

# COVID-19 BULLETIN

23 JUNE 2020

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Compiled, Designed & Published by  
National Institute of Science Communication & Information  
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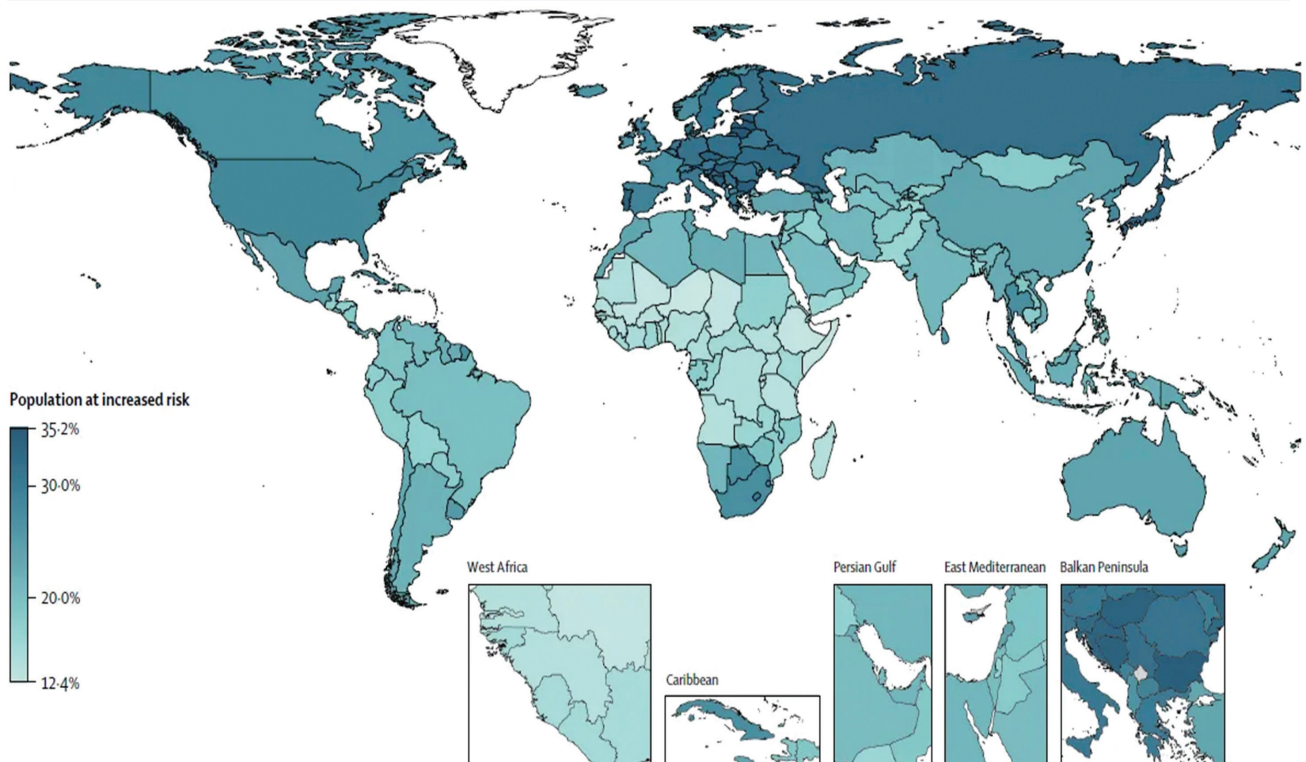
## CORONA RESEARCH SNAPSHOT

### ➔➔ More than one billion population on earth is susceptible to increased risk of COVID-19 infection

According to a mathematical model formulated by the scientists of the London School of Hygiene & Tropical Medicine, UK in collaboration with researchers of several other international institutes, it has been estimated that around 1.7 billion people around the globe have increased risk of severe COVID-19 infection. The study concludes that 22% of the global population comes under the risk of SARS-CoV-2 infection and these people have at least one medical condition which includes them in this category. In this

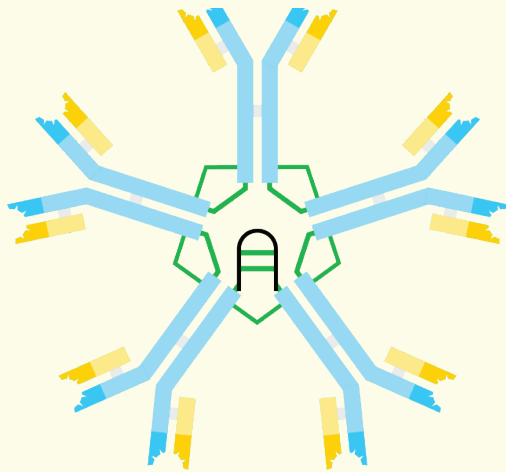
group, 66% of people are above 70-year age or older. The study also estimates that the 349 (186-787) million people (4% of current global population) are in high risk of SARS-CoV-2 infection which means, these people will require hospital admission if they are infected with the novel coronavirus. In a detailed statistical study, the researchers analysed the data of 188 nations. This study is important to assess the number of high risk people who will need vaccination on priority once the vaccine is successfully developed. The study is published in *Lancet Global Health* after peer review.

(Source: *Lancet Glob. Health*; <http://doi.org/dzk9>)



(Courtesy: *Lancet Global Health*)

**➔ Neutralizing antibodies in recovered patients from COVID-19 infection start to decrease after 2-3 months of infection**



**Molecular Structure of IgM antibody**

(Image Courtesy: Labpedia.net)

In an in-depth, dedicated and immunologic profiling study of recovered asymptomatic COVID-19 patients, it has been found that the neutralising antibodies that fight against the SARS-CoV-2 start decreasing in numbers after 2-3 months of infection. This study was performed in Wanzhou People's Hospital, China on

37 asymptomatic patients. Monitoring of patients included the determination of existence of antibodies in asymptomatic patients and their characterization. It was observed that the immune response in asymptomatic patients is weaker as compared to symptomatic ones. *IgM* antibodies are produced during the preliminary stages of the infection. *IgM* antibodies last longer in the people who have shown the symptoms. After four weeks of infection, 78.4 per cent symptomatic people and 62.2 percent asymptomatic people were found positive for *IgM* antibodies. It is evident from the previous studies, the antibodies in case of SARS-CoV and MERS-CoV infection last for almost two years and three years respectively. The present study suggests the need of prolonged public health interventions, including social distancing, hygiene, isolation and widespread testing. This study is recently published in *Nature Medicine*.

(Source: *Nature Medicine*; DOI-10.1038/s41591-020-0965-6)

**➔ Children are less likely to be infected with SARS-CoV-2, Swiss study concludes**

A study published in *The Lancet* has concluded that children have less chances of SARS-CoV-2 infection in comparison to adults. In this survey, scientists of the Geneva University Hospitals tested 2700 people of age 5 and above for antibodies produced by the immune system against the infection of COVID-19. It was found that in the age range of 5-9 only one child out of 123 children tested positive. In addition, 21 children lived with someone who already got infected earlier. The researchers conclude that the low



(Photo Courtesy: Vanith Hirunyatheb)

infection rate among children suggests that children are less susceptible to SARS-COV-2 infection. The study has been published in *The Lancet* after peer review.

