

IAN GILBERT

# PREVENTING A PANDEMIC

As the spread of coronavirus continues to grab the headlines, Addfield Environmental Systems' marketing manager explains how the impact of viral outbreaks can be reduced through correct clinical waste disposal

**T**he new year began with reports of a new viral outbreak in China. Soon after, we witnessed the speed with which a localised endemic disease can become a global virus, with just two weeks between the first cases of novel coronavirus (2019-nCoV) being recorded in China to infections being reported globally.

Coronavirus joins the ranks of diseases – including ebola, zika and, in recent years, measles – that threaten global biosecurity, so we must consider what controls are in place to reduce its spread. Implementing biosecurity measures to dispose of infected waste through incineration could have slowed the spread of the virus drastically. But this does not appear to have happened in this instance, as contaminated clothing was seen discarded at the Wuhan market after the first disinfection, allowing the virus to continue being accessible.

Medical waste must be disposed of carefully to ensure risks of cross-contamination are removed from the environment. Currently, the way hazardous waste is handled varies, often depending on population density, infrastructure and economic stability of a region. In most developed countries, advanced medical incineration facilities are readily accessible and employed for such purposes. Worryingly, many developing countries and remote locations lack these basic facilities, and are forced to dispose of their waste in insecure ways.

Addfield Environmental Systems has worked extensively with international aid agencies to replace the unsuitable approaches that have been used in the past. One method discovered was waste simply being discarded on public ground; in several instances, livestock were seen feeding around the infected waste, increasing the dangers of the virus entering the food chain. In some regions, a black market dealing in items scavenged from dumped waste has developed. Discarded syringes have been resold back into unsuspecting hospitals, and plastics have been



recycled into items including drinking straws and toys.

Second to dumping has been the creation of open-fire pits to burn hazardous waste. Apart from environmental pollution, this can spread the disease through particulate waste that has not achieved sufficient temperatures to neutralise the infection. As the fires are left unchecked, incomplete incineration occurs, and organic waste can often be disburied and left to decompose into the local environment.

Both approaches can spread the infection across the local environment, creating more harm than good – so appropriate incineration is essential.

The installation of specifically designed incinerators can make a staggering difference. A modern medical incinerator contains two chambers. The primary chamber, into which waste is loaded, is heated to temperatures of between 600°C and 700°C to destroy the waste,

reducing it to about three per cent of its initial mass. This can be disposed of safely, in line with most waste management guidelines; any remaining glass or metals from syringes is left sterilised and can be recycled. Smoke and gasses enter the secondary chamber to be heated to 1,100°C, neutralising particulates, dioxins, furans, smoke and odours, and releasing only cleaned gases into the environment. This allows medical incinerators to be installed close to residential areas safely.

Investment is essential to stop endemics from becoming pandemics. Having resources that can be deployed rapidly to exactly where they are needed can drastically reduce the risks of the virus contaminating the surrounding environment. Incineration is the only way to sustainably destroy waste and neutralise the virus at a molecular level.

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**Implementing biosecurity measures to dispose of infected waste could have drastically slowed the spread of the virus**  
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● For more information, visit [www.addfield.com](http://www.addfield.com)

● What are your thoughts on safe disposal of clinical waste? Let us know at [liza.salazar@cpl.co.uk](mailto:liza.salazar@cpl.co.uk)