



DAILY NEWS BULLETIN

LEADING HEALTH, POPULATION AND FAMILY WELFARE STORIES OF THE DA
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COVID-19 transmission

Physical distancing over 6 feet may be essential to prevent COVID-19 transmission: Study (The Tribune: 2020702)

<https://www.tribuneindia.com/news/health/physical-distancing-over-6-feet-may-be-essential-to-prevent-covid-19-transmission-study-107165>

Physical distancing over 6 feet may be essential to prevent COVID-19 transmission: Study
People visit a market to buy essential goods, following a ruling by the administration to impose a strict lockdown due to the rise in COVID-19 cases, in Thane on Wednesday. PTI

Respiratory droplets travel between eight to 13 feet before they evaporate or escape, without wind and depending on the ambient condition, according to Indian researchers who suggest that physical distancing greater than six feet may be essential to avoid COVID-19 transmission.

The researchers, including those from the Indian Institute of Science (IISc), Bengaluru, Karnataka, noted that it was well established that the SARS-CoV-2 virus that causes COVID-19 disease is transmitted via respiratory droplets that infected people eject when they cough, sneeze or talk.

The team developed a mathematical model for the early phases of a COVID-19-like pandemic using the aerodynamics and evaporation characteristics of respiratory droplets.

The research, published in the journal Physics of Fluids, modelled the pandemic dynamics with a reaction mechanism, wherein each reaction has a rate constant obtained by calculating the droplet collision frequency.

The researchers then compared the droplet cloud ejected by an infected person to the one by a healthy person.

"The size of the droplet cloud, the distance it travels, and the droplet lifetimes are, therefore, all important factors that we calculated using conservation of mass, momentum, energy and species," said Swetaprovo Chaudhuri from the University of Toronto in Canada.

"The model could be used to estimate approximately how long droplets can survive, how far they can travel, and which size of droplet survives for how long," said Chaudhari, one of the authors of the study.

He added the actual situation could be complicated by wind, turbulence, air-recirculation or many other effects.

"Without wind and depending on the ambient condition, we found droplets travel between 8 to 13 feet before they evaporate or escape," said Abhishek Saha, a co-author, from the University of California, San Diego in the US.

This finding implies that social distancing at perhaps greater than six feet is essential, according to the researchers. The initial size of the longest surviving droplets is in the range of 18-50 microns, meaning masks can indeed help, they said.

These findings, the researchers said, could help inform reopening measures for schools and offices looking at student or employee density.

"This model is not claiming to predict the exact spread of COVID-19," said Saptarshi Basu, another study author, from IISc.

"But, our work shows that droplet evaporation or desiccation time is highly sensitive to the ambient temperature and relative humidity," said Basu.

The researchers noted that their model and the firm theoretical underpinning that connects the two scales -- macroscale pandemic dynamics and the microscale droplet physics -- could emerge as a powerful tool in clarifying the role of environment on infection spread through respiratory droplets. PTI

Oxford COVID-19 vaccine

Oxford COVID-19 vaccine safe for people with weak immunity'(The Tribune: 2020702)

<https://www.tribuneindia.com/news/health/oxford-covid-19-vaccine-safe-for-people-with-weak-immunity-107160>

'Oxford COVID-19 vaccine safe for people with weak immunity'

Volunteers have begun participating in Brazil's first clinical trial of Oxford COVID-19 vaccine. The ChAdOx1 vaccine technology is based on an adenovirus, and it is considered very safe, even in people with a weak immune system.

The vaccine being used in the Brazilian trial, on 5,000 volunteers, is similar to the one used in the UK and South Africa. The ChAdOx1 vaccine technology is based on an adenovirus, another virus, which causes mild upper respiratory tract infections. "We have removed some of the

adenovirus genes, so that when we use it as a vaccine, the adenovirus can't spread through the body. That makes it very safe, even in people with a weak immune system. But because it is still a live virus, it is good at inducing a strong immune response after vaccination", said Professor Sarah Gilbert, Nuffield Department of Medicine, Oxford University. Gilbert gave a short talk while participating in an informal discussion with ambassadors of the UN member states.

According to the Oxford University, many strains of adenoviruses infect humans; therefore people have developed antibodies against it. "We started with an adenovirus, which was isolated from a chimpanzee and doesn't circulate in human populations, so there is no prior immunity to it. Then we add a gene to encode one of the proteins from the pathogen that we want to vaccinate against -- for SARS-CoV-2 we use the spike protein, which covers the surface of the coronavirus," added Gilbert.

The ChAdOx1 vaccine technology has been used to produce candidate vaccines against a number of pathogens including flu, chikungunya, Zika and another coronavirus, Middle East Respiratory Syndrome (MERS).

According to Gilbert, if Oxford's vaccine is successful, others' will be as well. Emphasizing on the Ebola experience, she added that the aim should be to produce multiple vaccines to be licensed rather than end up with a monopoly. "But it is not likely that ALL candidate vaccines now in development will be effective, and many will require more than one dose. Vaccine developers should work together to compare immune responses, and assess different vaccine platforms. Technologies, which can be manufactured in large scale and low costs should be prioritized, but they also need to be highly effective", added Gilbert.