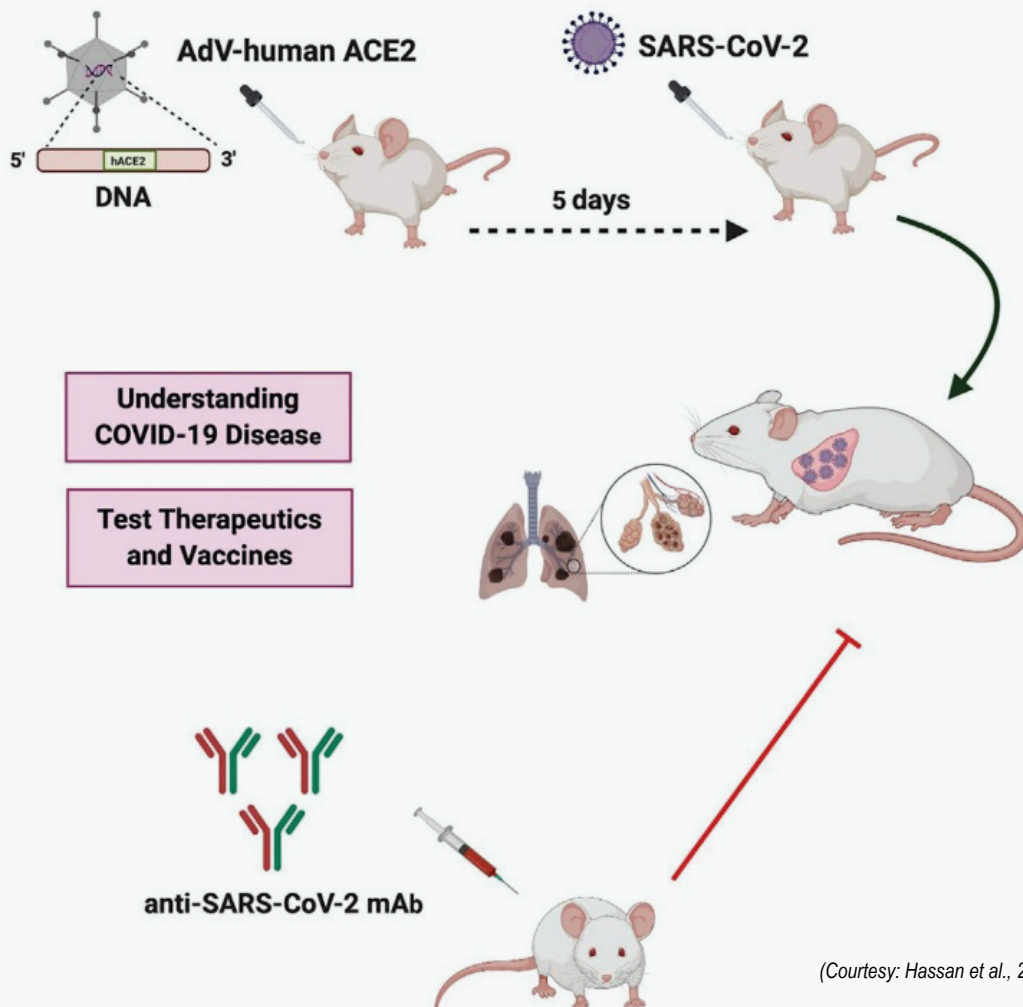
(Source: S. Stringhini et al. *The Lancet*; <http://doi.org/dzh5>; 2020).

**Modified mouse models developed to help in making a vaccine and drug**

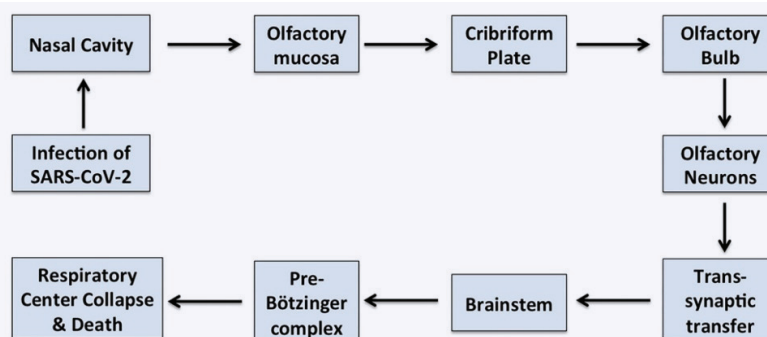
Two independent teams of researchers have developed a method to develop mouse models similar to humans which can get infected from COVID-19. They have used a harmless virus to make the mouse cells vulnerable to infection. The COVID-19 virus enters the human cells by using ACE2 and a few other receptors present on the outer membrane of cells. Mice have different versions of ACE2 receptors on their cell membranes which do not allow COVID-19 to enter in the cell. The scientists have modified these receptors in mice. The transgenic mice

with human versions of ACE2 receptors are susceptible to infection, however these are scarce. Two independent teams from Washington University, USA and Guangzhou Medical University, China used adenoviruses which are used in gene therapy to deliver human ACE2 gene in lung cells of mice. After this, the modified mouse models lost weight and developed pneumonia, when exposed to SARS-CoV-2. These mouse models will be useful in the development process of COVID-19 vaccine and drugs. Both the studies are published in the journal *Cell* after peer review.

(Source: *Cell*; Hassan et al. *Cell*; <http://doi.org/dzbnk>; Sun et al. *Cell*; <http://doi.org/dzbnm>)



(Courtesy: Hassan et al., 2020, *Cell*)



Schematic diagram for COVID-19 infection and possible respiratory system failure

(Courtesy: Gandhi et al. ACS Chem. Neurosci., 2020)

### ➔ SARS-CoV-2 may infect respiratory centre of human brain

Researchers of CSIR-Indian Institute of Chemical Biology are suggesting that the respiratory centre of the human brain may be infected by SARS-CoV-2 and the reasons of mortality in infected patients must be re-examined by keeping the central nervous system in focus. The study mentions that the novel coronavirus enters into the human body mostly through nose and then, it may infect the Pre-Botzinger Complex (PBC),

which is the primary centre of the human brain that controls the respiratory rhythm generation. Infection in PBC results in collapse of respiratory centre in the brain and breakdown of COVID-19 patients in severe cases. The researchers further suggested thorough assessment of cerebrospinal fluid and post-mortem of the brain for better understanding the mechanism of COVID-19 infection.

(Source: ACS Chem. Neurosci.; DOI: [10.1021/acscchemneuro.0c00217](https://doi.org/10.1021/acscchemneuro.0c00217))

### ➔ Transmission of SARS-CoV-2 from mother to baby during pregnancy is uncommon



(Courtesy: Photo by Lillian Suwanrumpha/AFP—Getty Images)

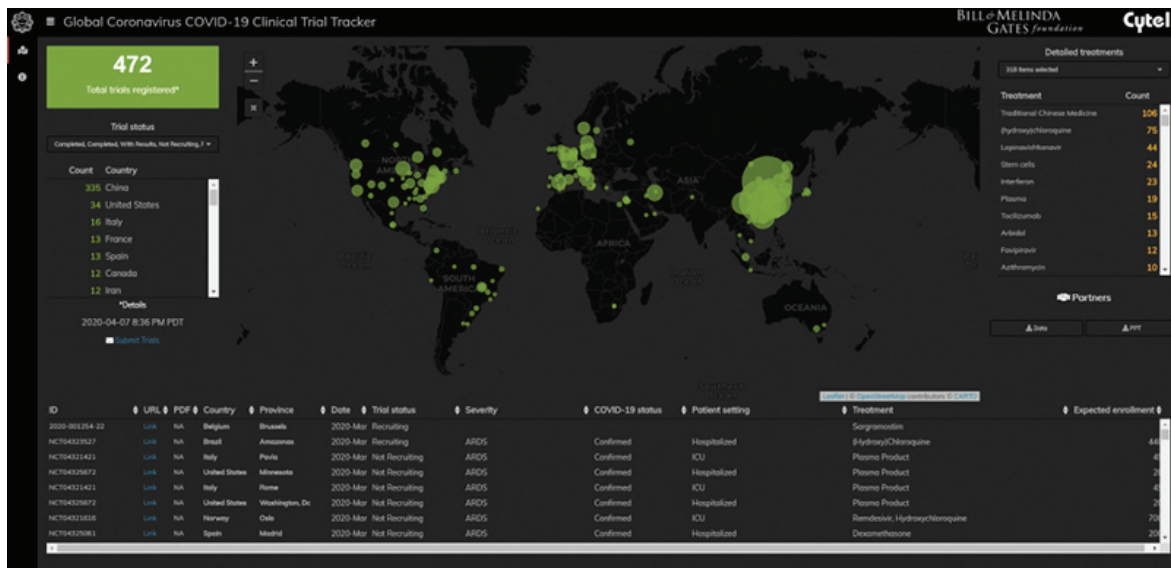
In many previous reports published in the scientific literature, it was suggested that to reduce the risk of COVID-19 transmission from mother to baby, it is safe to separate the baby from the

mother *via* caesarean process. However, these recommendations were based on very limited scientific data. According to a new study, experts of the University of Nottingham, UK and their collaborators have reviewed 49 studies focused on the concerned topic and concluded that neonatal COVID-19 infection is uncommon and asymptomatic in those babies who are affected. The data also suggests that in the case of normal delivery the infection rates are lesser than caesarean. The study is published in *BJOG: An International Journal of Obstetrics & Gynaecology*.

