



# DAILY NEWS BULLETIN

LEADING HEALTH, POPULATION AND FAMILY WELFARE STORIES OF THE DAY  
Wednesday 2020601

## HIV drugs Lopinavir

### HIV drugs Lopinavir, Ritonavir show 'no promise' for COVID treatment, reveals UK's recovery trial (The Tribune: 2020601)

<https://www.tribuneindia.com/news/health/hiv-drugs-lopinavir-ritonavir-show-no-promise-for-covid-treatment-reveals-uks-recovery-trial-106659>

The combination drug for COVID-19 treatment was dropped by ICMR

HIV drugs Lopinavir, Ritonavir show 'no promise' for COVID treatment, reveals UK's recovery trial

The world's largest drug trial for potential COVID-19 therapies—the UKH's Recovery Trail conducted by Oxford University—on Tuesday, said that the HIV drug combination of Lopinavir and Ritonavir has shown "no promise" of treatment.

These drugs were temporarily used in India for COVID-19 management after doctors at Jaipur's Sawai Mansingh Hospital administered the combination on two Italian patients, and claimed that the treatment was a success.

However, the combination drug for COVID-19 treatment was dropped by the Indian Council of Medical Research (ICMR) following a study from China, which depicted an increase in mortality rate in COVID-19 patients.

Previously, the ICMR had requested permission from the Drug Controller General of India for emergency use of the combination—which was discontinued later.

Now, the UK Recovery Trial has repeated that there is "no beneficial effect" of Lopinavir and Ritonavir for COVID-19 patients.

“A total of 1,596 patients were randomised to Lopinavir-Ritonavir and compared to 3,376 patients randomised to usual care alone. Of these patients, 4 per cent required invasive mechanical ventilation when they entered the trial; 70 per cent required oxygen alone and 26 per cent required no respiratory intervention at all. There was no significant difference in endpoint 28-day mortality between the two groups. There was also no evidence of beneficial effects on the risk of progression to mechanical ventilation or length of hospital stay,” said the UK researchers.

The study also ruled out any significant mortality benefit of Lopinavir and Ritonavir for COVID-19 patients.

## **ID drugs**

### **Scientists ID drugs that may block coronavirus from jumping to uninfected cells (The Tribune: 2020601)**

<https://www.tribuneindia.com/news/health/scientists-id-drugs-that-may-block-coronavirus-from-jumping-to-uninfected-cells-106152>

Researchers have shown that the novel coronavirus hijacks proteins in its target cells, potentially causing them to form long, arm-like extensions to reach nearby cells and advance the infection, a finding that has led to the identification of clinically approved drugs that may disrupt the process.

The scientists, including those from EMBL’s European Bioinformatics Institute (EMBL-EBI), and the University of California San Francisco (UCSF) in the US, noted that viruses, including the novel coronavirus SARS-CoV-2, take control of the machinery of host cells and manipulate it to produce new viral particles.

They said sometimes this hijacking interferes with the activity of the host’s proteins and other important molecules such as enzymes, which change protein activity by making chemical modifications to its structure.

In the study, published on Sunday in the journal *Cell*, the scientists analysed all host and viral proteins that showed changes in an enzymatic process called phosphorylation after SARS-CoV-2 infection.

They explained that in phosphorylation there is an addition of a ‘phosphoryl group’ to a protein by a type of enzyme called a kinase, which plays a key role in the regulation of many cell processes, including cell-to-cell communication, cell growth, and cell death.

According to the researchers, by altering phosphorylation patterns in the host’s proteins, a virus can potentially promote its own transmission to other cells and, eventually, other hosts.

They found that 12 per cent of the host proteins that interact with the virus were modified.

The scientists also identified the kinases that are most likely to regulate these modifications, and suggested that these enzymes are potential targets for drugs to stop the activity of the virus and treat COVID-19.

“The virus prevents human cells from dividing, maintaining them at a particular point in the cell cycle. This provides the virus with a relatively stable and adequate environment to keep replicating,” explained Pedro Beltrao, Group Leader at EMBL-EBI and study co-author.

One of the key findings from the study, according to the scientists, is that SARS-CoV-2 infected cells exhibit long, branched, arm-like extensions, or filopodia, which may help the virus reach nearby cells in the body and advance the infection.

However, the researchers said, further study is needed to validate these findings.

“The distinct visualisation of the extensive branching of the filopodia once again elucidates how understanding the biology of virus-host interaction can illuminate possible points of intervention in the disease,” said Nevan Krogan, study co-author from UCSF.

In the study, the researchers also identified dozens of drugs approved by the US Food and Drug Administration (FDA) that target the kinases of interest.

They said seven of these compounds, primarily anticancer and inflammatory disease compounds, demonstrated potent antiviral activity in laboratory experiments.

“Our data-driven approach for drug discovery has identified a new set of drugs that have great potential to fight COVID-19, either by themselves or in combination with other drugs, and we are excited to see if they will help end this pandemic,” Krogan said. PTI

## **INST synthesises compound**

### **INST synthesises compound for anti-cancer and anti-tumour applications (The Tribune: 2020601)**

<https://www.tribuneindia.com/news/health/inst-synthesises-compound-for-anti-cancer-and-anti-tumour-applications-106120>

Scientists from the Institute of Nano Science and Technology (INST), Mohali, have synthesized a novel inorganic-organic hybrid compound that can inhibit breast, lung, and liver cancer cells, opening up new possibilities for metallodrugs. These are drugs that contain a metal as an active ingredient and are most commonly used as anti-cancer or anti-microbial agents.

A solid compound based on phosphomolybdate cluster, an inorganic salt belonging to the Polyoxometalates (POM) family, had been earlier identified to have anti-tumor potential. A team of INST scientists led by Dr Monika Singh and Dr Deepika Sharma has chalked out a mechanism by which the compound kills cancer cells.

POMs are an evolving class of inorganic metal oxides which over the last decade have established promising biological activities by the virtue of their great diversity in structures and properties.

In order to probe into the mechanism of how the cancer cells are attacked by the compound, the team synthesised it by hydro-thermal method. An aqueous mixture of sodium molybdate, phosphorus acid, and bipyridine was heated in an acetate buffer solution of pH 4 at 160 degrees Celsius for 72 hours.

The compound's cytotoxicity, or the quality of being toxic to cells, was determined on breast cancer, lung cancer and liver cancer cells by conventional colorometry. The observations were further compared with that of a routinely used chemotherapeutic agent.

The mechanism of cell death occurring in breast cancer, lung cancer and liver cancer cells were also evaluated and the effect of the synthesized materials on the cell division was determined.

