

ZIKA VIRUS PRECAUTIONS FOR INTERNATIONAL FIXED-WING AIR AMBULANCE COMPANIES



Although until recently the Zika virus was regarded as a fairly harmless infection, this March the World Health Organization (WHO) declared a possible link to microcephaly and other congenital abnormalities during pregnancy, and labelled the Zika virus a potential public health emergency of international concern. What impact does this recent discovery have on international fixed-wing air ambulance companies flying into areas with confirmed Zika transmission?

By **Femke van Iperen**

While people infected with the Zika virus generally lack severe symptoms and may not suffer lasting harm, this March the WHO brought forward substantial new research about the increasing evidence of a causal link between the Zika virus and the occurrence of microcephaly, a condition involving foetal malformations and neurological disorders, resulting in unusually small heads and damaged brains in newborn babies. In addition, the health authority has made potential links with Guillain-Barré syndrome, where the immune system attacks the nervous system leading to muscle weakness, and has highlighted that Zika virus may be transmitted through sexual contact rather than being exclusively spread by mosquitoes.

These new developments have impacted on air ambulance companies travelling to areas affected by the virus such as Africa, the Americas, Asia and the Pacific, and particularly Brazil, the only country other than French Polynesia where a Zika outbreak has potentially been linked to microcephaly. Dr Chris Ewing, director of medical operations for Global Rescue, explained: “The Zika virus disease has established itself as a major health concern this year, given its unprecedented spread through Central and South America. Though Zika virus disease infection is not typically associated with severe symptoms in healthy adults (rash, body

aches, fatigue), there is mounting evidence of association between Zika infection and neurological birth abnormalities. Newer studies have also probed possible links between Zika infection and new-onset neurological dysfunction in adults (specifically, Guillain-Barré syndrome), as well as the possibility that infectious viral particles may be transmitted via bodily fluids or secretions.”

Precautions

Since the virus is hard to diagnose, and there is no vaccine or treatment, how are air ambulance companies preparing themselves for missions to affected areas? For Ewing, it’s all about the power of knowledge: “As many tropical infections share a similar constellation of symptoms, aeromedical providers and crew should take the time to reacquaint themselves with departmental infection control procedures.”

The WHO’s guidance on prevention is based on ‘source reduction’ and ‘reducing contact between mosquitoes and people’. This could include the use of insecticide, and it was for example recently reported that all aircraft returning to the UK from countries affected by active Zika virus transmission would be sprayed with insecticide.

Companies such as AirLink Ambulance have developed protocols which include ‘the use of biodegradable insecticides, limiting the time in



which aircrafts doors are left open, and avoiding the transports of fruits on board', said Dr Preciado, the company's medical director in Mexico. According to Heather Petrie, chief flight nurse of Skyservice Air Ambulance, the protocol the company uses includes the use of insect repellent

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containing 20 per cent DEET, and aircraft disinfection with d-phenothrin insecticide aerosol spray.

But, although for Ewing local-appropriate vector-control measures should be considered, such as use of 'Centers for Disease Control and Prevention (CDC) or WHO-recommended spatial repellents or bed-nets if extended ground operations are required', he also added that the patient's needs should not be overlooked: "If repellents are used, patient sensitivity should be considered prior to flight or extended close-quarters contact," he said. In terms of potential mosquito ingress, Tyrol Air Ambulance (TAA) is not planning to amend its medical procedures when loading a patient

into the aircraft, and the company will continue to 'focus on ensuring the safety, comfort and the provision of medical care to the patient at all times', said Dr Eva Wurz, the company's medical director. Wurz also noted that Zika virus transmitting mosquitoes (*Aedes aegypti* and *Aedes albopictus*) are typically found in warm, moist climates: "[And] it would likely not survive the conditions during the flight, nor would it survive in a northern European climate."

The potential risk to crew must also be considered, and for Ewing this should include use of long-sleeved garments and appropriate use of personal protective equipment. "Crew members who are expectant mothers should review the published CDC interim guidelines," he added.

While a Zika virus infection in itself is not likely to qualify a patient for medevac, there is a chance for patients suffering from other conditions to also have a concurrent Zika virus infection.

Ewing said: "Given the sheer volume of infection estimates within areas experiencing high rates of transmission, providers can reasonably expect to encounter patients with active infection, or who have been previously infected with Zika virus." He added that a thorough patient history should be obtained for all patients, especially those displaying signs of viral infectious illness.

Wurz commented: "Before every mission is confirmed, TAA's assessment doctor discusses the patient's condition with local treating doctors. If

the patient has already been diagnosed with the Zika virus, we will be made aware at that stage. Nevertheless, there is always a possibility that a patient may have contracted the virus if they are located in a Zika-affected region, regardless of diagnosis, and we must prepare on that basis." Should a patient with suspected Zika be transported, explained Preciado, 'the use of tents or nets to avoid contact of the patient with mosquitoes is crucial'.

Conclusion

Although more investigation is needed to better understand the relationship between microcephaly in babies and the Zika virus, and whilst other potential causes are also being investigated by authorities, it would make sense, as Global Rescue's Ewing puts it, for 'providers and crew to remain vigilant with regard to emerging epidemiological guidance and information'.

Meanwhile, air ambulance companies such as TAA will continue to closely monitor the Zika virus and the effect it will have on its air ambulance missions. "TAA's medical team is developing a special Tropics Kit," said Wurz, which, she explained, will include an insect net and clothing and skin repellent. Vaccination recommendations will also be issued to medical crews when required, she said, and concluded: "Taking appropriate steps will minimise any risk associated with repatriating patients to and from Zika-affected regions." ■



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