(Source: *BJOG: An International Journal of Obstetrics & Gynaecology*; DOI: [10.1111/1471-0528.16362](https://doi.org/10.1111/1471-0528.16362))



# CORONA INNOVATIONS



## ➡ COVID-19 Clinical Trial Tracker

One of the most difficult challenges facing those seeking a COVID-19 treatment is how little data exists about this disease. Collating information in one place on the growing numbers of trials will enable decision makers to compare treatments more easily as they determine which to investigate further. Cytel has launched an open-access global COVID-19 clinical trial tracker. This live dashboard offers an overview of all the trials taking place in the international effort to tackle the pandemic.

At this online platform, scientists and other stakeholders can examine hundreds of different trial registries for updates, to determine which are the most promising. The dashboard collates such necessary information at one place making it easy to see all the relevant trials and to compare the effectiveness of treatments.

(Source: <https://pipelinereview.com>)

## ➡ AI helps to diagnose SARS-CoV-2

Artificial intelligence company *Infervision* has launched a coronavirus AI solution that helps front-line healthcare workers detect and monitor the disease efficiently. Imaging departments in healthcare facilities are being taxed with the increased workload created by the virus. This solution improves the speed of CT diagnosis. A number of e-commerce ventures are using this AI powered technological solution which is able to diagnose the virus in seconds.

(Source: <https://www.forbes.com>)



## ➔ LAMP technology for COVID-19 testing



(Photo credit: Fernando Zhiminaicela/Pixabay)

A company named Color has come up with a LAMP technology for the testing of COVID-19.

The U.S. FDA

has authorized this innovative technology. The company has published its protocol for LAMP for other laboratories to replicate. LAMP is a molecular testing technology that delivers COVID-19 test results with accuracy equivalent to reverse transcription polymerase chain reaction (RT-PCR). But the high-throughput automation and rapid lab scale-up of this technology is more vibrant.

In RT-PCR viral genome segments are amplified through a method that requires multiple cycles of heating and cooling. In LAMP, however, amplification of viral genome segments takes place at a consistent temperature. Through this unique feature, many of the steps in LAMP can be automated, cutting down the time it takes to process samples. LAMP testing can happen 50% faster than RT-PCR testing for COVID-19. It also requires a different set of chemical reagents which means the Color can avoid supply chain issues that have created backlogs for other test providers.

(Source: <https://www.color.com>)

## ➔ CytoSMART Live-Cell Imaging System monitors virus cell cultures remotely

CytoSMART Technologies plans to donate 100 mini live-cell imaging systems to researchers in high containment labs around the world. The company believes

this initiative will help mitigate the huge workload currently faced by researchers on projects vital to combat COVID-19.



This technology assists researchers by minimizing the time they have to spend in high-contamination labs, by providing them with remote video access to evaluate the status of their cell cultures. The video data is used to remotely monitor the cytopathic effect; the researchers can thus know when it is the right time to harvest the virus.

(Source: <https://www.prnewswire.com>)

## ➔ “GermiKlean” to sanitise uniforms

To combat COVID-19, DRDO (Defence Research and Development Organisation) has designed and developed a dry heat treatment chamber called 'GermiKlean' to sanitise uniforms of security forces. This chamber is designed to sanitise 25 pairs of uniforms within 15 minutes. The sanitizing chamber has been set up at the Parliament Street Police Station.

(Source: ANI)



**NGS technology to expedite COVID-19 contact tracking**

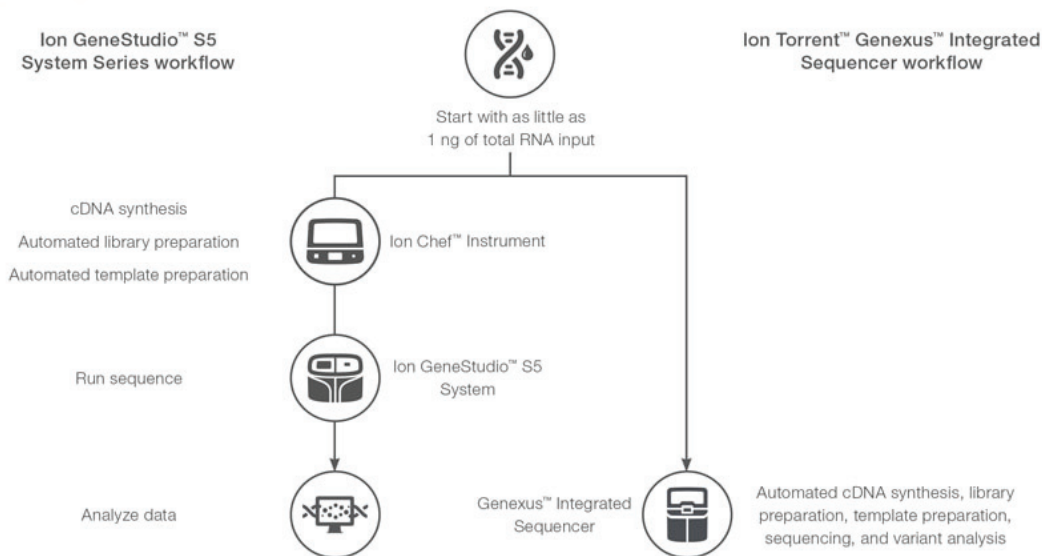
After considerable lockdown measures, many countries have begun to ease restrictions and allow some businesses to reopen. In this situation, contact tracing and epidemiological studies will be critical to understand resurgence of potential COVID-19 outbreaks. To expedite such analysis, Thermo Fisher Scientific has now

optimized its Ion AmpliSeq SARS-CoV-2 Research Panel for the Ion Torrent Genexus System.

The advanced NGS technology can quickly track the virus and enable health agencies to determine the next steps. Access to rapid, simple and automated sequencing with the Genexus System can accelerate the development of critical data.

(Source: <https://www.biocompare.com>)

Targeted NGS workflow for the Ion AmpliSeq SARS-CoV-2 Research Panel



(Photo credit: [www.thermofisher.com](http://www.thermofisher.com))

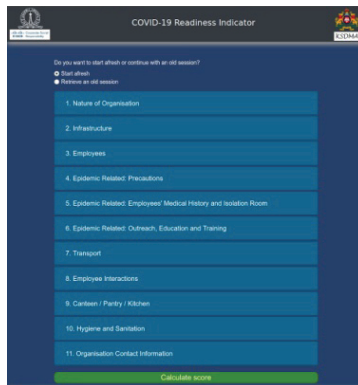
**AMTZ Mobile Diagnostic Unit for COVID Testing-I-Lab**

The Minister for Science & Technology, Earth Sciences and Health & Family Welfare Dr Harsh Vardhan inaugurated and flagged off India's first I-Lab (Infectious disease diagnostic lab) for COVID testing in rural and inaccessible areas of India on 18 June 2020. The unique feature of these mobile testing labs is their utility in diagnosing other infectious diseases beyond the COVID period.

