad geographic presence of Aedes aegypti (Kraemer et al., 2015) and increasing global urbanization, returning travellers with yellow fever virus to areas with ambient temperatures, the threat of the introduction of yellow fever in new terrain such China cannot be ignored. The International Health
Regulations and pre- and post-travel checks and border controls must heed the warning bells and keep Pandora’s box firmly closed.

References


Cui Shujuan, Pan Yang, Lv Yanning, Li Jie, Sun Yulan, et al. Detection of yellow fever virus genomes from four imported cases in China. JID 2017;.


