

Dengue may provide some immunity against COVID-19

Reuters | Rio De Janeiro

A new study that analysed the coronavirus outbreak in Brazil has found a link between the spread of the virus and past outbreaks of dengue fever that suggests exposure to the mosquito-transmitted illness may provide some level of immunity against COVID-19.

The not yet published study led by Miguel Nicolelis, a professor at Duke University, and shared exclusively with Reuters, compared the geographic distribution of coronavirus cases with the spread of dengue in 2019 and 2020.

Places with lower coronavirus infection rates and slower case growth were locations that had suffered intense dengue outbreaks this year or last, Nicolelis found.

"This striking finding raises the intriguing possibility of an immunological cross-reactivity between dengue's Flavivirus serotypes and SARS-CoV-2," the study said, referring to dengue virus antibodies and the novel coronavirus.

"If proven correct, this hypothesis could mean that dengue infection or immunisation with an efficacious and safe dengue vaccine could produce some level of immunological protection" against the coronavirus, it added.

Nicolelis said the results are particularly interesting because previous studies have shown that people with dengue antibodies in their blood can test falsely positive for COVID-19 antibodies even if they have never been infected by the coronavirus.

"This indicates that there is an immunological interaction



The coronavirus disease (COVID-19) outbreak in Oldham

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between two viruses that nobody could have expected, because the two viruses are from completely different families," Nicolelis said, adding that fur-

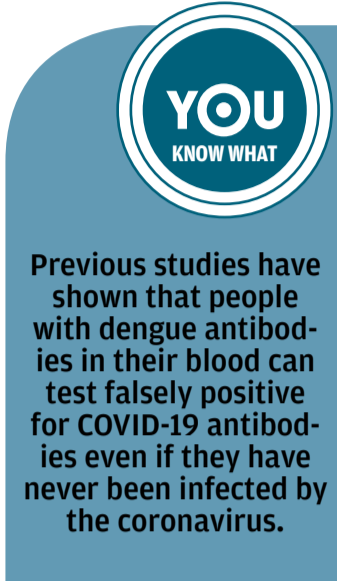
ther studies are needed to prove the connection.

The study was being published ahead of peer review on the MedRxiv preprint server and will be submitted to a scientific journal.

It highlights a significant correlation between lower incidence, mortality and growth rate of COVID-19 in populations in Brazil where the levels of antibodies to dengue were higher.

Brazil has the world's third highest total of COVID-19 infections with more than 4.4 million cases - behind only the United States and India.

In states such as Paraná, Santa Catarina, Rio Grande do Sul, Mato Grosso do Sul and Minas Gerais, with a high incidence of dengue last year and early this year, COVID-19 took much longer to reach a level of high community transmission com-



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pared to states such as Amapá, Maranhão and Pará that had fewer dengue cases.

The team found a similar relationship between dengue outbreaks and a slower spread of COVID-19 in other parts of Latin America, as well as Asia and islands in the Pacific and Indian Oceans.

Nicolelis said his team came across the dengue discovery by accident, during a study focused on how COVID-19 had spread through Brazil, in which they found that highways played a major role in the distribution of cases across the country.

After identifying certain case-free spots on the map, the team went in search of possible explanations. A breakthrough came when the team compared the spread of dengue with that of the coronavirus.

"It was a shock. It was a total accident," Nicolelis said. "In science, that happens, you're shooting at one thing and you hit a target that you never imagined you would hit."

India's use of nudge theory helped to tackle the virus, a new study suggests

University of Cambridge

India has reported nearly five million COVID-19 cases and well over 80,000 deaths (as of 17 September 2020), making the country one of the worst hit in the world. But an even greater tragedy may have unfolded had India's government not used nudge theory to maintain one of the world's strictest and longest lockdowns in the first quarter of the year.

This is the view of a new study by Ramit Debnath and Dr Ronita Bardhan from Cambridge's Behaviour and Building Performance Group, Department of Architecture.

Using machine learning and AI-based algorithms to analyse almost 400 government press releases, they show how India nudged across 14 key policy areas to influence the behaviour of 1.3 billion people, including government employees, scientists, health professionals, manufacturers, food suppliers and students to help fight COVID-19.

The researchers argue that nudges from India's Prime Minister, Narendra Modi, were particularly important in creating



The study does not attempt to assess the success or failure of the Government of India's policy interventions, rather to understand how context-specific latent nudges were created through policy interventions.

herd effect on lockdown and social distancing norms across the nation.

The study, published in PLOS ONE, found that the government deployed nudge techniques to

The Government started lifting lockdown restrictions on 7 June 2020, and the spread of the virus has since accelerated. But the benefits of the government's nudge campaign are still being felt, the researchers believe.

tackle a wide range of urgent challenges between 15 January and 14 April 2020. Nudging is a design-based public policy approach which uses positive and negative reinforcements to modify the behaviour of a population.