(Source: PIB)



## Workplace readiness tool



An online self-assessment tool known as the COVID-19 Workplace Readiness Indicator has been developed by a team of IISc researchers, in collaboration

with the Karnataka State Disaster Management Authority (KSDMA). The Workplace Readiness Indicator is an advisory tool that can enable organisations to understand their current level of preparedness and key risk areas. It will also help them plan and establish pandemic-specific policies, procedures, and necessary management practices. “The tool not only scores an organisation’s readiness but also provides some targeted suggestions if specific weaknesses are identified,” says Nihesh Rathod, a Cisco-IISc PhD scholar at the Department of Electrical Communication Engineering, IISc, who helped develop the tool.

(Source: IISc)

## IISc researchers find 29 drugs

IISc (Indian Institute of Science) researchers have identified 29 drugs that have the potential to treat COVID 19. This was achieved using a simple in silico (performed on the computer) approach based on the principle of ‘neighbourhood behaviour’ in three-dimensional (3D) space and two-dimensional (2D) space of protein and small molecules respectively.

(Source: timesofindia.indiatimes)

## Diagnostic kits for COVID-19



The Indian Institute of Technology (IIT) Guwahati, in association with RR Animal Healthcare Ltd. and Guwahati Medical College and Hospital (GMCH), has developed low-cost diagnostic kits. These are Viral Transport Media (VTM) kits, RT-PCR kits, and RNA isolation kits. The VTM kits are the first-stop source used to collect nasal and oral swab specimens from an individual source to a laboratory safely for culture and testing.

(Source: PIB)

## AI-based system to monitor social distancing

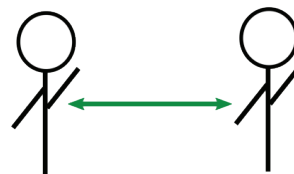


Image credit: Wikipedia

A team of researchers at IIT-Kharagpur has developed an AI-based cyber-physical system to monitor social distancing in public places. “The device will play a proximity alert sound through audio output, whenever any violation of the social distancing norms occurs. It captures images of the field view and computes the distance as per criteria set by the Ministry of Health and Family Welfare,” a member of the research group said.

(Source: thestatesman.com)



## #CSIRFightsCovid19

*Eversince the Coronavirus pandemic broke out, CSIR has mounted a strategic, well-coordinated and integrated approach towards mitigating the Coronavirus outbreak ranging from containing the spread of the virus by providing sanitisation and disinfection solutions to equipping the frontline workers and health warriors with protective gear, and from exploring repurposing of existing drugs to discovering new drugs and vaccines. Here are some major developments this week.*

### CSIR-CDRI Receives DCGI Permission for Clinical Trial of Umifenovir

CSIR-CDRI Lucknow, has received permission for carrying out Phase III Clinical Trial of antiviral Umifenovir on COVID-19 patients. It is a randomised, double blind, placebo controlled trial of efficacy, safety and tolerability of antiviral drug Umifenovir. The Phase III Clinical Trials will be carried out at King George's Medical University (KGMU), Dr. Ram Manohar Lohia Institute of Medical

Sciences (RMLIMS) and ERA's Lucknow Medical College & Hospital, Lucknow.

Umifenovir has a good safety profile and acts by preventing entry of the virus into human cells and also by priming the immune system. It is mainly used for treatment of influenza and is available in China and Russia, and has recently come into prominence due to its potential use for COVID-19 patients. To evaluate its efficacy in Indian patients, CSIR-CDRI has taken up its clinical trial.



Indian Institute of Sciences



विज्ञान और प्रौद्योगिकी विभाग  
DEPARTMENT OF  
SCIENCE & TECHNOLOGY

## CSIR-CDRI's candidate drug Umifenovir secures DCGI approval for Phase III Clinical Trial against COVID-19

Developed the process technology for Umifenovir in record time



The Phase III Clinical Trials will be carried out at King George's Medical University (KGMU), Dr. Ram Manohar Lohia Institute of Medical Sciences (RMLIMS) and ERA's Lucknow Medical College & Hospital, Lucknow.

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[www.drharshvardhan.com](http://www.drharshvardhan.com)

The Institute also developed the process technology for Umifenovir in record time and licensed the economical process technology for manufacturing and marketing the drug to M/s Medizest Pharmaceuticals Private Ltd., Goa, who have already received test license from DCGI.

### Repurposing & Developing New Drugs

To combat the virus, CSIR is exploring all avenues ranging from repurposing existing approved drugs to developing new drugs and exploring phytopharmaceuticals to develop drugs against COVID-19.

**Repurposing drugs:** CSIR is exploring already approved drug molecules to repurpose them for COVID-19 treatment. 25 key drug molecules have been identified, of which 8 not manufactured by the Indian industry have been shortlisted for CSIR development. The criteria for shortlisting included the availability of raw material, supply chain management issues, cost, etc. among other factors.

- CSIR-CSMCRI has made the sample of Camostat.
- CSIR-IICB has made Tilorone.
- CSIR-IIIM is working on Favipiravir fragment, ribavirin, and niclosamide synthesis.
- CSIR-NCL has submitted samples of Nitazoxanide, Ivermectin, Chloroquine, and Hydroxy-chloroquine to NIV for screening.
- CSIR-NIIST has begun to work on Galidesivir, Nitazoxanide, and EIDD 1931 & 2801 and is working on scale-up.
- CSIR-IICT has developed the process of Favipiravir and transferred to Cipla Ltd.

**Clinical Trials:** Clinical trials for various repurposed drugs and Phytopharmaceutical and Ayush drugs are at various stages of progress.

- **Favipiravir:** CSIR-IICT developed the process for Favipiravir synthesis and provided API and Key Starting Materials to Cipla which is carrying out a clinical trial. CSIR is also working on taking of combinations of other drugs with Favipiravir for clinical trials with industry partners. This is to improve the efficacy of treatment against COVID-19.
- **ACQH:** CSIR and Sun Pharma have received approval for Phase 2 clinical trial of a Phytopharmaceutical formulation ACQH developed by CSIR-IIIM and DBT-ICGEB for dengue. This is the first phytopharmaceutical to receive clinical approval and the trial will be conducted across 12 centers in India in 210 patients. The treatment duration will be 10 days and the results of the clinical trial are expected by October. The trial was initiated by Sun Pharma on 5 June.
- **Clinical Trials on Ayush Drugs:** CSIR with ICMR and Ministry of Ayush is conducting clinical trials for Ayurveda interventions as prophylaxis and as an add-on to standard care to COVID-19. They include Ayurvedic medicines such as Ashwagandha, Yashtimadhu, Guduchi Pippali, and a polyherbal formulation (Ayush-64). Trials to start soon. CROs and Hospitals for carrying out clinical trials have been identified.
- **Sepsivac clinical trials:** CSIR and Cadila Pharmaceuticals are conducting three clinical trials to evaluate the efficacy of an existing gram-negative sepsis drug,

called Sepisvac (Mw) for COVID-19. The three trials are on critically ill patients; hospitalized (but not critically ill) patients, and high-risk contacts of COVID-19. The clinical trial on critically ill patients is progressing well at AIIMS-Bhopal, AIIMS-New Delhi and PGI Chandigarh. Before the trial on critically ill patients, the safety of the drug was established in four patients with severe COVID-19 infection and adjunctive Mw.

**Clinical trials on convalescent plasma therapy:** CSIR-IICB has received approval for a clinical trial for plasma therapy. The plasma therapy RCT has been initiated in Kolkata. Currently, convalescent donors are being recruited and plasma being collected. The trial is underway.