The in vitro results showed that this hybrid solid is less toxic towards normal cells and its anti-tumor activity was also found to be comparable with that of a routinely used chemo-therapeutic agent.

POMs have evolved as a promising candidate for future metallodrugs for combating cancer. The compound synthesised by the INST, an autonomous institute of the Department of Science and Technology, could open new avenues for anti-tumor applications.

## **COVID-19**

### **Children more resilient against COVID-19: Lancet study (The Tribune: 2020601)**

<https://www.tribuneindia.com/news/health/children-more-resilient-against-covid-19-lancet-study-105723>

The majority of children with COVID-19 in 26 countries fared well clinically compared to adults, according to a review of studies which assessed research published during the first four months of the pandemic.

Scientists, including those from The University of Texas in the US, performed the largest systematic review to date of children and young adults with COVID-19, assessing the clinical data of more than 7,500 individuals.

In the findings, published in the journal *EClinicalMedicine*, a journal of *The Lancet*, they said nearly a fifth of the pediatric population with COVID-19 did not exhibit any symptoms, and 21 per cent of the children exhibited patchy marks of tissue injury on lung X-rays.

The researchers said 5.6 per cent of the children assessed in the studies suffered from co-infections, such as flu, on top of COVID-19, and a little more than 3 per cent were admitted to intensive care units.

Seven deaths were reported, according to the review research.

“Our data is compiled from 131 studies and encompasses 7,780 patients who span the pediatric age spectrum,” said study senior author Alvaro Moreira from UT.

The research reported the most common symptoms, quantified laboratory findings, and described X-ray scan characteristics of children with COVID-19.

“Furthermore, we summarise treatments that were administered and offer an initial glimpse of a handful of patients who met the US Centers for Disease Control and Prevention (CDC) criteria for multisystem inflammatory syndrome in children,” Moreira said.

According to the study, the most frequent symptoms, similar to the adult population, were fever and cough—found in 59 and 56 per cent of the pediatric population, respectively.

In 233 individuals, the scientists said a past medical history was noted with 152 children in the group presenting with compromised immune systems, or had underlying respiratory or cardiac disease.

“Although we are hearing about severe forms of the disease in children, this is occurring in very rare circumstances,” Moreira said.

Based on laboratory measures noted in the reviewed studies, the scientists said pediatric COVID-19 patients had abnormal levels of molecules signifying inflammation in the body like creatine kinase, interleukin-6, and procalcitonin.

According to the scientists, only a small number of patients met inclusion for multisystem inflammatory syndrome in children.

They said the disease condition in these children paralleled the extreme forms of COVID-19 seen in adults.

“Children with systemic inflammation had a significant decrease in the amount of lymphocytes in their blood,” Moreira said.

COVID-positive children who didn’t have the extreme form of the disease had 42 per cent of the immune cells called lymphocytes in their blood, versus 11 per cent in children with the multisystem syndrome, he added.

The scientists said kidney failure was seen in nine pediatric patients, liver failure also in nine, and shock in 19.

They said mechanical ventilation was required by 42 patients.

While the review research provides evidence that children with COVID-19 have an overall better prognosis, the scientists said further studies are needed to confirm the findings, and “better understand which patients are at increased risk for developing severe inflammation and multi-organ failure.” PTI

### **COVID-19 linked to increased risk of stroke: Study (The Tribune: 2020601)**

Patients infected with the novel coronavirus should undergo aggressive monitoring for the neurological condition

<https://www.tribuneindia.com/news/health/covid-19-linked-to-increased-risk-of-stroke-study-105712>



COVID-19 is significantly associated with an increased risk of strokes, according to a study which says patients infected with the novel coronavirus should undergo aggressive monitoring for the neurological condition.

According to the researchers, including those from the Icahn School of Medicine at Mount Sinai in the US, COVID-19 infection is a risk factor for acute strokes.

In the study, published in the American Journal of Neuroradiology, the scientists assessed patients presenting to six New York City hospitals for suspicion of stroke between March to April.

“We conducted a retrospective case-control study of 41 cases and 82 control subjects matched by age, sex, and risk factors,” the scientists wrote in the study.

After adjusting for age, gender, and risk factors, the scientists found that COVID-19 infection had a significant independent association with acute ischemic stroke—caused by a clot that blocks a blood vessel in the brain.

Comparing the group of patients with stroke versus non-stroke, they showed significantly elevated number of patients with COVID-19 infection among the stroke group after accounting for other known common stroke risk factors.

The researchers believe that patients with COVID-19 should be evaluated early for acute neurological changes.

“This is the first major peer reviewed study to show that COVID-19 infection is a risk factor for acute strokes,” Puneet Belani, study co-author from Mount Sinai Hospital.

“Patients with COVID-19 should be evaluated early for acute neurological changes, and timely workup should be performed in patients suspected to have stroke to reduce morbidity and mortality,” Belani said.

Citing the limitations of the study, the scientists said the study involved only 41 patients diagnosed with COVID-19, adding that further studies involving a larger population may help validate the findings.

“Future endeavors may assess whether this relationship holds true in a larger population and with the pathophysiologic mechanisms inherent in COVID-19 that drive this association,” they wrote in the study. —PTI

## **'Immune cells**

### **'Immune cells involved in protection against COVID-19 identified'(The Tribune: 2020601)**

T cells may be cross-reacting to the novel coronavirus

<https://www.tribuneindia.com/news/health/immune-cells-involved-in-protection-against-covid-19-identified-105252>

Patients suffering from severe respiratory symptoms due to the novel coronavirus infection can rapidly generate an immune response in the form of virus-attacking T cells, suggests a new study which may lead to new vaccine development strategies against COVID-19.

The study, published in the journal *Science Immunology*, assessed T cells from 10 COVID-19 patients under intensive care treatment.

According to the researchers, including those from the University of California in the US, two out of 10 healthy individuals without prior exposure to the virus also harbored SARS-CoV-2-reactive T cells.

Based on this observation, they said these T cells may be cross-reacting to the novel coronavirus, SARS-CoV-2, due to past infection with related coronaviruses that cause common cold symptoms.

The findings, according to the researchers, address the poorly understood question of whether SARS-CoV-2-specific T cell responses vary in patients over time depending on disease severity.

They said the study may help understand whether patients with more severe symptoms can generate protective virus-specific T cells at all, and offer clues regarding the cells responsible for excessive immune responses which has led to the deaths of many COVID-19 patients.

