Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Results: The mGFT increased sensitivity from 38% to 100% and maintained 100% specificity. MERS-CoV scored 40 points of a total 54 points (likelihood: 74%) using GFT, and 40 points of a total 60 points (likelihood: 67%) using the mGFT, both indicating a high likelihood that human MERS-CoV outbreak in Saudi Arabia may be of unnatural origin.

Conclusion: Using an accepted tool, the GFT, and the mGFT which was modified for improved sensitivity, the MERS-CoV outbreak in Saudi Arabia scored in the range of high likelihood of an unnatural origin. Whilst tools such as the GFT are not definitive in proving biowarfare, they provide a systematic and scientific method of risk analysis, which can flag unusual epidemics which warrant further investigation.

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0611

Spatial time series analysis of ongoing Dengue outbreaks in the Philippines

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Background: Dengue fever is a tropical disease spread by mosquitoes. Dengue, a mosquito–borne viral infection found in tropical countries worldwide, can lead to hemorrhaging and organ failure in severe cases and there is no specific treatment for the illness.

Methods and materials: Spatial-temporal analyses of disease outbreaks are versatile tools for studying and understanding transmission and spread of a disease. It is useful in the different frontiers of its upsurge, possibility of its containment or eradication. The present study fit a spatial time series model to the ongoing Dengue outbreaks in the Philippines.

Results: Between 1 January and 21 September 2019, Philippines, 322,693 dengue cases including 1,272 death cases were reported through the DOH (Department of Health) routine surveillance system, with a CFR of 0.39%. Calabarzon accounted for the highest number of dengue cases with 49,661 included the 152 death cases followed by Western Visayas with 49,068 with the highest number of deaths with 214.

Conclusion: In reaction to the outbreak, the health department has intensified its dengue prevention campaign, destroying mosquito breeding sites and ensuring adequate blood supply in hospitals. Reducing mosquito populations by cleaning water sources like wells and water storage containers is essential to preventing future spikes in dengue cases, but higher temperatures and longer rainy seasons contribute to the scale of the outbreak, as can a change in the type of dengue virus.

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0612

Establish a standard inactivation protocol for virus research in a high containment laboratory

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Background: Emerging and re-emerging infections caused by viruses continue to threaten us. Over the past decades, Singapore has faced threats caused by the SARS Coronavirus, Influenza, Dengue, and Chikungunya viruses, just to name a few. To understand the viral pathogenicity as well as control and prevention of the infections, a high containment has been applied for the research of high biorisk pathogens. Here, a standard precaution has been established to remove an inactivated virus samples to low biosafety environment as a business continuous strategy. An inactivation protocol is divided into two parts, inactivation and validation. Inactivation is a strategy completely remove the virus infectivity, included physical and chemical methods, e.g. heat and methanol. Validation shall be a solid method to reveal inactivation part was sufficient to inactivate virus and the samples still able to carry out for downstream experiments.

Methods and materials: Stability of virus was performed in different temperatures. The virus cultures were aliquot into 200 uL and incubated from 5 mins up to 2 weeks in –80°C, 4°C, 37°C and 95°C. Cell lines infected by virus was fixed by 100% cold methanol for 15 mins, then washed and harvested for validation. To extract viral genome, an infected cells or virus cultures was treated by lysis buffer containing guanidine isothiocyanate. All treated samples were used to cultivate for at least 3 days to validate it has no virus CPE. For safety precaution, a witness is required to monitor the inactivation process.

Results: By an in-principle approval protocol, the Mayaro virus (MAYV), for example, was certified to inactivate by using 95°C for 5 mins, 100% cold methanol for 15 mins, and lysis buffer containing guanidine isothiocyanate for 5 mins. However, the infectivity of MAYV was started dropping after 24 hrs in 37°C and 7 days in room temperature. It was no infectivity after 72 hrs in 37°C.

Conclusion: In conclusion, to remove a high biorisk samples to low biosafety environment for downstream experiments may expose to the risk and to cause laboratory-acquired infections. A proper guideline, procedure, and training shall be in place for prevention and control.

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0613

The role of the clinical diagnosis of dengue during an outbreak: A qualitative study of how dengue is triaged and managed at a Malaysian hospital

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Background: Dengue is estimated to pose a risk to half of the world’s population and represents a significant global economic burden. In Malaysia, dengue is a major cause of morbidity and infectious disease mortality, with an annual upward trend in nationally reported cases. The identification of dengue patients upon presentation, specifically, the diagnosis, classification and management of cases, can be challenging due to the wide spectrum of disease manifestation. Current case definitions and classifications of dengue can be difficult to apply in practice. Often, clinicians in low and middle income countries must rely on a clinical diagnosis due to the absence or delay of obtaining reliable laboratory test results. Although many studies have assessed the application of the 1997 and 2009 WHO dengue case management guidelines to manage dengue, there is limited qualitative research exploring how cli-