The vaccine developed at the Oxford Jenner Institute is currently on trial in the UK, where for the clinical trial over 4,000 participants have enrolled and additional enrollment of 10, 000 participants is planned. The ChAdOx1 nCoV-19 vaccine has been licenced to AstraZeneca.

Knee pain

Manage knee pain with effective home measures, says expert (The Tribune: 2020702)

<https://www.tribuneindia.com/news/health/manage-knee-pain-with-effective-home-measures-says-expert-106990>

Manage knee pain with effective home measures, says expert

“Amid the Covid-19 pandemic, patients suffering from knee pain can manage with effective home measures. They should consult a doctor only in unavoidable circumstances,” said Dr Gagandeep Gupta, orthopaedics and joint replacement surgeon at the Ojas Hospital, as he addressed a webinar comprising different age groups.

The webinar revolved around people who experienced physical pain such as that of joints, knee pain, backache etc. amid these hard times, as they were locked in at their respective dwellings.

Elaborating on the reasons, he said there could be three. Firstly, the main reason for knee pain was overexertion at home, as people indulged in such activities at home which they were not used to before, he informed. Gardening, household cleansing among other chores due to unavailability of domestic help, he pointed out could be a key factor.

The second reason is injuries endured due to falls and twisting injuries of knee and ankle due to performing unaccustomed activities, said Dr Gupta. The third reason largely applies to the senior citizens suffering from osteoarthritis. As their main activities of routine walking, physiotherapy was halted during the lockdown, they began experiencing the pain, he said.

Delving into the home treatment, he said pain related to overexertion and injury is intermittent or immediate rest. “A patient shouldn’t keep on performing their activities for prolonged hours. If the pain doesn’t settle with this, they should do some hot fomentation, apply painkiller gel, crepe bandage, which can also provide some relief. Others can settle with common painkiller tablets such as crocin etc.”, he said.

In rare cases, patients may consult their family physician, physiotherapist, or an orthopaedic surgeon, asserted Dr Gupta.

However, patients suffering from the pain of osteoarthritis need to take some extra precautions along with these general measures, he advised. Those having knee pain should not sit cross-legged, especially on the floor, squatting position, and climbing stairs unnecessarily. Patients must sit on a relatively higher surface for prayers or any other work, and avoid squat toilets if possible, he said.

Covid-19 cases

Over 19,000 Covid-19 cases push India's tally above 6 lakh, 5 days after crossing 5-lakh mark

The Covid-19 case load increased to 6,04,641 while 434 people have succumbed to the disease in the last 24 hours, the data updated at 8 am showed(The Tribune: 2020702)

<https://www.tribuneindia.com/news/nation/over-19-000-covid-19-cases-push-indias-tally-above-6-lakh-5-days-after-crossing-5-lakh-mark-107544>

India's Covid-19 tally zoomed past six lakh cases on Thursday with a single-day increase of 19,148 cases, just five days after it crossed the five-lakh mark, while the death toll rose to 17,834, according to the Union health ministry data.

The Covid-19 case load increased to 6,04,641 while 434 people have succumbed to the disease in the last 24 hours, the data updated at 8 am showed.

With a steady rise, the number of recoveries stands at 3,59,859 while one patient has migrated. There are 2,26,947 active cases of coronavirus infection in the country.

"Thus, around 59.52 per cent of patients have recovered so far," an official said.

The total number of confirmed cases includes foreigners.

Of the 434 deaths reported in the last 24 hours, 198 are from Maharashtra, 63 from Tamil Nadu, 61 from Delhi, 21 each from Uttar Pradesh and Gujarat, 15 from West Bengal, nine from Madhya Pradesh, eight from Rajasthan, seven each from Telangana and Karnataka, six from Andhra Pradesh, five from Punjab, four each from Haryana and Jammu and Kashmir, three from Bihar and one each from Chhattisgarh and Goa. PTI

Covid-19: What you need to know today

Covid-19: What you need to know today (Hindustan Times: 2020702)

<https://epaper.hindustantimes.com/Home/ArticleView>



There are reports of a new swine flu in China, and some news outlets claim it could be the next potential pandemic, but I'm going to ignore it for two reasons. One, we are still dealing with one pandemic which originated in China and is currently raging through the world (10.4 million cases and 510,000 deaths, and still counting). Two, China remains a black box when it comes to information — we still do not know a lot about the origin and the early growth of the coronavirus disease in that country, nor do we know enough about its current status in remote provinces.

Which is why the US is a good country for India's health policy mandarins, researchers, and epidemiologists to study. Sure, India's population is much larger (1.3 billion compared to the US's 330 million) but the US is larger by geographical area (7.7 million sq km to India's 3.3 million sq km). And like India, the US is also divided into many states, and has many large cities (although its population density is lower than India's). There's more and better information coming out of the US too.