In the research, scientists, including Daniela Weiskopf from the La Jolla Institute for Immunology in the US, extracted blood cells from 10 patients at weekly intervals starting soon after they were admitted to the ICU for COVID-19.

They exposed these cells to "megapools" of known SARS-CoV-2 protein components in a technique meant to capture a large fraction of total viral-reactive T cells.

The researchers found that SARS-CoV-2-specific CD4+ helper T cells were active in all 10 patients, and CD8+ "killer" T cells were present in 8 out of 10 patients.

They also characterised the cells' production of specific inflammation-triggering cell-cell signalling molecules called cytokines.

According to the scientists, the strongest responses were directed to the virus' spike (S) surface protein, supporting prior work that has pointed to this protein as a promising target to induce virus-specific T cells.

On screening all patients at 0, 7, and 14 days after inclusion in the study revealed that SARS-CoV-2-specific T cells were present relatively early during the course of infection, and increased in these patients over time.

Using the same T cell stimulation technique in age-matched healthy controls, the researchers found SARS-CoV-2-reactive T cells in 2 out of the 10 individuals.

They believe a future study of how pre-existing SARS-CoV-2-specific T cells in healthy controls correlate to protection against COVID-19 can help shed more light on the disease and "and also inform vaccine design and evaluation." PTI

## **Common childhood vaccine**

### **Common childhood vaccine might prevent severe complications of COVID-19(The Tribune: 2020601)**

<https://www.tribuneindia.com/news/health/common-childhood-vaccine-might-prevent-severe-complications-of-covid-19-105264>

Common childhood vaccine might prevent severe complications of COVID-19

Vaccines such as those used against measles may prevent severe lung inflammation associated with COVID-19, according to a study which may lead to a new strategy to protect the vulnerable from the pandemic.

The research, published in the journal mBio, suggested that live attenuated vaccines which contain weakened pathogens can activate immune cells to train the white blood cells of the immune system to mount a more effective defense against unrelated infections.

Researchers, including those from the Louisiana State University (LSU) in the US, showed in lab experiments that vaccination with a live attenuated fungal strain generated trained innate protection against blood poisoning (sepsis) caused by a combination of disease-causing fungi and bacteria.

According to the scientists, the protection from an unrelated live attenuated vaccine is produced by long-lived immune cells which were previously reported to inhibit septic inflammation and mortality in several experimental models.

They said a live attenuated MMR (measles, mumps, rubella) vaccine concept is not suggested to be directed against COVID-19, but may act as an immune preventive measure against the severe symptoms of COVID-19.

Vaccination with MMR in immunocompetent individuals, according to the scientists, has no contraindications and may be especially effective for health care workers who can easily be exposed to COVID-19.

"The use of childhood live attenuated vaccines such as MMR given to adults to induce bystander cells that can dampen or reduce severe complications associated with COVID-19 infection is a low risk -- high reward preventive measure during a critical period of the pandemic," said Paul Fidel, study co-author from LSU.

Fidel said the bystander cells are long-lived but not life-long.

"Anyone who had an MMR vaccination as a child, while likely to still have immune antibodies directed against measles, mumps, or rubella, will not likely still have the immune cells directed against sepsis," he added.

According to Fidel, it could be important to get the MMR vaccination as an adult to protect better against COVID-19-related sepsis.

He said clinical trials and animal model studies could be initiated to test the hypothesis that the MMR vaccine given to adults induces the bystander cells that we propose can inhibit the severe lung inflammation/sepsis associated with COVID-19.

Meanwhile, the scientists suggested that adults working in high-risk settings who are not immunocompromised, pregnant, or allergic to vaccinations, get an MMR vaccine.

"If we're correct, an MMR-vaccinated person may suffer less if infected with COVID-19. If we're wrong, the person has better immunity to measles, mumps, and rubella. A sort of no harm no foul action," Fidel said. PTI

## **Vaccine alliance**

### **Vaccine alliance finds manufacturing capacity for 4 billion doses of coronavirus vaccines (The Tribune: 2020601)**

<https://www.tribuneindia.com/news/health/vaccine-alliance-finds-manufacturing-capacity-for-4-billion-doses-of-coronavirus-vaccines-104337>



An influential foundation focused on preparation and response to epidemics that is backing nine potential coronavirus vaccines has identified manufacturers with capacity to produce four billion doses a year, the group's top manufacturing expert told Reuters.

The Coalition for Epidemic Preparedness Innovation (CEPI) plans to have two or three manufacturing plants for each vaccine, James Robinson, a longtime biopharma executive leading CEPI'S vast manufacturing push, said in an interview.

"Right now, we know we can do the two billion doses that we have as our kind of our minimum target" by the end of 2021, he said.

The group is planning for eight to 10 regional distribution sites "so that we don't have to make everything centrally and try and ship it around the world," he said.

Even with no existing approved vaccines, CEPI is already getting manufacturing and supply chains lined up in a quest to ensure coronavirus vaccines are distributed equitably around the globe.

The Oslo, Norway-based group is backed by 14 governments, the Bill and Melinda Gates Foundation, and Britain's Wellcome Trust.

CEPI has deployed up to \$829 million so far in the search for a COVID-19 vaccine through partnerships with nine developers, with the hope that at least some will be successful.

They are Inovio Pharmaceuticals Inc (INO.O), the University of Queensland with CSL Ltd (CSL.AX), CureVac, Moderna Inc (MRNA.O) with U.S. government backing, Novavax Inc (NVAX.O), the University of Oxford with AstraZeneca (AZN.L), Clover Biopharmaceuticals, the University of Hong Kong, and a consortium led by Institut Pasteur and including the University of Pittsburgh and Themis Bioscience, which was recently purchased by Merck & Co (MRK.N).

Robinson said CEPI has taken initial steps toward securing manufacturing capacity with more than 200 biopharma or sterile vaccine production companies.

"Most people don't believe that four billion is possible. I do," he said.

Robinson, a manufacturing consultant who has worked at some of the world's biggest vaccine companies including Sanofi (SASY.PA) and Merck, said his group has done "matchmaking" based on manufacturers' capabilities and the specific needs of the various vaccines.

Effective vaccines are seen as critical to stopping a pandemic that has infected more than 9.3 million people and killed nearly 480,000 globally with little sign of letting up.

CEPI is taking care to ensure that the work to produce a vaccine to prevent COVID-19 does not sideline other critical vaccines. That has been a particular concern in less developed countries, Robinson said.

'All has to be built from scratch'

Manufacturing capacity has been easier to locate for vaccine candidates that employ traditional technology. But three of the candidates CEPI is backing involve more complex mRNA- or DNA-based technology.