In January and February, policy nudges were focused on evaluating the risk of incoming travellers from China and extending surveillance at international airports. But the narrative soon shifted to address other pressing concerns. By March, nudges sought to impose new restrictions on travel, discouraging people from visiting crowded and public spaces, and strict

social distancing. On 24 March, Modi told the nation that "21 days is critical to breaking the infection cycle... or else the country and your family could be set back 21 years". The next day, the country entered phase 1 of lockdown.

The government nudged to tackle fake news about the virus and to convince the population to strictly adhere to the rules, use masks and wash hand frequently. At the same time, it conducted surveillance in urban areas using smart technologies that included drones, spatial analysis, low-power Bluetooth mobile phone applications and humanoid robots.

Ramit Debnath said: "Nudge-based policy approaches are crucial in a democratic country like India which has a vast population and geo-spatial divide, high levels of illiteracy and an extremely vulnerable health system."

Ronita Bardhan added: "Our findings show that the government needed much more than scientific data to convince people, they appealed to powerful values including patriotism, family, religion and community"

News in brief



◆ **Japan's new Prime Minister Yoshihide Suga has expressed hopes for improved relations in a letter to South Korean President Moon Jae-in, Moon's office said on Monday, amid strained ties over history and trade.**

Feuds dating back to Japan's 1910-45 colonial rule of Korea continue to dog bilateral relations, including the issues of Korean labourers forced to work at Japanese firms and women at military brothels during World War II. The ties further soured after South Korea's Supreme Court ordered a Japanese steelmaker to pay compensation for forced labour in 2018, which prompted Tokyo to impose export curbs on some key high-tech materials.

Japan's Suga hopes for 'forward-looking' ties in letter to South Korea's Moon

◆ **Botswana says toxins in water killed hundreds of elephants**

◆ **Toxins in water produced by cyanobacteria killed more than 300 elephants in Botswana this year, officials said on Monday, announcing the result of an investigation into the deaths which had baffled and alarmed conservationists. Cyanobacteria are microscopic organisms common in water and sometimes found in soil. Not all produce toxins but scientists say toxic**

ones are occurring more frequently as climate change drives up global temperatures. Cyril Taolo, deputy director of the Department of Wildlife and National Parks, told a news conference the number of dead elephants had risen to 330, from 281 reported in July.



◆ **Pubs and restaurants across Britain could face greater restrictions to tackle the jump in COVID-19 cases, Health Secretary Matt Hancock said on Monday, sending shares plunging once again. Hancock was asked in a television interview if people would be able to go to the pub this weekend. "We'll be absolutely clear about changes that we need to make in the very, very near future," he told ITV. Asked if that meant no, he replied: "It's not a no and it's not a yes. We've been working on this all weekend, we haven't taken the final decision about what we need to do in response to the surge that we've seen."**

UK pubs could face new COVID restrictions soon, UK minister says



◆ **A famed Nepali Everest climber nicknamed "snow leopard" for his record of summiting the world's highest mountain a record 10 times without**

bottled oxygen has died aged 72, officials said yesterday. Ang Rita Sherpa collapsed at his daughter's home in Kathmandu, his close friend and Nepal Mountaineering Association president, Ang Tshering Sherpa, said. "During his time, he was the strongest climber in the world and a star," said Ang Tshering. "This is a big loss for the mountaineering community."

Everest's legendary 'snow leopard' Ang Rita Sherpa dies at 72

◆ **Lawyers for a British newspaper that is being sued for invasion of privacy by Meghan, the wife of Britain's Prince Harry, have argued that she is content for details of her private life to be made public, citing a recent book about the royal couple. Meghan, officially titled the Duchess of Sussex, is suing publisher Associated Newspapers over**



articles the Mail on Sunday printed last year that included parts of a handwritten letter she sent to her estranged father, Thomas Markle, in August 2018. In documents submitted to London's High Court on Monday, lawyers for the paper said "Finding Freedom", a biography of Harry and Meghan published in August, "gives every appearance of having been written with their extensive cooperation".

◆ **UK paper being sued by Meghan disputes her concern about privacy**

◆ **Donald Trump and his rival for the US presidency, Joe Biden, began campaign in two election battlegrounds yesterday as they spar over the president's plan to fill a vacant Supreme Court seat with only weeks before voters choose between them. Trump, the Republican seeking re-election on Nov. 3, held campaign events in Ohio, a state some Democrats once saw as a lock for Trump, while the Democratic former vice president made his second trip of the month to Wisconsin.**



◆ **Taiwan said yesterday its armed forces have the right to self-defence and counter attack amid "harassment and threats", in an apparent warning to China, which last week sent numerous jets across the mid-line of the sensitive Taiwan Strait. Tensions have sharply spiked in recent months between Taipei and Beijing, which claims democratically-run Taiwan as its own territory, to be taken by force if needed. Chinese aircraft**

◆ **Taiwan military says it has right to counter attack**



crossed the mid-line to enter the island's air defence identification zone on Friday and Saturday, prompting Taiwan to scramble jets to intercept them, and President Tsai Ing-wen to call China a threat to

the region. In a statement, Taiwan's defence ministry said it had "clearly defined" procedures for the island's first response amid "high frequency of harassment and threats from the enemy's warships and aircraft this year".