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Headline: Singapore's dengue 'emergency' is a climate change omen for the world

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Singapore says it is facing a dengue "emergency" as it grapples with an outbreak of the seasonal disease that has come unusually early this year.

The Southeast Asian city-state has already exceeded 11,000 cases -- far beyond the 5,258 it reported throughout 2021 -- and that was before June 1, when its peak dengue season traditionally begins.

Experts are warning that it's a grim figure not only for Singapore -- whose tropical climate is a natural breeding ground for the *Aedes* mosquitoes that carry the virus -- but also for the rest of the world. That's because changes in the global climate mean such outbreaks are likely to become more common and widespread in the coming years.



Dengue is not a pleasant disease. It causes flu-like symptoms such as high fever, severe headaches and body pains. In extreme cases, bleeding, breathing difficulties, organ failure and even death can occur.

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"[Cases] are definitely rising faster," said Singapore's minister for home affairs Desmond Tan on the sidelines of a neighborhood inspection for dengue mosquitoes. "It's an urgent emergency phase now that we have to deal with."

The outbreak in Singapore has been made worse by recent extreme weather, experts say, and its problem could be a harbinger of what is to come elsewhere as more countries experience prolonged hot weather spells and thundery showers that help to spread both the mosquitoes and the virus they carry.

"The disease is now endemic in more than 100 countries," the World Health Organization (WHO) said in a global dengue report in January 2022, noting that cases had increased "30 fold in the last 50 years."

"Not only is the number of cases increasing as the disease spreads to new areas but explosive outbreaks are occurring."



In 2019, the world recorded a record 5.2 million cases of dengue, according to the WHO, and outbreaks across Asia that year killed thousands. In the Philippines, hundreds died and millions more were put at risk as the country declared a national dengue epidemic; in Bangladesh, hospitals were overwhelmed; and in Afghanistan, transmission was recorded for the first time ever.

Singapore's worst dengue outbreak in history came the following year, when it recorded 35,315 cases and 28 deaths.

This year, Singapore -- where dengue has been endemic for decades -- has so far seen just one dengue death but with the rising number of cases authorities are taking no chances.

"As of May 28, 2022, about 11,670 dengue cases had been reported this year -- [with] about 10% of cases requiring hospitalization," a spokesperson from Singapore's Ministry of Health told CNN.

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Dengue admissions at hospital emergency departments were increasing due to the recent surge, the spokesperson said, but remained at "a manageable level."



But with peak season only just beginning, medical experts and doctors like Clarence Yeo Sze Kin say there's a chance this year could set a record for the number of cases.

"Dengue is a seasonal disease and once it gets hot and dry, I usually start seeing more patients coming in," he said.

Yeo who runs a clinic in downtown Singapore, has been seeing "a sharp rise" in the number of patients with dengue-related ailments.

"Dengue might be endemic but it is still by no means a simple illness to treat," Yeo added.

The ministry spokesperson said most dengue cases did not require hospitalization or intensive care, "However, some individuals may develop severe dengue that can result in death."

"We remind the medical community of the appropriate clinical management of dengue cases and to maintain a high level of clinical suspicion when seeing patients with fever."

Hotter days, warmer nights

Singapore's dengue surge is the result of multiple factors like the recent warm, wet weather as well as a new dominant virus strain, said Ruklanthi de Alwis, a senior research fellow at the Duke-NUS Medical School and an expert in emerging infectious diseases.

But climate change, she said, was likely to make things worse. "Past predictive modeling studies have shown that global warming due to climate change will eventually expand the geographical areas (in which mosquitoes thrive) as well as the length of dengue transmission seasons," de Alwis said.

The Meteorological Service Singapore says that the Southeast Asian country is heating up twice as fast as the rest of the world. Maximum daily temperatures could reach 37 degrees Celsius by the year 2100 if carbon emissions continue to rise, its weather scientists have warned.

Temperatures recently hit a record high of 36.7 degrees Celsius in May amid sweltering levels of humidity.

And soaring temperatures are expected to become the norm, according to weather and climate scientist Koh Tieh Yong from the Singapore University of Social Sciences.

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"The past decade has been very warm. We now experience about 12 more warm days and 12 more warm nights (compared to) 50 years ago."

Koh said Southeast Asia had "much to be concerned about climate change" -- though he said it was "not possible to scientifically draw the link between local heavy showers with climate change at present."



Other experts said that given the trend of prolonged hot weather and heavier rainfall from sudden torrential monsoons, Singapore's annual dengue problem was only likely to get worse.

"We will not be able to eradicate dengue (because) the constant weather extremes create the perfect breeding conditions for mosquitoes," said climate scientist Winston Chow from the College of Integrative Studies at Singapore Management University.

Chow, who has contracted dengue fever twice, lamented the escalating scale of the problem. "In terms of adaptation, Singapore has excellent health care infrastructure and countless policies in place to reduce the risks -- but there's only so much that it can do," he said.

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Despite spending tens of millions of dollars each year trying to keep mosquito populations down through island-wide fogging efforts, public awareness campaigns and even novel experiments using special lab-bred mosquitoes, government agencies in Singapore are continuing to report rises in dengue infections and mosquito clusters.

"Singapore is currently facing a serious dengue situation," its National Environmental Agency told CNN, citing the "recent warm, rainy and humid weather" as a big contributing factor to the surge.

Dengue cases continue to rise sharply and are expected to remain high in the months ahead, the agency added.

While the government agency has managed to stamp out large areas of clusters and made extensive efforts to control the mosquito population, it is still seeing "profuse mosquito breeding" in many areas. "Quick detection and removal of mosquito breeding habitats are crucial in reducing the mosquito vector population," the agency said. "We urge all residents to stay vigilant, and to check their homes thoroughly at least once a week for any stagnant water."

Here to stay

As climate change worsens and the planet heats up, mosquito-borne diseases like Zika, chikungunya and dengue will likely continue to spread and have an ever greater impact on human health and well being.

The important question now, experts say, is whether politicians and policy-makers -- the ones who will need to make the changes to slow climate change and prepare for its consequences -- will see the impact of mosquito-borne diseases on human health and act.

"Changing environmental conditions are magnifying mosquito breeding rates so unless the climate emergency improves, it will become even more difficult to eliminate the risk of dengue fever altogether," said Chow the climate scientist.

"And it will be a painful battle for Singapore in the long run."