Since there has never been a licensed vaccine using those approaches, no network of contract manufacturers exists to support high-volume production, Robinson said.

“The capacity just isn’t there and it all has to be built from scratch,” he said.

Access to medical glass is another known bottleneck. To overcome it, CEPI has purchased enough glass vials for two billion doses and is considering purchasing more.

“We don’t want vials to be the reason we don’t have enough vaccine,” he said.

CEPI is keeping packaging products it chooses uniform, so it can fill vials and finish packaging for any of the vaccines, rather than tailoring them to individual products.

They have done the same with rubber stoppers that seal the vials and aluminum flip caps to cover them.

“Some companies are choosing not to use our network ... and they’re also purchasing their own vials,” Robinson said. That will allow more capacity for smaller biotechs and university labs that do not have sophisticated supply chains.

One other massive challenge facing CEPI is the need to work with dozens, if not scores, of regulators globally.

“Each regulatory agency could ask for something different, so our job is a bit more complex,” Robinson said.

A CEPI regulatory working group has been looking into ways to try to standardize requirements to the extent possible, Robinson said. “But then each of the countries that receive the vaccine also need to license it.” — Reuters

## **Heart disease, high BP**

### **Heart disease, high BP linked to recovered Covid-19 patients testing positive again: Study (The Tribune: 2020601)**

<https://www.tribuneindia.com/news/health/heart-disease-high-bp-linked-to-recovered-covid-19-patients-testing-positive-again-study-103820>

Coexisting medical conditions like heart disease and hypertension may lead to fully recovered COVID-19 patients testing positive for the viral infection again, according to a study which says most such patients with re-positive outcomes "tended to return negative eventually." Researchers from Huazhong University of Science and Technology in China assessed data on 938 COVID-19 patients from the country's Wuhan Union Hospital.

They obtained information about residual symptoms in these patients, and the results of follow up tests for viral genetic material in their body after they were discharged.

In the study, which is yet to be published, the scientists evaluated the relationship of clinical characteristics, and reappeared positive viral RNA test results in the patients over a follow-up period of at least 44 days.

According to the findings, published in the preprint repository medRxiv, a total of 58 (6.2 per cent) of the 938 patients had reappeared positive viral RNA test results, while 880 remained negative.

The scientists found a link between co-morbid conditions like heart disease and hypertension among patients over 50 years old, and their chances of testing positive again during the follow-up period.

"Among patients over the age of 50, the factors we found to be associated with re-positive results were coronary artery disease, and hypertension," they wrote in the study.

The scientists said 54 (93.1%) of the re-positive (RP) patients turned negative again, while two patients remained positive, and two were lost to the second follow-up.

"Despite that mechanisms underlying re-positive outcome remain unclear, the possibility of secondary infection is small because these RP patients caused no infection after discharge, and most of them returned negative again with an alleviation in symptoms," the study noted.

According to the scientists, some patients may still carry SARS-CoV-2 deep in the lungs after recovery, which cannot be detected by conventional nucleic acid test for the upper respiratory tract.

They said these patients may still carry low counts of SARS-CoV-2 at discharge, which combined with their impaired immunity due to comorbidities, may result in a fluctuation in the quantity of the virus in their body.

Under such conditions, the researchers believe a re-positive state may arise several days later.

Citing the limitations of the study, the researchers noted that the short duration of follow-up "makes it hard to determine clinical ends of re-positive patients." "It is uncertain whether they will remain negative or turn positive again," the scientists noted in the study.

The researchers highlighted the importance of following up recovered COVID-19 patients since two consecutive negative tests at discharge may not necessarily be conclusive of complete clearance of the virus from the body. — PTI

## Health Care Services

**Migrants who stayed back helping shape Delhi's biggest Covid facility**  
**BIG EFFORT: Scores of construction workers from other states build 10,000-bed centre in Chhatarpur**  
**(Hindustan Times: 2020601)**

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



About 250 workers were assigned the task to load heavy air-conditioners on to the iron frames at the Covid-19 facility at the Radha Soami Satsang Beas. ht photo

**Shiv Sunny**

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New Delhi : Attempting to catch a quick nap amid a hectic schedule, Ishtiyak Ali is perched atop a large seven-ton air-conditioner, about 25 feet above the ground, at the Radha Soami Satsang Beas in south Delhi's Chhatarpur, which is being prepared to serve as a 10,000-bed temporary Covid-19 hospital.

His break will not last long. Hired by a private firm to set up air-conditioners at this facility, 26-year-old Ali will be back to work in less than 30 minutes.

"I have been working my regular shift from 8am to 6pm as well as overtime until 1am. It will help complete the work quicker and I'll receive some extra overtime pay," Ali from Mau district in Uttar Pradesh, said.

Unlike many migrants who left for their hometowns during the lockdown, Ali and scores like him chose to stay back. They see the work at the facility as an opportunity to earn after a

prolonged period of unemployment as well as a chance to contribute to the country during a pandemic.

### **OVER 900 WORKERS**

BM Mishra, district magistrate of the south district, said over 900 workers from different departments and organisations have been working in shifts since June 14 to prepare the facility wherein 2,000 beds have already been readied to take in Covid-19 patients.

“These include about 250 people fixing air-conditioners, 100 making the beds, 200 handling the electricity works, 100 from MTNL and another 125 from SDMC and NDMC,” Mishra said, while overseeing the work on a hot and humid Monday afternoon.

Several of these departments have outsourced the work to small firms who have hired workers. Apart from these, there are about 700 ‘sewadars’ (volunteers) from the satsang.

But these workers were difficult to find. Sandeep Panwar, whose firm is one among several installing 18,000 tons of air-conditioners here, said that the unavailability of labourers has forced him to task his employees to find them. “Most of the workers you see around are new labourers. My employees are visiting labour chowks across the city to scout for them,” Panwar said.

And when these workers see the nature of the job, some of them leave, Panwar said. “It is a tough task to load the heavy ACs on the iron frames. Not everyone is willing to do this task in this heat.”

### **EXTRA PAY IN TOUGH TIMES**

Vikas Kumar, a 40-year-old labourer who took up this job, acknowledged that it is a laborious task, but he needs the money. “I was unemployed for a lengthy period during the lockdown. Now if I am getting paid ₹500 for a regular shift, I’ll take up any work for my family,” Kumar said after loading an AC.

An overtime allowance of ₹200-₹300 also keeps Kumar and his colleagues working hard.

Nandini Maharaj, the assistant collector of the south district, said that work on the ground began on June 14, the same day that she and the other officers began conceptualising the task.