As this column pointed out last week, things have taken a turn for the worse in that country. On Tuesday, at least 48,000 Covid-19 cases were registered in the US, the highest single-day tally thus far, and driven almost entirely by a rising number of cases in previously relatively unaffected states such as Arizona and Texas.

That is an important learning for India.

Maharashtra, Delhi and Tamil Nadu accounted for 61% of the new cases on June 30, continuing a trend that has been in play for almost two months, maybe even longer, but there are signs (and I've discussed them in detail in recent instalments of this column) that things could get better in Delhi and Tamil Nadu, barring a sudden spike caused by what can only be described as moments of collective madness (for instance, the curious instance of the crowd in the vegetable market in Chennai). By the third week of July, if not the middle of the month, these states (fine, one city-state and a state) could see a sustained decline in new cases. Delhi has also been seeing the number of daily deaths stabilise in the mid-60s (for the past two weeks).

I won't discuss Maharashtra because (again, as I have said before in this column) the state is most likely paying for decades of neglect of health-, civic-, urban-, and transport-infrastructure and simple overcrowding. But, if the US trend is any indication, then, as cases come down in Delhi and Tamil Nadu, and as India continues to open up, allowing more movement and activities, new hot spots will emerge in other states.

Sure, Delhi and Tamil Nadu are still hot spots (the first saw 2,199 new cases on Tuesday and the second 3,943), but if they seem to have gotten their hands and heads around managing the pandemic, it is on the basis of extensive testing. Delhi has tested close to 28,000 per million of its population, and Tamil Nadu 17,200. The rest of India isn't testing as much as Delhi, Tamil Nadu, and Maharashtra. These three states account for 2.67 million of the 8.82 million tests carried out in the country. When the tests and the populations of these three states are included, India has tested around 7,000 people per million of its population; when they are excluded, it has tested 5,780 per million. And some states have tested far fewer, perhaps in an attempt to show that they are managing the pandemic well.

They should increase testing now, instead of leaving it till too late. As China has shown (in Wuhan where there was a potential flare-up of infections, and now Beijing), and, closer home, as Delhi and Tamil Nadu have, it is possible to rapidly increase testing. Sure, the price of doing this will be an initial increase in number of new cases as testing increases, but, over time, this will come down; such testing will also provide the state with information it currently doesn't possess — the prevalence of the disease in the region.

Testing, tracing, and isolation remain the best way to manage the spread of the viral disease. Just as masks remain the best way to prevent being infected.

Social distance, maintain hygiene, wear masks

Situation much better than month ago, but remain cautious: (Hindustan Times: 2020702)

<https://epaper.hindustantimes.com/Home/ArticleView>

CM says things under control, but urges people to keep social distance, maintain hygiene, wear masks

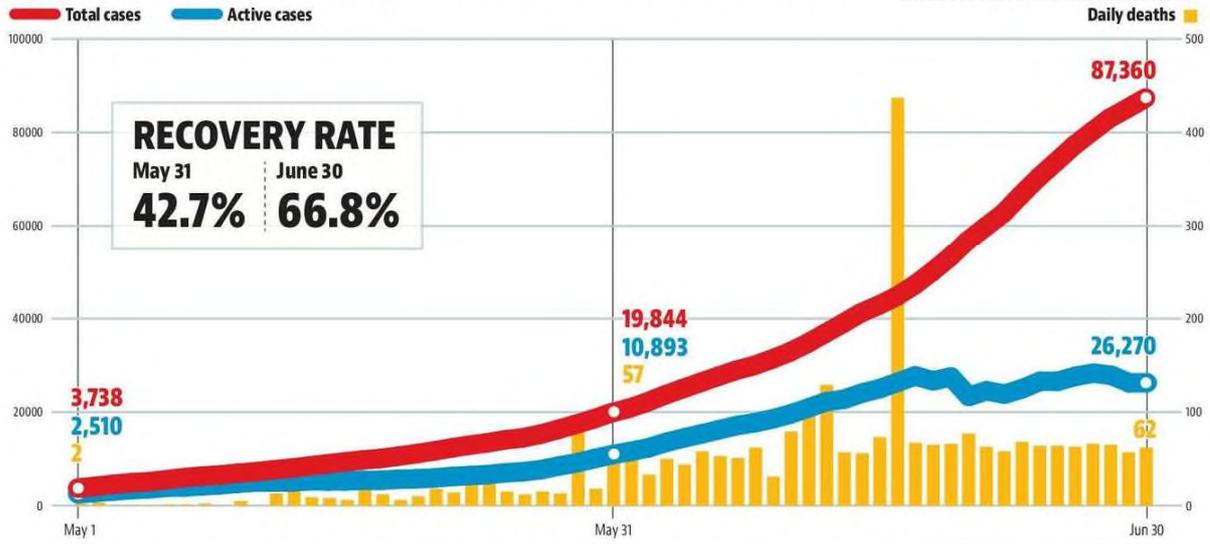
DID JUNE CHANGE DELHI'S FIGHT?