### Digital & Molecular Surveillance

Surveillance at the level of the virus, humans, and geographical origins and distributions is a critical step in combating COVID-19. While *molecular surveillance* involves large-scale sequencing of viral genomes, *digital surveillance* utilizes big data at the population level. CSIR is using digital and molecular methods to conduct surveillance using a three-pronged approach; (i) gathering information about the virus (ii) pooled testing for greater outreach (iii) patient-centric approach

**Sequencing:** So far CSIR has sequenced >600 viral genomes with CSIR-IGIB having sequenced about 350 sequences and CSIR-CCMB nearly 300 sequences. Of these 258 viral genomes have been deposited in the GISAID database and more are expected in the coming week. This would help in understanding the Indian viral strains and specific mutations if any.

Apart from sequencing of the viral genomes, CSIR is also working on

sequencing host genomes. Towards this, transcriptomes of 20 individuals has been done and analysis is underway.

**SARS-CoV-2 Diagnostic Testing:** Eleven CSIR labs across India are conducting COVID-19 tests currently and 51,567 samples have been tested so far and over the last week, 9567 samples were tested.

### Rapid and Economical Diagnosis

The key to flattening the curve of growth in Coronavirus cases is the detection of the infected at the earliest and isolating them. A combination of digital and molecular surveillance with rapid diagnosis is the need and CSIR is striving towards that using multiple strategies. Ten CSIR labs across India are conducting COVID-19 tests currently. Together they have tested 39,794 tests so far. Over the last one week, they have tested 7271 samples.

- Based on technology of CRISPR-Cas Diagnostic test (FELUDA) developed by CSIR-IGIB, TATA Sons have prepared kits which will undergo validation at ICMR.
- Protocol of diagnostic methodology of testing using dry swab method and RNA extraction free, developed by CSIR-CCMB, has been submitted to ICMR. This will save reagents, time and pave way for increased testing.
- RT-LAMP assay developed by CSIR-IIIM and Reliance Industries Limited, has been submitted to ICMR for approval which has been assigned to NIV, Pune.
- CSIR-CCMB and Syngene working on NGS based large scale testing of COVID-19 patient samples; and have started validating the approach and amplicons using 4 barcode combinations

## Status of Coronavirus Sample Testing

### A. CSIR labs engaged in Sample Testing of Coronavirus:

- 1) CSIR-Centre for Cellular & Molecular Biology (CSIR-CCMB), Hyderabad
- 2) CSIR-Institute of Microbial Technology (CSIR-IMTech), Chandigarh
- 3) CSIR-Indian Institute of Integrative Medicine (CSIR-IIIM), Jammu with NCDC, Delhi
- 4) CSIR-National Environment Engineering Research Institute (CSIR-NEERI), Nagpur
- 5) CSIR-Indian Institute of Toxicological Research (CSIR-IITR), Lucknow
- 6) CSIR-Institute of Himalayan Bioresource Technology (CSIR-IHBT), Palampur
- 7) CSIR-Central Drug Research Institute (CSIR-CDRI), Lucknow
- 8) CSIR-Central Leather Research Institute (CSIR-CLRI), Chennai
- 9) CSIR-Indian Institute of Petroleum (CSIR-IIP), Dehradun
- 10) CSIR-North East Institute of Science & Technology (CSIR-NEIST), Jorhat

### B. CSIR labs supporting State Governments in Testing:

- CSIR-Nation Institute of Oceanography (CSIR-NIO), Goa
- CSIR-National Institute of Interdisciplinary Science & Technology (CSIR-NIIST), Thiruvananthapuram

### C. CSIR labs ready for Sample Testing:

- CSIR-Indian Institute of Chemical Biology (CSIR-IICB), Kolkata
- CSIR-National Botanical Research Institute (CSIR-NBRI), Lucknow
- CSIR-Central Institute of Medicinal and Aromatic Plants (CSIR-CIMAP), Lucknow

## Hospital Assistive Devices & PPEs

Ever since the pandemic reared its devastating head in the country, CSIR has been introducing low-cost and effective hospital assistive devices and PPEs and consistently improving their efficiency and design. CSIR has made considerable progress in this area and many technologies and designs have been transferred to the industry while some are at the stage of beta testing, which will be followed by certification. The progress in some of the PPEs during the week is as follows:

### Respiratory Assistance Intervention Device, (Respi-AID), CSIR-CSIO:

- Functional testing of the developed prototype as per targeted specifications has been completed using Ventilator calibrator and artificial test lung.
- Incorporated oxygen and air blending circuit with oxygen concentration monitoring in the developed prototype. Developed PEEP module and incorporated in the developed prototype. Detailed design files are prepared.

- Validation of the developed prototype is done through anaesthesiologist of GMCH, Chandigarh.
- Certification testing through Apex Quality Certification Services Pvt. Ltd., Jaipur, completed.
- Technology transfer is done with M/s Sivapriya Exim Pvt Ltd., Chennai and 5 units launched for production; production capacity is 200/month.

**Oxygen Concentrator developed by CSIR-NCL:** Certified by TUV Rheinland and clinical trials have been initiated by Naidu Hospital, Pune. BEL is the industry partner.

**Poly Ti Nano coated Face masks developed by CSIR-NCL:** Production has been initiated and capacity is 7000/day (Rs 45/piece) with 20,000 masks under manufacturing.

**UV sterilized Hydrophobic Facemask developed by CSIR-CMERI:** SITRA approved and 75,000 have been produced. Power Tech Mining and Gaurav Pharmaceuticals are industry partners.

**Pedal operated hand washer developed by CSIR-CSIO:** Jupiter Aqua Lines is the industry partner and >18,000 have been produced.

**Intubation Hood:** Developed by CSIR-IMMT for doctors who require a transparent hood when carrying out treatment procedures such as intubation. Dentists can also use these during any oral examination. It is made of acrylic sheets and cutting can be done using laser cutters. Design can be modified by special needs of different types of doctors while examining the patients. Based on the need of doctors at



AIIMS Bhubaneswar, Intubation hoods have been designed and delivered. The industry partner is M/s Gitanjali Awards Pvt. Ltd.

**Medical Waste Disinfection Machine:** CSIR-IITR in tie-up with a Lucknow based start-up has developed a microwave-based disinfection machine 'Optimiser' which can make PPE kits and N95 masks reusable within 10 minutes. As many as 20 PPE kits and over 40 N95 masks can be disinfected in one go using the microwave technology within 10 min. A PPE kit and an N95 mask can be recycled and reused 20 times using the 'Optimiser' machine. Over 2,000 PPE kits can be disinfected in a day which will save the cost of the new safety gears.

The All India Institute of Medical Sciences (AIIMS) in Jodhpur and Sanjay Gandhi Post Graduate Institute of Medical Sciences (SGPGIMS) in Lucknow have validated the technology.

# CSIR Media Coverage

**the pioneer**  
LUCKNOW | THURSDAY, JUNE 18, 2020  
https://www.dailypioneer.com/uploads/2020/06/paper/june/lucknow-english-edition-2020-06-18.pdf

## CDRI to start clinical trials of drug for Covid-19 treatment

**PHS | LUCKNOW**

In the battle against Covid-19, CDRI has received permission from the Drug Controller General of India to conduct clinical trials of a drug which it has come up with recently. CDRI director Tapas Kundu said it would be one of the cheapest drugs for the treatment of Covid-19.

"Central Drug Research Institute has received permission for carrying out controlled trials of efficacy, safety and tolerability of antiviral drug 'Umifenovir'. The Phase III clinical trials will be carried out at KGMU, RMLIMS and Era Lucknow Medical College & Hospital," media spokesperson Santosh Yadav said.