“We have been working here till 2am and so have many labourers. It wouldn’t have been possible to finish such a task if not for the contribution of these workers. We have ensured that they have a decent place to stay and timely meals,” Maharaj said.

On Monday afternoon, some workers went about fixing cardboard beds, others loaded large , heavy ACs on iron frames while some flattened the mud floors even as a few took quick breaks.

Nearby, a group of 50 workers used cardboard sheets to set up beds. Over the last seven days, they readied 5,000 beds, Rajesh Ranjan, the project head of Sleepwell, a private firm that donated 10,000 bedding sets to this facility, said.

### **‘CONTRIBUTING IN A PANDEMIC’**

Rajan Bargujar, one of the workers here, said he and most of his colleagues had been unemployed for three months. “We are being given minimum wage and promised a bonus, but it is the sense of working for the country that keeps us working here despite the threat of infection,” Bargujar said.

Vijay Kumar Yadav, an electrician who is visually challenged in one eye, chose not to go back to his village in Bihar hoping he would find work when the lockdown was lifted. He said that after being disappointed in the initial days when lockdown restrictions were lifted, he found work at this facility that is paying him a little more than what he earned earlier.

“I made about ₹600 a day earlier. For this work, I am getting paid ₹900. It is as if someone has lent me a helping hand,” Yadav, who is done fixing charging points under each of the 2,000 ready beds, said.

But more than the money, Yadav said he has been enjoying the satisfaction of “serving the country”.

“I have worked for over two decades, but work has never this voluminous and hectic. It feels like work is going on at a war footing and I am fighting a battle for my country,” said 42-year-old Yadav.

Yadav knows that soon patients infected with Covid-19 will begin occupying the 2,000 ready beds, but he and his colleagues say they aren’t concerned, even though they must continue readying other sections at the same facility. “I am in no hurry to leave from here. What would happen if doctors began leaving this place if I got infected and hospitalised,” said Yadav’s colleague Sanjay Tiwari.

But the fear of having to work near patients is also what is keeping some workers toiling harder than usual.

One among them is Mohammad Ahmed, a labourer hired to level the mud floor—which will eventually be covered with vinyl sheets.

“My colleagues and I are working harder to finish the work in the next couple of days. It won’t be safe once patients start coming in,” Ahmed, who belongs to Saharsa in Bihar, but didn’t find an opportunity to return to his village, said.

## **Coronavirus (The Asian Age: 2020601)**

<http://onlinepaper.asianage.com/articledetailpage.aspx?id=14961806>

# ■ 64,000 cases added to coronavirus tally in June At 66.03%, city recovery rate higher than national average

AGE CORRESPONDENT  
NEW DELHI, JUNE 30

The coronavirus recovery rate in the national capital reached 66.03 per cent on June 29 as against the national rate of 58.67 per cent, according to official figures.

As per the Delhi health department, 2199 fresh Covid cases were reported in the city in the last 24 hours, taking the total case count to 87,369 and 62 deaths were also reported. The total number of The death toll due to the Covid is 2,742

In June, the national capital added over 64,000 fresh cases to its tally, while over 47,357 patients recovered, were discharged or migrated.

Delhi's recovery rate breached the 50 per cent mark on June 20, after hovering below it for almost a month.

At a time when Delhi eclipsed Mumbai's COVID-19 tally, the national capital's recovery rate also gradually increased. On June 19, Delhi's recovery rate was 44.37 per cent while it climbed to 55.14 per cent the next day.

Since then, the recovery



Labourers work to convert Commonwealth Games Village into a dedicated Covid centre in New Delhi on Tuesday. — PTI

rate has been on an upward spiral even on days when the case tally breached the 3,000-mark. On June 23, when Delhi reported the highest single-day spike of 3,947 cases, the recovery rate was 59.02 per cent.

On June 24, the recovery rate witnessed a slight decrease to 58.86 per cent only to climb to 60.67 per cent the next day. Since then, the recovery rate has stayed above 60 per cent.

On June 26, the total number of cases recorded was 77,240 while the number of recovered cases was

47,091 with the recovery rate being 60.96 per cent.

The next day, the cases breached the 80,000 mark with the recovery rate also witnessing a slight increase to 61.48 per cent and subsequently climbing to 66.03 per cent on June 29.

Between June 15 and June 29, total 40,012 patients recovered with 7,725 patients alone recovering on June 20. During this time, Delhi added 44,015 cases to its tally of cases. Delhi's recovery rate increased to 42.69 per cent on June

18, after staying below the 40 per cent-mark for 13 days, according to official figures.

This is the first time in two weeks that the recovery rate had crossed the 40 per cent-mark, amid a surge in infections.

Amid a surge in the cases, the national capital has ramped up testing and is also in the middle of conducting a serological survey to assess the spread of infection in the population.

Meanwhile, The Delhi government has set the ball rolling to establish the first-of-its-kind "plasma bank" for treatment of Covid at a facility here and its modalities are being worked out, sources said on Tuesday.

The bank is being set up at the Delhi government-run Institute of Liver and Biliary Sciences (ILBS) and doctors or hospitals will have to approach it if plasma is required for treatment of a Covid patient.

Addressing an online media briefing on Monday, chief minister Arvind Kejriwal had said the bank will be operational in the next two days.

## Blindness

### New eye drops to prevent common cause of blindness (New Kerala: 2020601)

<https://www.newkerala.com/news/2020/116306.htm>

Researchers have developed eye drops that could prevent vision loss after retinal vein occlusion, a major cause of blindness for millions of adults worldwide.

Published in the journal 'Nature Communications', the study suggests that the experimental therapy -- which targets a common cause of neurodegeneration and vascular leakage in the eye -- could have broader therapeutic effects than the existing drugs.

Retinal vein occlusion occurs when a major vein that drains blood from the retina is blocked, usually due to a blood clot. As a result, blood and other fluids leak into the retina, damaging specialised light-sensing neurons called photoreceptors.

Standard treatment for the condition currently relies on drugs that reduce fluid leakage from blood vessels and abnormal blood vessel growth. But there are significant drawbacks. These therapies require repeated injections directly into the eye, and for the patients who brave this daunting prospect, the treatment ultimately fails to prevent vision loss in majority of the cases.

"The new treatment targets an enzyme called caspase-9. Under normal conditions, caspase-9 is believed to be primarily involved in programmed cell death, a tightly regulated mechanism for naturally eliminating damaged or excess cells," said study researcher Carol M. Troy from the Columbia University in the US.