Arvind Kejriwal said the Covid-19 situation is 'not as scary as it was around a month ago.' We take a look at the numbers across key parameters to see if June really changed the course of Delhi's battle against Covid-19. **By Jamie Mullick**

TOTAL CASES UP, BUT ACTIVE CASES AND DEATHS STEADY

At end of May, Delhi had 19,844 cases and 10,893 (54%) of these were active cases. And while total cases grew 4.4 times to 87,360 by June 30, active cases grew only 2.4 times to 26,270 (30%). In fact, since June 17, the active cases appears to have plateaued — what appears to be the most important aspects of Delhi's fight against Covid. Active cases is a key metric as it reflects the load on a region's health care system. Daily deaths have also stabilised in the mid-60s the past 2 weeks

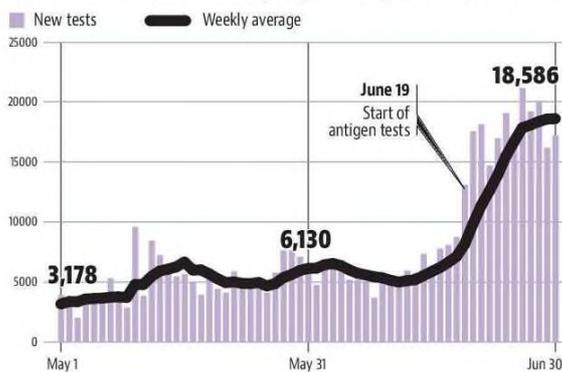
WORD OF CAUTION: The flattening active cases comes on the back of high recovery rate. If this falters, active cases can climb back up rapidly



RAPID BOOST TO TESTING

As of May 31, 212,784 samples had been tested in Delhi (over 10,000 tests for every million residents). As of June 30, the number of total tests conducted stands at 531,752, or over 27,000 tests per million. This means that there were more tests conducted in June than there had been through March, April and May. Much of this boost in testing came after June 19 when the city started conducting rapid antigen tests

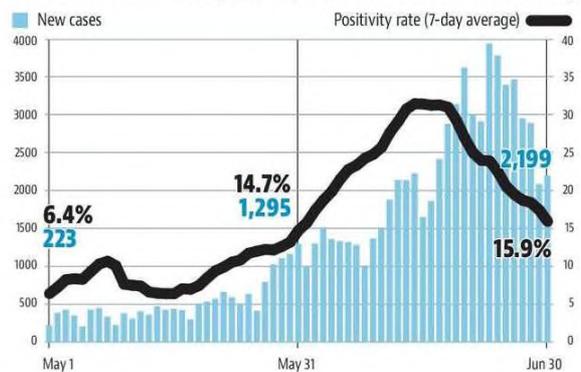
WORD OF CAUTION: Randomised testing is key to see how prevalent the virus is in society



POSITIVITY RATE DIPS

The positivity rate in Delhi peaked when it touched 37% on June 13. To be sure, much of this was due to the targeted testing strategy in which only symptomatic or contact patients were being tested. However, the positivity rate started dropping once antigen tests were introduced from June 19. Even new cases appear to have flattened (for now) since the peak on June 23 when nearly 4,000 new cases were reported

WORD OF CAUTION: Positivity rate (nearly 16%) is still almost twice the national average



INCREASE IN HOSPITAL BEDS

Mid-June, when Delhi was experiencing a sudden spike of new cases, experts said that 15,000 beds would be required by the end of the month. On May 30, Delhi had 8,500 Covid beds in hospitals, out of which 5,914 were vacant. As of June 30, the city has 13,661 beds (7,749 vacant). This count excludes the beds that will be added with a new 10,000-bed facility coming up in Chhatrapur, and those being added as banquet halls across the city are turned into makeshift Covid facilities

WORD OF CAUTION: It's yet to be seen if doctors, nurses and medical staff can be added in the same proportion, and some aspects of critical care, particularly ventilators, remain a concern.



CONTAINMENT ZONES



The Covid-19 situation in the Capital was on a worrying trajectory until a few weeks ago but a concerted effort helped turn the situation around, chief minister Arvind Kejriwal said on Wednesday, cautioning people that the outbreak could spike again if they become complacent.

“Today, I am happy that we have waded through the tough times we had seen at the beginning of June. Our hard work has paid off. Today, only around 26,000 active cases are there in Delhi against our projection of 60,000 cases. This projection was made based on a portal created by

the government of India,” he added. Kejriwal also pointed to other data points such as availability of beds and recovery rate to back his statement.

Delhi ended Wednesday with 89,802 cases of which 27,007 are active. It has so far seen 2,803 deaths, and 59,992 people have recovered from the coronavirus disease.

In a digital press conference, Kejriwal steered clear of claiming that the worst of the pandemic is behind the city-state -- as indicated by numbers of the last week -- and instead urged people to strictly follow the only regimen known to prevent infections: wearing masks, maintaining hygiene, and distancing socially.

