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**THE IMPACT OF  
MOSQUITO BORNE  
DISEASES**



The mosquito is responsible for a million deaths a year worldwide.

It's a carrier for malaria, dengue fever, West Nile virus, chikungunya, yellow fever, filariasis, tularaemia, Japanese encephalitis, Saint Louis encephalitis, Western equine encephalitis, Eastern equine encephalitis, Venezuelan equine encephalitis, La Crosse encephalitis and Zika fever.

It's little wonder that there is a growing movement within the medical and science communities calling for the insect's eradication.

A number of mosquito population reduction trials have already been carried out in parts of the Caribbean. Whilst the eradication of a species is reasonably straight forward – albeit morally dubious - the trials are designed to monitor infection rates in humans as well as the impact on other species who would normally feed on mosquitoes.

The reality, however, is there were 212 million cases of malaria alone in 2015 resulting in 429,000 deaths. Although a 29% reduction compared to 2010, it won't take world leaders long to decide that the lives of half a million people (many of them children) are worth more than the indigenous wildlife that could be affected by the mosquito's extinction.

When you consider that those deaths were caused by roughly half a million malaria carrying mosquitoes, a near 1:1 kill ratio is impossible to ignore.

It's also the 7<sup>th</sup> highest cause of death for low-income economies.

Whilst the mosquito is associated with some of the warmest (and often wettest) parts of the world, the reality is the mosquito can be found everywhere.

Mosquitoes are abundant. Found in dozens of countries across a host of climates and weather conditions, it seems wherever there is standing water, some degree of warmth and some form of animal to prey on, the mosquito can flourish.

More importantly, due to the international travel, global trade and climate change, virus carrying mosquitoes are migrating to parts of the world where they normally wouldn't be found. Or at least, this is the fear amongst some in the medical community.

Higher average temperatures mean that mosquitoes can now survive (at least have a chance of surviving) in countries that would normally be too cold for them.

Even Canada isn't safe with one the most aggressive species in the world and carries, amongst others, diseases like West Nile virus.

Globally, mosquito borne disease cost the economy hundreds of billions of dollars every year through loss of earnings, loss of productivity, medical costs, medical research, containment, decontamination, insecticides, and swamp draining and so on.

However, hospitalisation of an individual with a serious or life-threatening condition poses a real challenge to medical facilities as well.

Whilst most, if not all, diseases transmitted by mosquitoes aren't contagious – specifically transmitted through person-to-person contact – the diseases themselves can be transmitted through contact with infectious material such as blood and in some cases bodily waste.

There are recorded cases of infectious materials entering the body orally and the individual in question becoming unwell.



Further complications can arise through disease like West Nile virus which can cause spinal cord meningitis which – when coupled with vomiting and diarrhoea, does pose a major threat to clinician and patient safety. Granted, the odds are less than 1 in 100 patients but being aware of the risks is vital to effective infection control.

There is no shortage of media outlets warning of the Zika virus and other serious illness migrating to temperate climates such as the UK and even Canada. Whilst it is possible due to the erratic weather patterns the world is currently experiencing, the chances of a major outbreak are low.

However, ensuring systems are in place to contain, decontaminate and dispose of any harmful material is the only way to protect your facility in the event of someone becoming infected.

The challenge is almost anyone could become infected as the result of travelling to a high-risk part of the world and walk through the doors of your facility. How that emerging threat is responded to decides a lot of what happens next.

Without question, there needs to be rigorous screening of imported goods to ensure vectors like mosquitoes don't survive the trip. The life expectancy of a female mosquito (they are the ones who do all the biting) is around 2 weeks. That's just enough time to survive shorter sea crossings and plenty of time if they stow aboard a plane.

Few would argue that the mosquito poses an enduring threat but the question remains how to deal with it. Many of the viruses it transmits are incurable although not always life threatening.

Considering in 2016 direct casualties from war were 370,000 people, and a further 800,000 people lost their lives indirectly (through displacement, mortal wounds and complications resulting from injuries etc.), the mosquito is giving us a run for our money.

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