However, in studies of mice, the Troy lab discovered that when blood vessels are injured by retinal vein occlusion, the caspase-9 becomes uncontrollably activated, triggering processes that can damage the retina.

The study found that a highly selective caspase-9 inhibitor, delivered in the form of eye drops, improved a variety of clinical measures of retinal function in a mouse model of the condition.

Most importantly, the treatment reduced swelling, improved blood flow, and decreased neuronal damage in the retina.

"We believe these eye drops may offer several advantages over existing therapies," said Troy.

"Patients could administer the drug themselves and wouldn't have to get a series of injections. Also, our eye drops target a different pathway of retinal injury and thus may help patients who do not respond to the current therapy," Troy added.

The researchers are preparing to test the eye drops in people with retinal vein occlusion during a phase I clinical trial.

## **Alzheimer's disease**

### **Plasticity may make neurons vulnerable to Alzheimer's disease, study explains (New Kerala: 2020601)**

<https://www.newkerala.com/news/2020/116239.htm>

Neurons that regularly remodel are more prone to the dysfunctions linked to Alzheimer's disease, according to a new study.

"Identifying the molecular characteristics of neurons that are especially vulnerable to neurodegeneration is important both for the basic understanding of Alzheimer's and for the

future development of better diagnostic and treatment options," said study co-author Olga Troyanskaya, deputy director for genomics at the Flatiron Institute's Center for Computational Biology in New York City and a professor at Princeton University.

Using a machine learning framework that integrated neuron type-specific mouse experiments with human studies, the researchers compared two types of neurons susceptible to Alzheimer's with five resistant types. The most significant difference was that the vulnerable neurons were enriched with processes related to remodelling connections with adjacent neurons.

The findings suggest that ageing and the accumulation of a protein fragment called amyloid-beta can cause the remodelling process to go haywire, creating tangles of tau proteins that lead to Alzheimer's disease. The work is the first to link amyloid-beta and tau proteins -- two previously proposed prime suspects in Alzheimer's progression -- at the genetic and molecular levels.

"By understanding what makes these neurons extra vulnerable, we can understand what makes Alzheimer's start killing neurons. The question now is whether we can somehow make these neurons more resistant", said study co-lead author Vicky Yao, an assistant professor of computer science at Rice University in Houston who started the project while working in Troyanskaya's group at Princeton.

Yao led the work along with Jean-Pierre Roussarie, a senior research associate at the Fisher Center for Alzheimer's Disease Research at Rockefeller University in New York City. The researchers present their findings on June 29 in *Neuron*.

Alzheimer's is a progressive disorder that causes brain cells to waste away and die. The disease first targets neurons related to memory and navigation. Over time, the disease spreads to other neurons. In the United States, Alzheimer's is the sixth-leading cause of death and the fifth-leading cause of death for Americans age 65 and older.

The cause of the disease remains unclear. Previous studies identified genes that elevate Alzheimer's risk, but scientists still don't know why the disease starts attacking neurons. One challenge to studying the disease is that the brain quickly starts deteriorating after death, distorting any potential postmortem findings.

For the new study, Roussarie and his colleagues generated genetic lines of mice tailor-made for studying neurons. Each line focuses on a single neuron type, with genetic changes to make gene transcription in those neurons easier to track (including the addition of a green fluorescent protein). The researchers developed mice lines targeting neurons resilient to Alzheimer's and others targeting neurons vulnerable to the disease.

In the new paper, the researchers show that the human and mouse neurons were nearly identical at the molecular level, making the rodents superb stand-ins for studying Alzheimer's.

The researchers combined experimental data from Roussarie's mice with Yao's computational models of human genetics, which show when and where genes related to Alzheimer's-related processes are expressed in the brain and how those genes interact with other genes. Together, the two data sources produced a profile of what characteristics make neurons vulnerable to Alzheimer's.

The profile turned up two of the usual suspects in Alzheimer's amyloid-beta and tau. Amyloid-beta is a protein fragment that can aggregate, forming plaques that fill the gaps between nerve cells. Tau proteins -- the top candidate in the profile -- stabilize microtubules, molecular rods that give neurons their shape and form the backbone of connections between neighbouring neurons. When tau proteins are misfolded, they can create tangled threads that block a neuron's transport system, preventing neurons from functioning properly.

"When I first did the predictions, I actually went back and double-checked because I thought that this was too good to be true. These were things we had already known were related to Alzheimer's, and we were able to link them together. It was verification that we were on the right track," Yao said.

Scientists have long debated which process -- involving amyloid-beta or tau -- is responsible for the onset of Alzheimer's, but the new findings suggest that the two are connected. The work strongly linked PTB, a gene that regulates the formation of the several flavours of the tau protein, to Alzheimer's.

If PTB is dysregulated, the ratio of tau proteins is thrown off. This imbalance causes the tau proteins to start aggregating, forming the tangled threads. The researchers propose that age and amyloid-beta accumulation boost the risk of this dysregulation.

The researchers plan to continue their research by looking for other characteristics that make neurons vulnerable to the disease. Gathering more information about the onset of Alzheimer's will aid the development of potential treatments that prevent the disease from taking root in the first place, Yao said.

## **Diabetes**

### **Diabetes is dynamite for person with Covid: Ex-WHO advisor (New Kerala: 2020601)**

<https://www.newkerala.com/news/2020/116194.htm>

Diabetes is dynamite for person with Covid: Ex-WHO advisor

Between 30-40 per cent of deaths from studies in intensive care units from different countries are people with diabetes, said Paul Zimmet, Professor of Diabetes, Monash University, Australia.

Zimmet, who is President International Diabetes Federation, added that the actual mechanism as to why Covid-19 may cause diabetes is as yet unknown, however, several possibilities exist. "COVID-19 is a very destructive and cunning virus and causes terrible damage to tissues including the lungs and pancreas," said Zimmet. Below are excerpts from an exclusive chat with IANS.

Q Why do you say Diabetes is dynamite if a person has been infected with COVID-19?

A There have been many deaths in many countries, e.g. Italy, China, the UK and US among people with diabetes after infection with COVID-19 (SARS-Cov-2).

The mortality tends to be mainly in older Type 2 diabetics. Between 30-40 per cent of deaths from studies in intensive care units from different countries are people with diabetes. This outcome and other complications from the virus, particularly pneumonia, are more likely in people with diabetes which is poorly controlled with high blood sugars (poor metabolic control).

Diabetes is often associated with other chronic conditions, including obesity, hypertension and heart disease compounding the risk. These latter conditions all convey higher risk to Covid-19 infections.