Delhi saw a peak of 3947 cases on June 23, but the number has come down steadily since then despite the number of tests increasing. In the eight days since (including Wednesday, July 1) the city has seen, 3788, 3390, 3460, 2948, 2889, 2084, 2199, and 2,442 cases. The daily positivity rate (number of people testing positive to number of tests), which was hovering around a peak of 32% in mid-June has since fallen and was 12.24% on Wednesday.

Although Kejriwal asked people not to rely on reports circulating in social media that the peak of Covid-19 cases in Delhi was over., he did admit that “the situation now is not as scary as it was around a month ago.”

“But, this does not mean we get complacent and stop preparing. This virus is totally unpredictable. It is possible that the cases suddenly spike again. Some experts are saying in social media that Delhi has already seen its peak and now the cases will only decline. I request all of you not to pay attention to these experts at the moment. Keep wearing masks, follow social distancing and keep washing or sanitising your hands,” he said.

The chief minister said his government would continue to prepare more beds and other Covid logistics at a war footing. “There is a proverb in English – hope for the best and prepare for the worst. We are preparing for the worst-case scenario.”

With cases peaking in the middle of June, there were fears about the availability of hospital beds. The prediction then was that 15,000 beds would be required by June-end, Kejriwal said. Hospital admissions were so high that every day, at least 250 new beds were required to be added, he added.

Deputy chief minister Manish Sisodia cited projections that said Delhi could see 5.5 lakh cases by the end of July, a move that Union home minister Amit Shah said in an interview earlier this week caused “fear” and forced the Union government to take a hand in helping the city-state’s Aam Aadmi Party government deal with the issue.

Things have improved since, Kejriwal said.

“But, today the situation is just the opposite. In the last one week, bed occupancy has reduced by 450 instead of increasing. It is also an indication that serious patients of Corona are also decreasing. Today we have 15,000 beds ready in Delhi for Covid-19 in various hospitals and of this, only 5,800 are occupied. Until a month ago, we had only 8,500 beds for Covid.”

According to the daily health bulletin released by the Delhi government on Wednesday, the city has 15,242 hospital beds, up from around 13,600 a day before.

The chief minister added that the recovery rate is also on the rise. He said that a month ago, the recovery rate was 38%, and that this has now increased to 64%.

“Delhi has seen a total of over 87,000 cases so far, of which over 58,000 have recovered. On June 23, nearly 4,000 cases were recorded and yesterday (Tuesday), around 2,200 new cases

were. So, in the past one week, the daily (number of) fresh cases also appears to have reduced by a half. But, this may again spike,” he said. The chief minister also said the number of daily deaths due to Covid-19 have declined. Covid deaths in Delhi peaked in the first half of June.

“There was a day when nearly 125 deaths were recorded. Today, the daily Covid deaths are hovering around 60-65. We have to reduce this further.”

Kejriwal said Delhi has scaled up testing across the city and that the positivity rate has seen a decline over the past two weeks. “Earlier, of every 100 tests, 31 would test positive. Now, 13 positive cases are found per 100 tests,” he said. According to the Hindustan Times dashboard, Delhi has carried out 29,037 tests for every million of its population.

According to government data, at the beginning of June, Delhi used to conduct around 5,000 tests every day. This now has been scaled up to 17,000-20,000 every day. Three types of tests are currently being conducted in Delhi. The first one is the RT-PCR test, which is a confirmatory test, but whose results come in after a minimum of five hours. The second one is the rapid antigen test (which is highly accurate in identifying positive cases) where the results take 30 minutes to come. The third is antibody tests, which is being conducted as part of the serological survey in Delhi (and which are not being used for identifying cases) to understand the extent of the spread of the virus.

“I think it is too early to say whether the situation has stabilised in Delhi. We have to wait and watch, at least for the 14-day incubation period to see what happens. If the numbers keep coming down, great. But, there is a possibility that as the number of cases in the current containment zones come down with people in the area already having had the infection, newer hotspots might emerge,” said Amit Singh, associate professor, Centre for Infectious Disease Research, Indian Institute of Science, Bangalore.

New Cases (The Asian Age: 2020702)

<http://onlinepaper.asianage.com/article/detailpage.aspx?id=14964196>

■ 18,653 new cases, 507 deaths in 24 hrs; recovery rate 59.43%

States, UTs told to ramp up testing, cases touch 6 lakhs

VINEETA PANDEY
NEW DELHI, JULY 1

A day after Prime Minister Narendra Modi warned people not to be negligent and casual with regard to taking precautions to protect themselves and others from the coronavirus, the Central government has directed all states and Union territories to significantly ramp up their testing for the virus. Union health secretary Preeti Sudan and Indian Council for Medical Research director-general Balram Bhargava have written to all states and UTs to stay that at some places the capacity utilisation of the testing labs, particularly the ones in the private sector, was grossly sub-optimal. They also said that the labs should not insist on a prescription from government doctors as this further delays testing and that any qualified medical practitioner can prescribe a test.