"This drug has a good safety profile and acts by preventing entry of virus into human cells and also by priming the immune system. CDRI came up with this drug by carrying out a reverse-engineering of drugs where they equipped a number of drugs. We have also developed a process tech-

time and licensed the economical process technology for manufacturing and marketing the drug to M/s Mediant Pharmaceuticals Private Ltd (Govt) that has already received test license from DCGI," he explained. Kundu said all the raw materials for the drug are indigenously available and if the clinical trial is successful, 'Umifenovir' can be a safe, efficacious, affordable drug against Covid-19 and can be part of the National Programme against the disease.

Prof. He added that this drug has the potential for prophylactic use.

CDRI Shikhar Mande Shikhar Mande said the clinical trial is an integral part of the CDRI strategy of reverse-engineering drugs for Covid-19 and commented the team of CDRI scientists. The clinical trial application was processed on high priority as per the DCGI's initiative against Covid-19. The next steps of the trial are being fast-tracked to enable the availability of the drug to patients as soon as possible.



An advertisement shows a bottle of Umifenovir which is used in the clinical trial.

## ଆଇଏମଏମଟି ପ୍ରସ୍ତୁତ କଲା ଇନଟ୍ୟୁଭେସନ୍ ଡ୍ରୁଗ୍ ତାଲୁର ଓ ସ୍ୱାସ୍ଥ୍ୟକର୍ମୀଙ୍କୁ ସଂକ୍ରମଣରୁ ରକ୍ଷା କରିବ

**ଭୁବନେଶ୍ୱର: ଶାନ୍ତି (ସ୍ୱା) ଚକୋଲୋଗିକା ଚିକିତ୍ସାରେ ନିରାକୃତ ଚାନ୍ଦି ଓ ସ୍ୱାସ୍ଥ୍ୟକର୍ମୀଙ୍କୁ ସଂକ୍ରମଣରୁ ରକ୍ଷା କରିବ। ଏବଂ ବି ଏକ ଆୟୁର୍ବେଦ ଚିକିତ୍ସାରେ ନିରାକୃତ ଆୟୁର୍ବେଦ ଚିକିତ୍ସାରେ ରକ୍ଷା କରିବ। ଚକୋଲୋଗିକା ଚିକିତ୍ସାରେ ନିରାକୃତ ଆୟୁର୍ବେଦ ଚିକିତ୍ସାରେ ରକ୍ଷା କରିବ। ଚକୋଲୋଗିକା ଚିକିତ୍ସାରେ ନିରାକୃତ ଆୟୁର୍ବେଦ ଚିକିତ୍ସାରେ ରକ୍ଷା କରିବ।**



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## IMMT tool to keep docs safe

**IMMT Shikhar Mande**

Bhubaneswar: The Institute of Materials and Technology (IMMT) has developed a tool to keep doctors safe while treating patients with COVID-19. The tool is a mobile application that provides real-time updates on the status of patients and helps doctors to manage their workload. The tool is being used in various hospitals across Odisha.

While treating patients suffering from COVID-19, doctors are at a high risk of infection. The tool helps doctors to manage their workload and provides real-time updates on the status of patients. The tool is being used in various hospitals across Odisha.



The person is using the IMMT tool to manage their workload and provide real-time updates on the status of patients.

## सीएसआईआर-आईएमएमटी ने एरसोल बाँक्स को डिजाइन किया

**नवभारत न्यूज**

भुवनेश्वर को उनके उपयोग के लिए दिए गए हैं. दुनियाभर में भी स्वास्थ्यकर्मी कोविड-19 रोगियों के उपचार के दौरान इस तरह के एरोसोल बक्से का उपयोग कर रहे हैं. यदि कोरोना मरीजों को सख्ता बंदनी राही तो इसी तरह के बक्से की बहुत आवश्यकता होगी. इसका बड़े पैमाने पर उत्पादन और आपूर्ति करने के लिए सीएसआईआर-आईएमएमटी ने एचएसएम सोल्यूशंस लिमिटेड को सौंप दिया है. लिमिटेड डिजाइन के तीन इटैलिंग बाँक्स एचएसएम सोल्यूशंस लिमिटेड को सौंप दिया है.



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## IITR, Lucknow startup develop tech to disinfect P N95 masks for reuse

**ET Healthworld**

"The technology has the capability to disinfect P and N95 masks within 10 minutes. It has been tested by the All-India Institute of Medical Sciences (AIIMS) Jodhpur, and Sanjay Gandhi Postgraduate Institute Medical Sciences (SGPGMS), Lucknow, and has received positive reviews. We have filed for a joint patent of the technology," said IITR director Prof. Dhawan.

Mohita Tewari • TNN • June 15, 2020, 15:10 IST



A person wearing a blue protective suit and mask, holding a device used for disinfecting masks.

## CSIR-CDRI's COVID-19 drug candidate Umifenovir secures DCGI approval for phase III clinical trial

**BioVoice News Desk**

This drug has a good safety profile and acts by preventing the entry of virus into human cells and also by priming the immune system.

By BioVoice News Desk • June 17, 2020



A person wearing a blue protective suit and mask, holding a device used for disinfecting masks.

## CSIR for caution on global data use for COVID-19 studies

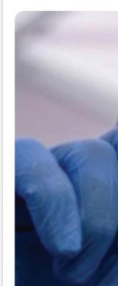
**THE NEW INDIAN EXPRESS**

Express News Service | Published: 16th June 2020 01:59 AM

### CDRI to begin trials of influenza drug

**Chandan Kumar**

LUCKNOW: Central Drug Research Institute (CDRI), Lucknow, will begin clinical trials of the influenza drug Umifenovir on 130 people who have tested positive for Covid-19 in the state capital after getting the go-ahead from the Drug Controller General of India. The trials will begin in the last week of June. They are aimed at



A person wearing a blue protective suit and mask, holding a device used for disinfecting masks.

## Uttar Pradesh: CDRI to start clinical trials of Umifenovir for Covid treatment

**TOI**

Updated: Jun 18, 2020, 06:26 IST



A person wearing a blue protective suit and mask, holding a device used for disinfecting masks.

## CSIR gets nod for Phase III trial of antiviral drug Umifenovir

**DNA**

DNA Web Team | Updated: Jun 19, 2020, 08:57 AM IST

The drug prevents the entry of the virus into human cells and also acts by priming the immune system.



A person wearing a blue protective suit and mask, holding a device used for disinfecting masks.

# CSIR Media Coverage

## सीडीआरआई ने चीन-रूस में इस्तेमाल हो रही एंटीवायरल दवा तैयार की

कोरोना के मरीजों पर होगा क्लीनिकल ट्रायल, उमीफेनोविर की प्रॉसेस टेक्नॉलॉजी अब तक रूस-चीन के ही पास थी

यह दवा रूसी और चीनी प्रयोगशालाओं के वैज्ञानिकों द्वारा तैयार की गई है। रूसी वैज्ञानिकों ने इस दवा को 'उमीफेनोविर' नाम दिया है।

**असुर उन्नावर खुरो**

लखनऊ: सीडीआरआई की टीम ने एंटीवायरल दवा तैयार की है। इस दवा को 'उमीफेनोविर' नाम दिया है। यह दवा चीन और रूस में पहले से इस्तेमाल हो रही थी।

सीडीआरआई के वैज्ञानिकों ने इस दवा को तैयार करने में 15 महीने का समय लगा है।

इस दवा को तैयार करने में सीडीआरआई के वैज्ञानिकों ने चीन और रूस के वैज्ञानिकों से मदद ली है।

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## कोरोना इलाज को सीडीआरआई की ड्रग रेडी

एंटीवायरल ड्रग उमिफेनोविर को मिली परीक्षण की अनुमति

लखनऊ (एएनआई)। रूसी ड्रग फर्म इन्टैटोव (सीडीआरआई) को एंटीवायरल दवा को तैयार करने की अनुमति मिली है।