Q ACE-2, which binds to SARS-Cov-2 and allows the virus to enter human cells is also located in organs and tissues involved in glucose metabolism. Is there solid evidence that virus after entering tissues may cause multiple and complex impairment of glucose metabolism?

A The actual mechanism as to why Covid-19 may cause diabetes is as yet unknown.

However, several possibilities exist. Firstly, COVID-19 is a very destructive and cunning virus and causes terrible damage to tissues, including the lungs and pancreas.

A new study just published showed that in miniature lab-grown pancreas, and other cells such as liver, made using human stem cells, COVID-19 caused destruction of the pancreas beta cells that produce insulin.

It is possible that the virus causes disruption of the cells by disrupting cellular metabolism. This is possibly the way it brings about new-onset diabetes. ACE-2 exists in high concentration in the lung as this also explains the terrible lung side effects of COVID-19 infections.

Q Can Covid-19 lead to a new mechanism of diabetes? Probably a new form of diabetes or a new form of disease?

A The Covid-19 virus has only been with us for about 5 months and there is a huge amount that we still must learn about its cunning and devastating ways. The purpose of the Global COVIDIAB Diabetes Registry, a joint initiative of Monash University in Australia, and King's College London is to gain a much better understanding of how common is the appearance of COVID-19 related diabetes, what form does it take be it type 1 or type 2 or a new form, and how common are the complications that we already know e.g. diabetic keto-acidosis, hyperosmolar coma and high insulin requirements are causing high rates of ill health and mortality worldwide. The knowledge gained will aid our understanding for developing strategies to prevent and treat this terrible virus that has caused destruction globally.

Q Diabetes is one of the most prevalent chronic diseases in India. According to a recent study, sugar levels of diabetic persons increased by 20 per cent during nationwide lockdown in India to contain Covid-19 outbreak. Even after lockdown was lifted, many people are confined within their home. Do you think lack of physical activity will create more problems for diabetics?

A My own major research has been on studying populations with high rates of diabetes, including ethnic Indian communities including India, Mauritius, and Fiji so I am very well aware of this. It is now well established that along with diabetes, that associated poor metabolic control of their diabetes places these people at the highest risk for Covid infection and its devastating complications and the associated morbidity and mortality. And these communities have high prevalence of heart disease as well.

Lockdown not only has deleterious effects on metabolic control of the diabetes through reduced opportunities for exercise to be protective serious consequences of SARS-CoV-2 infection, lockdown usually results in disruption of the regular medical care and the regular monitoring of metabolic control. This may also be partly due to the stress and poor compliance, or inability to afford their medications such as insulin. It may also be compounded by inability to access the care during the pandemic. Nevertheless, we now know that poor metabolic control heightens their risk as described above.

Q You have said diabetes is itself a pandemic just like Covid-19, and the two pandemics could be clashing. How could governments address this problem?

A These are "The Times of COVID-19". Most nations of the world were totally unprepared for a pandemic of this magnitude. They underestimated its potential impact and the destructive nature of the viral infection. This should prompt all countries to upgrade their guidelines to take into account the lessons learnt on infection control including training of staff specialising in infectious diseases and improved public education and taking their communities into their confidence about the terrible nature of COVID-19. The risks of COVID-19 infection need a much higher priority in the general community, particularly for people with chronic conditions such as diabetes, obesity, and cardiac conditions.

Governments are faced with chronic diseases (NCDs) like diabetes and communicable diseases (CDs) like viral and enteric diseases and TB. In general WHO gives the highest priority to communicable diseases and much less attention and funding to chronic diseases like diabetes (I was an adviser to WHO for many years (about 30) on diabetes and obesity and it was very frustrating to deal with this situation).

This attitude to diabetes, for example, has a flow down effect so that diabetes funding in countries by governments, rich and poor, suffered and was insufficient.

So now we have a COVID-19 pandemic and who are those at highest risk, yes people with diabetes and other NCDs, it is very important that now the two, Diabetes and COVID-19 are clashing face-to-face. This is a major issue that WHO and national governments have to face with equal priority'

Q Stressed people suffering from diabetes run a greater risk of poor blood glucose levels, what do you suggest to these people?

A As mentioned in the answer above, stress is an important factor in upsetting the blood sugar (metabolic) control of diabetes. Additive to this is poor compliance with medications and diet. These and potential associated comorbidities due to other chronic conditions are part of the dynamic dynamite mixture.

(Sumit Saxena can be contacted at [sumit.s@ians.in](mailto:sumit.s@ians.in))

## **WHO**

### **Living with COVID-19 to be new normal as global cases top 10 mln: WHO(New Kerala: 2020601)**

<https://www.newkerala.com/news/2020/115994.htm>

Living with COVID-19 to be new normal as global cases top 10 mln: WHO

Geneva, June 30 : The chief of the World Health Organization (WHO) said that all countries living with COVID-19 will be the new normal in the coming months, as the pandemic had already infected more than 10 million people worldwide, including more than 500,000 deaths.

"The critical question that all countries will face in the coming months is how to live with this virus. That is the new normal," said WHO Director-General Tedros Adhanom Ghebreyesus at a daily press briefing on Monday, Xinhua news agency reported.

He added that although many countries have made some progress against the COVID-19, the pandemic is speeding up globally.

According to the latest WHO numbers, as of 2 a.m. IST on Monday, the total infected population worldwide had reached 10,199,798, including 502,947 deaths.

"Six months ago, none of us could have imagined how our world -- and our lives -- would be thrown into turmoil by this new virus," the WHO chief said.

"The pandemic has brought out the best and the worst of humanity," he continued. "All over the world, we have seen heartwarming acts of resilience, inventiveness, solidarity, and kindness. But we have also seen concerning signs of stigma, misinformation and the politicization of the pandemic."

He urged all countries to prioritize five sets of measures to save lives, including empowering communities and individuals to protect themselves and others, suppressing virus transmission, saving lives with oxygen and dexamethasone for instance, accelerating research on COVID-19, and strengthening political leadership and solidarity.

Tedros also announced an updated and detailed timeline of the WHO's response to the pandemic for the public to understand how the UN health body has been responding to the outbreak.