As of Wednesday, 88,26,585 samples have been tested, but the Union health ministry feels that this is still insufficient given the magnitude of the pandemic. The officials said that though the mortality rate has been much lower in India compared to other countries, the virus has been found to be spreading to newer areas now. The two officials have said camps and mobile vans should be used to reach out to more people.

India on Wednesday registered 18,653 fresh cases of the coronavirus, taking its overall tally to over six lakhs. In the last 24 hours, 507 deaths were reported



A railway coach is prepared to be converted into a makeshift Covid-19 care centre in New Delhi on Wednesday as cases continue to spike.

— AP

across the country, and the total number of fatalities due to the deadly virus is now 17,400.

As on July 1, there are 1,27,864 recovered cases, which is more than the active Covid-19 cases, which has resulted in the recovery rate further increasing to 59.43 per cent. During the last 24 hours, 13,157 patients have been discharged from hospitals across India, taking the cumulative figure to 3,47,978. At present, there are 2,20,114 active cases, and all are under medical supervision.

Maharashtra, in one day, has recorded 4,878 fresh cases and 245 deaths, taking its overall tally to 1,74,761 cases and 7,855 deaths. Tamil Nadu continues to register very high numbers and in the last 24 hours 3,943 new cases were detected, while 60 persons have died. Tamil Nadu now has 90,196 total cases so far, and 1,201 deaths in all.

Delhi, which is slowly showing some signs of recovery, started register-

ing higher cases again as 2,442 new cases and 61 deaths were reported on Wednesday. Delhi so far has registered 89, 802 cases and 2803 deaths. Karnataka and Telangana for the last couple of days have been registering higher numbers of cases than usual.

Karnataka and Telangana have for the last couple of days been registering higher numbers of cases than usual. Telangana in the last one day has detected 945 new cases, while Karnataka registered 947 new cases, taking their total to 16,339 and 15,242 respectively.

Meanwhile, following the visuals of dead bodies of Covid-19 infected persons being tossed into pits, eminent persons like Rajmohan Gandhi, Harsh Mander, Sharmila Tagore, Nayantara Sehgal and a few others wrote an open letter to the Indian people, saying: "Dignified farewell to Covid-19 deceased is possible, no reason why loved ones can't be given a respectful farewell."

Enforce curbs in containment zones strictly, MHA tells cops

AGE CORRESPONDENT
NEW DELHI, JULY 1

While Unlock 2.0 and its guidelines have been announced, the Union home ministry is closely monitoring the situation, particularly in states with a high number of Covid-19 cases. In Delhi, it has directed the Delhi police to put in place "stringent peripheral control in all containment zones" in the city. Delhi lieutenant-governor Anil Bajjal has been asked by the Centre to coordinate with the police.

Home ministry sources said a similar advisory was also sent to all states that are reporting more coronavirus cases like Maharashtra, Gujarat and Tamil Nadu, among others. In Delhi, the police was told to ensure there is no unnecessary movement of people in the containment zones as this leads to further spread of the coronavirus.

"The entire outer boundary of 400-odd containment zones in Delhi will be cordoned off by the police with barricades, and only valid people will be allowed entry and exit. We have noticed that since the lockdown was lifted, there was mass movement of people in these containment zones," a senior MHA official said.

Coronavirus | Situation

Coronavirus | Situation appears to be improving in Delhi, but no room for complacency, says (The Hindu: 2020702)

<https://www.thehindu.com/news/cities/Delhi/covid-19-situation-appears-to-be-improving-but-no-room-for-complacency-says-kejriwal/article31961156.ece?homepage=true>

Delhi Chief Minister says ‘we must hope for the best but continue to be prepared for the worst’

The COVID-19 situation in the Capital seemed to be improving over the last few days, however, given the unpredictability of the novel coronavirus, there was no room for complacency, Chief Minister Arvind Kejriwal said here on Wednesday.

Neurological, psychiatric

Study provides a snapshot of neurological, psychiatric complications in COVID-19 patients(The Hindu: 2020702)

<https://www.thehindu.com/sci-tech/health/study-provides-a-snapshot-of-neurological-psychiatric-complications-in-covid-19-patients/article31933860.ece>

Clinicians should be alert to the possibility of psychosis, neurocognitive dementia-like syndrome, personality change, mania, anxiety or depression, chronic fatigue syndrome and post-traumatic stress disorder, it says

A study of 153 patients treated in U.K. hospitals from April 2 to 26 has found a range of neurological and psychiatric complications that may be linked to COVID-19.

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Exercise

Exercise increases benefits of breast milk for babies: Study (New Kerala: 2020702)

<https://www.newkerala.com/news/2020/117135.htm>

Exercise increases benefits of breast milk for babies: Study

New York, July 1 : Even moderate exercise during pregnancy increases a compound in breast milk that reduces a baby's lifelong risks of serious health issues such as diabetes, obesity and heart disease, say researchers.