इस दवा को तैयार करने में सीडीआरआई के वैज्ञानिकों ने चीन और रूस के वैज्ञानिकों से मदद ली है।

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## सीडीआरआई कोरोना की दवा बनाने के करीब

15 महीने के संश्लेषण के बाद तैयार होगी दवा, वैज्ञानिकों को मिली परीक्षण की अनुमति

लखनऊ: सीडीआरआई के वैज्ञानिकों ने कोरोना की दवा बनाने के करीब पहुंचे हैं।

इस दवा को तैयार करने में सीडीआरआई के वैज्ञानिकों ने चीन और रूस के वैज्ञानिकों से मदद ली है।

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## उमीफेनोविर के क्लिनिकल ट्रायल को मंजूरी

कोरोना से जंग: उमीफेनोविर को तैयार करने की अनुमति मिली

लखनऊ: उमीफेनोविर के क्लिनिकल ट्रायल को मंजूरी मिली है।

इस दवा को तैयार करने में सीडीआरआई के वैज्ञानिकों ने चीन और रूस के वैज्ञानिकों से मदद ली है।

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## NEERI, DLSA to teach sanitisation techniques to migrant labourers

कोरोना से जंग: सीडीआरआई ने वैज्ञानिक दवा निर्माण की प्रॉसेस टेक्नॉलॉजी

लखनऊ: सीडीआरआई के वैज्ञानिकों ने कोरोना की दवा बनाने के करीब पहुंचे हैं।

इस दवा को तैयार करने में सीडीआरआई के वैज्ञानिकों ने चीन और रूस के वैज्ञानिकों से मदद ली है।

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## CSIR launches 'AarogyaPath' to provide real-time availability of critical healthcare supplies

कोरोना से जंग: उमीफेनोविर को तैयार करने की अनुमति मिली

लखनऊ: उमीफेनोविर के क्लिनिकल ट्रायल को मंजूरी मिली है।

इस दवा को तैयार करने में सीडीआरआई के वैज्ञानिकों ने चीन और रूस के वैज्ञानिकों से मदद ली है।

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इस दवा को तैयार करने में सीडीआरआई के वैज्ञानिकों ने चीन और रूस के वैज्ञानिकों से मदद ली है।

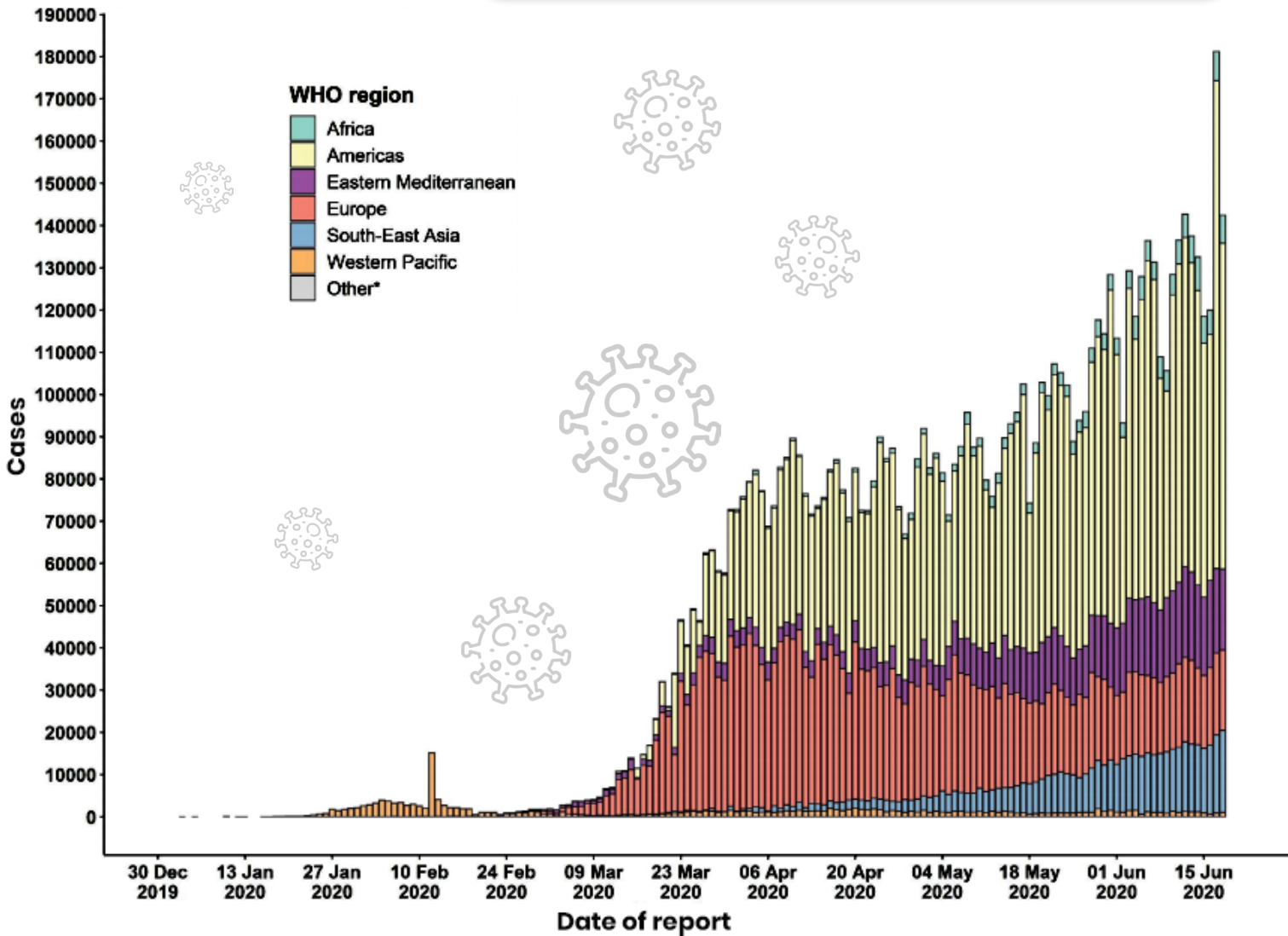
इस दवा को तैयार करने में सीडीआरआई के वैज्ञानिकों ने चीन और रूस के वैज्ञानिकों से मदद ली है।

# COVID-19 Dashboard

## COVID-19 Cases and Deaths in World

(Data as of 19 June 2020)

Worldwide	
Total Confirmed Cases	8385440
New Cases	142451
Total Death	450 686
Total New Death	5151



