

Could the hantavirus spark the next pandemic?

The outbreak is a test of how well global leaders respond to an emerging infectious disease.

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and Alex Cook**

The hantavirus outbreak on a cruise ship has precipitated a race against time for researchers to unravel the truth and find out how the disease was spread from one human to another.

The current outbreak is caused by a "New World" hantavirus from the Andes. Hantavirus was first isolated in South Korea in the late 1970s. The name comes from the Hantan river that flows from north of the border. The less deadly "Old World" strains of the hantavirus, which were accompanied by haemorrhagic fever and renal syndrome, were found in Eurasia and Africa. "New World" hantavirus, discovered later in the 1990s and mostly in

the Americas, however, causes severe respiratory disease and has a fatality rate of one in three infected.

Time is of the essence to uncover the pathogen, its origin, mode of transmission and virulence – but the machinery to do all this has been severely weakened. The outbreak is coming at a time when global health has been plunged into turmoil. The US has withdrawn from the World Health Organization and much of its international health engagements, and the US Centers for Disease Control and Prevention has lost a lot of its previous stature as the pre-eminent home of infection control.

Hantaviruses are naturally found in rodents, in whom it does not cause disease. In humans, however, it can cause severe

illness, with no treatment at present. Hantaviruses are usually not spread from person to person, but through the environment, such as droplets contaminated by rodent poo, or through bites and scratches. While human-to-human transmission does sometimes happen with the Andes variant of the virus, the extent and potential of human-to-human transmission has not been fully understood by international scientific bodies.

SHOULD WE WORRY?

Will this Andes hantavirus cause the next pandemic and how much protection do we have against it in Singapore?

The answer is a little complicated because while the virus sounds deadly and our national response to Covid-19 is top of mind for most people, our approach to the severe acute respiratory syndrome (SARS) may be more instructive.

With SARS, we could purge the causative agent out of the human population. The SARS outbreak in

Singapore infected 238 people, killed about one in seven, and faded quicker than Covid-19.

Covid-19, in contrast, was different and more like the flu – fast, with pre-symptomatic and asymptomatic transmission, and very hard to control. It infected pretty much the whole population, and killed a much smaller percentage, but a much larger number, of people.

The long incubation time for hantavirus means any outbreak may be severe but relatively controllable, if we are prepared and respond wisely. Applying the SARS "template" to the Andes hantavirus, we stand a good chance to bring this outbreak under control. Its long incubation period makes quarantine onerous, but allows swift coordinated effort to trace, isolate and monitor exposed contacts. And its severity, precisely the thing that is most terrifying about the hantavirus, is likely to encourage compliance, making control efforts more effective.

The challenge is that any

quarantine of those potentially infected would need to be much longer than what was required for Covid-19. The disease typically reveals approximately two weeks after infection, but in rare occasions, it can take up to eight weeks for this to happen.

Notwithstanding, the less-well-understood nature of this Andes virus might present surprises that necessitate keeping a watchful eye. A flippant but probably accurate risk assessment for us would be: If you are on the ship, worry a lot. If you have been in contact with someone who was on the ship, worry a bit. Otherwise, there are more important things to worry about.

PERSISTENT VULNERABILITIES

The episode highlights broader vulnerabilities that continue to place the world at risk of future pandemics.

Like many emerging infectious diseases, the hantavirus outbreak erupted suddenly, reminding us how quickly unfamiliar pathogens can seize public attention. Many

people won't even have heard of the hantavirus prior to this.

The outbreak has, if not started, then at least been amplified in a cruise ship – a confined environment. Highly contagious norovirus outbreaks causing acute gastrointestinal illness are a common occurrence in such a closed population, and memories are fresh of the Diamond Princess outbreak during the Covid-19 pandemic.

Most pandemics emerge from the spillover of viruses from animals to humans. As human populations continue to grow and natural habitats shrink, interactions between humans, animals and the environment are becoming more frequent and closer.

At the same time, our deeply connected world allows local outbreaks to spread rapidly across borders. Events in one corner can quickly affect far-off regions. Travellers – whether tourists, business travellers and refugees fleeing persecution or war – can accelerate transition across long distances. They are also among the most exposed to infection risks.

There has been much discussion on how our global health infrastructure must be revamped to tackle such challenges. The world needs a coordinating body to investigate incidents like this, mobilise resources across borders, gather and disseminate information, dispel misinformation, assess and communicate risk to communities, as well as hold leadership responsible in the compliance of international health regulation. The hantavirus is a test of how well global leaders respond.

This incident exemplifies that emerging infectious diseases can be full of surprises, but usually not pleasant ones. We need to prepare for the unexpected, remain ready to respond, and coordinate globally: If viruses transcend borders, so should our response to them.

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Cruise ship MV Hondius, which was affected by a hantavirus outbreak, leaving the port of Granadilla de Abona in Spain, on May 11. The current outbreak is caused by a "New World" hantavirus and causes severe respiratory disease. PHOTO: REUTERS