"We've done studies in the past that have shown that maternal exercise improves the health of offspring, but in this study, we wanted to begin to answer the question of why," said study lead author Kristin Stanford from Ohio State University in the US.

"Because there is evidence that breast milk plays a major role, we wanted to isolate the effects of breast milk on offspring health," Stanford added. For the findings, published in the journal Nature Metabolism, the research team studied mice born from sedentary mothers and fed them milk from mothers who were active throughout pregnancy.

They found that the health benefits from fit moms transferred to the pups, proving that they were, in fact, passed through breast milk and not simply inherited genetic traits. Researchers also followed about 150 pregnant and postpartum women using activity trackers and found that those who had more steps per day had an increased amount of a compound known as 3SL in their breast milk, which they believe is responsible for these health benefits.

"The increase in 3SL were not necessarily related to exercise intensity, so even moderate exercise like a daily walk is enough to reap the benefits," said Stanford. "Exercise is also great for your overall health during and after pregnancy, so anything you can do to get moving is going to benefit both you and your baby," Stanford added.

Because many women are unable to breastfeed or experienced complications that require bed rest, researchers are examining if they can isolate this beneficial compound found in the breast milk of active moms and add it to infant formula.

"This human milk oligosaccharide had a significant impact on offspring healthy. Being able to add this into formula could provide benefits for babies when women aren't able to breastfeed," Stanford noted.

Heart cells

Coronavirus may infect heart cells of Covid-19 patients: Study (New Kerala: 2020702)

1 : A team of US scientists, led by an Indian-origin researcher revealed that SARS-CoV-2 (coronavirus), the virus behind Covid-19, can infect heart cells in a lab dish.

This suggests it may be possible for heart cells in Covid-19 patients to be directly infected by the virus.

The discovery, published today in the journal Cell Reports Medicine, was made using heart muscle cells that were produced by stem cell technology.

"We not only uncovered that these stem cell-derived heart cells are susceptible to infection by a novel coronavirus, but that the virus can also quickly divide within the heart muscle cells," said study researcher Arun Sharma from the Cedars-Sinai Board of Governors Regenerative Medicine Institute in the US.

"Even more significant, the infected heart cells showed changes in their ability to beat after 72 hours of infection," Sharma added. Although many COVID-19 patients experience heart problems, the reasons remain unclear. Pre-existing cardiac conditions or inflammation and oxygen deprivation resulting from the infection have all been implicated.

But there has until now been only limited evidence the SARS-CoV-2 virus directly infects the individual muscle cells of the heart. The study also demonstrated human stem cell-derived heart cells infected by SARS-CoV-2 change their gene expression profile. This offers further confirmation the cells can be actively infected by the virus and activate innate cellular 'defence mechanisms' in an effort to help clear-out the virus.

"This viral pandemic is predominately defined by respiratory symptoms, but there are also cardiac complications, including arrhythmia, heart failure and viral myocarditis," said study co-author Clive Svendsen.

"While this could be the result of massive inflammation in response to the virus, our data suggest that the heart could also be directly affected by the virus in Covid-19," Svendsen added.

Researchers also found that treatment with an ACE2 antibody was able to blunt viral replication on stem cell-derived heart cells, suggesting that the ACE2 receptor could be used by SARS-CoV-2 to enter human heart muscle cells.

"By blocking the ACE2 protein with an antibody, the virus is not as easily able to bind to the ACE2 protein, and thus cannot easily enter the cell," said Sharma. "This not only helps us understand the mechanisms of how this virus functions, but also suggests therapeutic approaches that could be used as a potential treatment for SARS-CoV-2 infection," he explained.

The study used human induced pluripotent stem cells (iPSCs), a type of stem cell that is created in the lab from a person's blood or skin cells. iPSCs can make any cell type found in the body, each one carrying the DNA of the individual. "This work illustrates the power of being able to study human tissue in a dish," the authors wrote.

Metabolic syndrome

Study suggests menopause increases risk of metabolic syndrome (New Kerala: 2020702)

<https://www.newkerala.com/news/2020/117089.htm>

Perimenopause is a time when women become more vulnerable to a number of health problems. A new study based the Canadian Longitudinal Study's data on Aging identified menopause as a risk factor for the development of metabolic syndrome or some of its components, including hypertension, central obesity, and high blood sugar.

Study results are published online in the journal *Menopause*, the journal of The North American Menopause Society (NAMS).

The incidence of metabolic syndrome increases with age and, in Canada, is as high as 38 per cent in women aged 60 to 79 years. Understanding what causes metabolic syndrome is important because this condition increases the risk of heart disease and cancer, two of the leading causes of death in women.

Some previous studies have suggested an association between the onset of menopause and the development of metabolic syndrome, independent of aging. This study analysed data from more than 10,000 women aged 45 to 85 years who participated in the Canadian Longitudinal Study on Aging and found a positive association between menopause and an increased risk of metabolic syndrome.