# दान करने के बाद खुद पर होता है गर्व

नई दिल्ली | ललित कौशिक

## 65 वर्षीय व्यक्ति को बचाया

कोरोना को मात देने के बाद दूसरों की जान बचाने के लिए प्लाज्मा दान करने वाले खुद पर गर्व महसूस कर रहे हैं। इसी के साथ वे दूसरे लोगों को प्लाज्मा दान करने के लिए प्रेरित करने में जुटे हुए हैं। एम्स अस्पताल के 25 वर्षीय युवा नर्सिंग अधिकारी ने जहां 65 वर्षीय बुजुर्ग को प्लाज्मा दान कर उनकी जान बचाई। तो वहीं, डॉ. बाबा साहेब अंबेडकर अस्पताल में कार्यरत स्वास्थ्यकर्मी ने तीन लोगों को प्लाज्मा दान के लिए प्रेरित किया। ऐसे ही प्लाज्मा दानकर्ताओं से बातचीत पर आधारित रिपोर्ट...

### खुद दान कर जितेंद्र दूसरों को भी कर रहे प्रेरित

रोहिणी स्थित डॉ. बाबा साहेब अंबेडकर अस्पताल में कार्यरत 32 वर्षीय नर्सिंग अधिकारी जितेंद्र वर्मा ने कोरोना को मात देने के बाद प्लाज्मा दान कर मरीज की जान बचाई। वह दूसरे लोगों को भी प्लाज्मा दान करने के लिए प्रोत्साहित कर रहे हैं। उनसे प्रेरित होकर तीन लोग कोरोना संक्रमित मरीजों को प्लाज्मा दान कर उनकी जान बचा चुके हैं।

मुझे गर्व होता है कि प्लाज्मा दान करके 65 वर्षीय बुजुर्ग की जान बचाई है। एम्स अस्पताल का ऐसा पहला युवा कर्मी हूँ जिसने सबसे पहले प्लाज्मा दान किया था। यह कहना 25 वर्षीय भलाराम पुरोहित नर्सिंग अधिकारी का जो एम्स अस्पताल की न्यू इमरजेंसी में नर्सिंग अधिकारी के पद पर कार्यरत हैं।

दिल्ली के आदर्श नगर में रहने वाले भलाराम पुरोहित बताते हैं कि अप्रैल में उनको कोरोना हुआ था। ठीक होने के बाद उन्होंने 16 जून को गुरुग्राम स्थित एक निजी अस्पताल में प्लाज्मा दान किया। जिनको प्लाज्मा दिया गया था, उनकी उम्र 65 थी। मुझे बेहद खुशी और गर्व है कि किसी बुजुर्ग की जान प्लाज्मा दान करने से बच सकी। उन्होंने बताया कि कोरोना मरीज को लोग अभी भी स्वीकार नहीं कर रहे हैं। मुझे कोरोना है इस बात की जानकारी सिर्फ बड़े भाई को थी। राजस्थान में पूरा परिवार रहता है। कोरोना जानते ही लोग घबराने लगते हैं जबकि इसमें ऐसी कोई बात नहीं है।



भलाराम पुरोहित।

### लोगों को लगता है कि रक्तदान करने से कमजोर हो जाएंगे

भलाराम बताते हैं कि जब उन्होंने प्लाज्मा दान किया था तो मम्मी-पापा ने कई सवाल किए थे। लेकिन उन्हें बताया कि प्लाज्मा दान करना अच्छा काम है। इससे शरीर में कोई कमजोरी महसूस नहीं होती है बल्कि उसके बाद खुद को ज्यादा स्वस्थ और फुर्तीला महसूस कर रहा हूँ। उनका कहना है कि जब 25 वर्षीय युवा प्लाज्मा दान कर सकता है तो दूसरे लोगों को भी प्लाज्मा दान करने के लिए आगे आना चाहिए।

## **Plasma Therapy (Hindustan: 2020601)**

[https://epaper.livehindustan.com/imageview\\_170735\\_86127604\\_4\\_1\\_01-07-2020\\_3\\_i\\_1\\_sf.html](https://epaper.livehindustan.com/imageview_170735_86127604_4_1_01-07-2020_3_i_1_sf.html)

# लोकनायक अस्पताल में 400 मरीजों पर शोध

कोरोना मरीजों के इलाज के लिए प्लाज्मा थेरेपी के फायदे पता करने के लिए दिल्ली सरकार का लोकनायक अस्पताल शोध कर रहा है। इस शोध में 400 कोरोना पीड़ित मरीजों को शामिल किया जा रहा है। अस्पताल के चिकित्सा अधीक्षक डॉ. सुरेश कुमार ने यह जानकारी दी।

## महामारियों में प्लाज्मा थेरेपी का इस्तेमाल

1918

में स्पेनिश  
पलू

2003

में सार्स कोरोना  
वायरस

2010

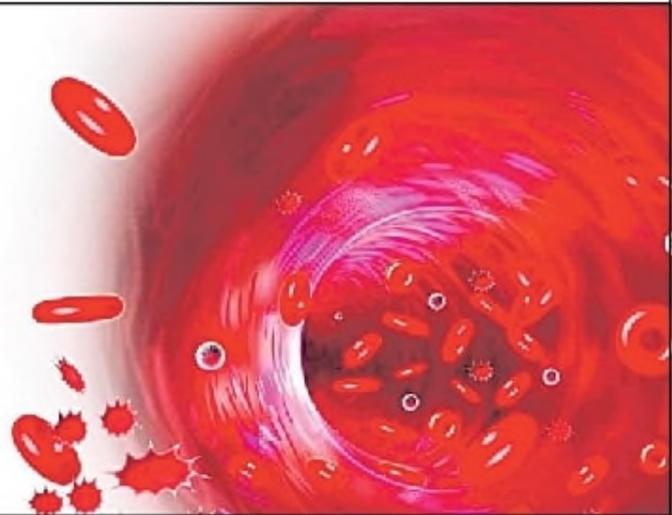
में स्वाइन फ्लू  
के समय

2012

में मर्स कोरोना  
वायरस

## दान करने के मानक

डॉ. सुरेश कुमार के मुताबिक, प्लाज्मा देने के लिए हमने कुछ मानक तय किए हैं। कोरोना संक्रमण से ठीक होने वाला व्यक्ति ठीक होने के कम से कम 21 दिन बाद ही प्लाज्मा दे सकता है।



## दो-दो सौ के समूह

डॉ. सुरेश कुमार ने बताया कि 200 मरीजों के समूह को सामान्य इलाज के अलावा प्लाज्मा थेरेपी भी दी जाएगी और 200 अन्य मरीजों को सामान्य जरूरी उपचार दिया जाएगा।

## इनमें से दो स्थिति आने पर प्लाज्मा दे सकते हैं

1. मरीज का ऑक्सीजन सेचुरेशन का स्तर 93 से कम हो जाए
2. सांस दर 30 से अधिक हो जाए