The good news, however, is that lifestyle interventions targeted at women with metabolic syndrome have proven effective in preventing type 2 diabetes mellitus and cardiovascular risk. Age at menopause and hormone therapy use has also been identified as possible modifiers of this relationship, although additional studies are required to better quantify their effect.

Study results appear in the article "The effect of menopause on the metabolic syndrome cross-sectional results from the Canadian Longitudinal Study on Aging."

"These results reaffirm the previously identified link between menopause and metabolic syndrome. Given the increased cardiovascular risk associated with metabolic syndrome and that heart disease remains the number one killer of women, this study highlights the importance of cardiovascular risk assessment and risk reduction strategies in midlife women," says Dr Stephanie Faubion, NAMS medical director.

Brain cancer

(Researchers discover new strategy to treat brain cancer patients (New Kerala: 2020702))

<https://www.newkerala.com/news/2020/116892.htm>

, July 1: A team of investigators has uncovered a potentially promising strategy to target brain tumours -- isocitrate dehydrogenase (IDH) genes, which are the most common brain tumours diagnosed in younger adults aged 18 to 45 years.

Led by investigators at Massachusetts General Hospital, the findings of their study are published in *Cancer Discovery*, a journal of the American Association for Cancer Research.

Prior work by the group, led by Mass General's Daniel Cahill, MD, PhD, Hiroaki Wakimoto, MD, PhD, and Julie Miller, MD, PhD, revealed that IDH mutant gliomas have a metabolic weakness making them especially susceptible to treatments that lower NAD⁺ levels, a ubiquitous and vital metabolic molecule commonly thought of as the "currency of metabolism" in cells.

Also, previous work by other researchers found that chemotherapy activates an enzyme that stimulates NAD⁺ molecules to join together to make poly(ADP-ribose), or PAR, a key DNA damage signal. This PAR signal is a known susceptibility in IDH mutant gliomas.

Researchers also discovered that activation of the enzyme by chemotherapy causes available NAD⁺ to be critically depleted for the production of PAR in IDH mutant glioma cells, but not normal cells.

These findings indicated that maintaining high PAR levels (and low NAD⁺ levels), in combination with chemotherapy, may uniquely target IDH mutant glioma cells. Considering this, Hiroaki Nagashima, MD, PhD, research fellow and lead author, devised a new treatment strategy and tested it in tumour cells and animal models.

"We found that maximum effectiveness was achieved by combining two agents temozolomide, the chemotherapy most commonly used to treat patients with IDH mutant gliomas, with a drug that blocks PAR breakdown, known as a PAR glycohydrolase inhibitor," said Dr Cahill, a Neurosurgical Oncologist at Mass General and an Associate Professor of Neurosurgery at Harvard Medical School.

"We showed, for the first time, that PAR glycohydrolase inhibitors can be used to enhance the effectiveness of chemotherapy in tumours with metabolic weaknesses in the NAD⁺ pathway," said Dr Wakimoto, an Associate Professor of Neurosurgery at Harvard Medical School.

Dr Miller, an Instructor in Neurology and a Neuro-Oncologist at Mass General who treats patients with IDH mutant glioma, noted that PAR glycohydrolase inhibitors are a newly-emerging class of drugs.

"The long-term significance is that, based on our findings, they could be tested in individuals with IDH mutant gliomas, with a goal of hopefully improving outcomes in these patients," she said.

Plasma Therapy (Hindustan: 2020702)

https://epaper.livehindustan.com/imageview_172535_52461608_4_1_02-07-2020_0_i_1_sf.html

एप से प्लाज्मा देने और लेने वाले की जानकारी मिलेगी

नई दिल्ली | वरिष्ठ संवाददाता

एम्स के डॉक्टरों ने आईआईटी-दिल्ली की टीम के साथ मिलकर कोविड-19 से स्वस्थ हो चुके रोगियों और प्लाज्मा थेरेपी के जरूरतमंद रोगियों को एक जगह लाने के लिए एप बनाया है। इस एप को चिकित्सक दिवस के मौके पर लांच किया गया।

एम्स के न्यूरोसर्जन विभाग के रेजिडेंट डॉक्टर अभिनव सिंह वर्माने एप को लेकर पहल की। अभिनव ने कहा कि हालांकि इसे अभी एम्स के रोगियों के लिए लांच किया गया है, लेकिन जल्द ही इसे सभी प्लेटफॉर्मों पर

तकनीक

- चिकित्सक दिवस के मौके पर लांच किया गया एप
- एम्स और आईआईटी दिल्ली की टीम ने मिलकर तैयार किया

उपलब्ध कराया जाएगा। इसका अन्य अस्पताल भी इस्तेमाल कर सकेंगे।

प्लाज्मा दान करने के लिए अलर्ट भी भेजेगा: डॉक्टर विजय गुर्जर के मुताबिक यह एप प्लाज्मा दान करने के लिए लोगों को न सिर्फ प्लाज्मा डोनर की जानकारी उपलब्ध कराएगा बल्कि उन्हें दान के लिए अलर्ट भी भेजेगा।