Graph India

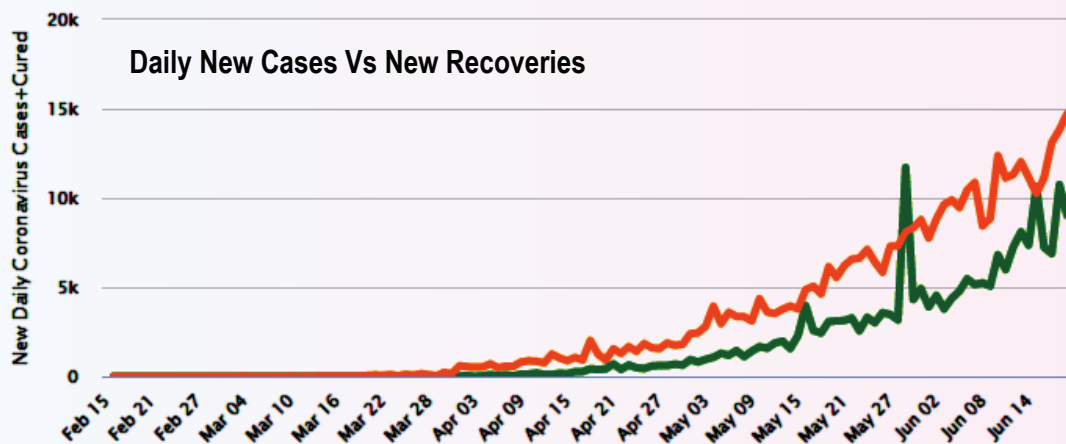
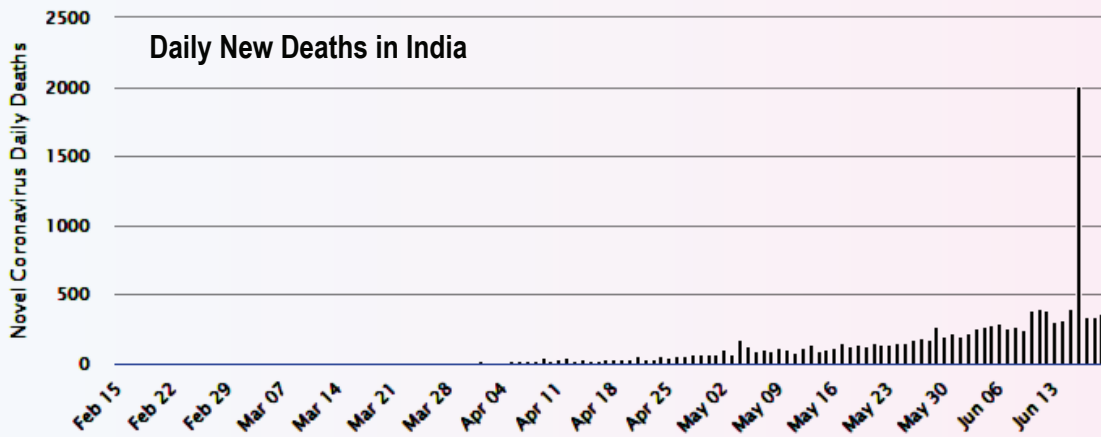
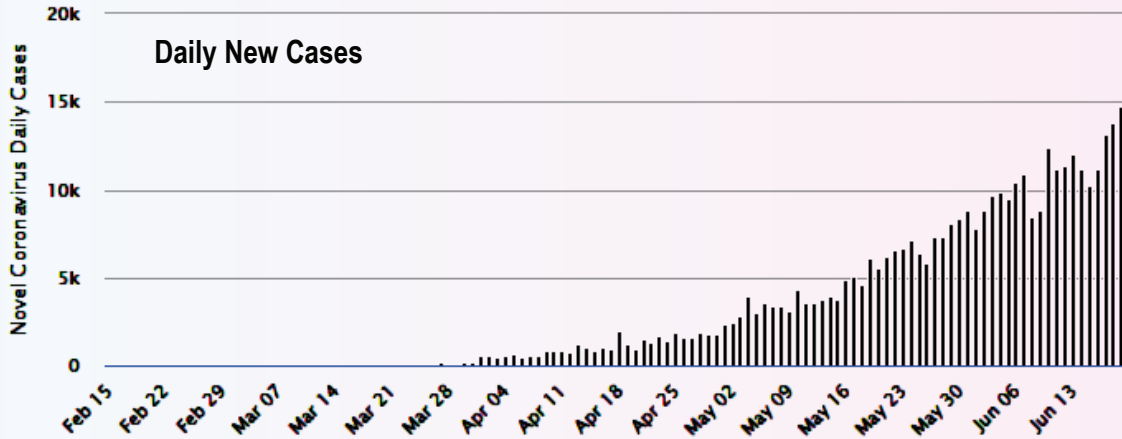
168269 Active Cases

213830 Cured / Discharged

12948 Deaths

1 Migrated

Source: www.mygov.in

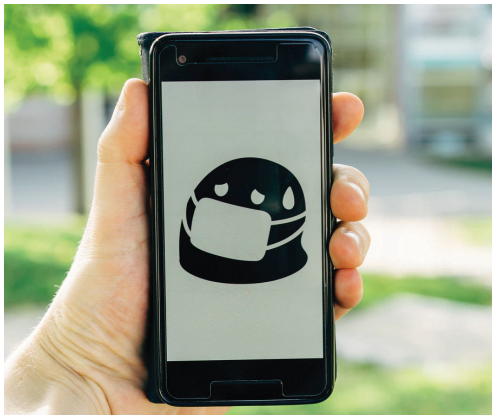


Source: www.worldometers.info



## CORONA Q&A

**How easy is it to get sick via germs from your phone?**



According to the CDC, the virus may remain for several hours to days on surfaces like glass, metal and plastic. The CDC refers to phones and tablets as "high touch" surfaces. Phones are conduits for many germs. It is possible to contract germs from your phone, especially if touching it before touching your face or mouth without first washing your hands. While it is important to clean and disinfect your phone, you'll want to do so in a way that does not damage it. Though tempting to use, everyday disinfectant and household cleaners could damage the phone. Some phone manufacturers recommend using a soft, lint free microfiber cloth with warm soapy water. Make sure to unplug and turn off the phone before cleaning. You should remove the case and clean it separately. Refer to the case's packaging or informational materials for proper cleaning instructions. Ensure the case is dry before placing back on the phone.

[www.asm.org](http://www.asm.org)

**Can I get coronavirus from riding an elevator?**



The level of risk in an elevator depends on many factors, including its size, how fast it travels between floors, how long its doors stay open and whether it has a ventilation system. Most elevators aren't big enough to allow people to stay six feet apart, so there's a chance that infected passengers could transmit the virus. And even if you're riding the elevator alone, buttons and side rails are a potential risk if your hands become contaminated and you touch your face, although the risk is low. The solution for those of us who must use elevators is to take common sense precautions. First, when possible, avoid riding with another person. And always wear a mask inside the elevator, even if you're riding alone — a mask will help protect you from the last passenger, and will protect the next passenger from your germs. Avoid touching your face after touching elevator buttons, and wash your hands afterward. And if you must ride with another person or two, don't get in unless everyone inside is wearing a mask.

[www.nytimes.com](http://www.nytimes.com)

### Can I get the virus if I'm outside?



The risk of outdoor transmission is low, but it is possible. There is a growing consensus among experts that, it's safer to be outside than in the office or the mall. With fresh air and more space between people, the risk goes down. But experts also expressed particular caution about outdoor dining, using locker rooms at pools and crowds in places like beaches. While going outside can help people cope with quarantine fatigue, there is a risk they will lower their guard or meet people who are not being safe. Ideally, you should socialize only with people who live in your home. If you decide to meet friends, you're increasing your risk, but you can take precautions. It's important to keep gatherings small. Don't share food, utensils or beverages; keep your hands clean, and keep at least six feet from people.

[www.nytimes.com](http://www.nytimes.com)

### Does the presence of antibodies mean that a person is immune?



No, currently, no study has evaluated whether the presence of antibodies to SARS-CoV-2 confers immunity to subsequent infection by this virus in humans. The development of antibodies to a pathogen through natural infection is a multi-step process that typically takes place over 1-2 weeks, but the process to develop a full immunologic response may be longer. Most COVID-19 studies on the presence of antibodies to date show that people who have recovered from infection have antibodies to the virus. However, some of these people have very low levels of antibodies able to neutralize virus in their blood.

[www.who.int](http://www.who.int)

### Are gloves recommended for the community in public spaces to protect against COVID-19, for example when going to the grocery store supermarket?



No, the use of gloves by the public in public spaces is not a recommended or proven prevention measure. Wearing gloves in public spaces does not replace the

need for hand hygiene, nor does it offer any additional measure of protection against the COVID-19 virus than hand hygiene. Gloves do not provide complete protection against hand contamination, as pathogens may gain access to the hands via small defects in gloves or by contamination of the hands during glove removal. People can also transfer pathogens from one surface to another by touching with gloved hands, or even transfer pathogens to the mouth, nose, or eyes if they touch their face with gloved hands.

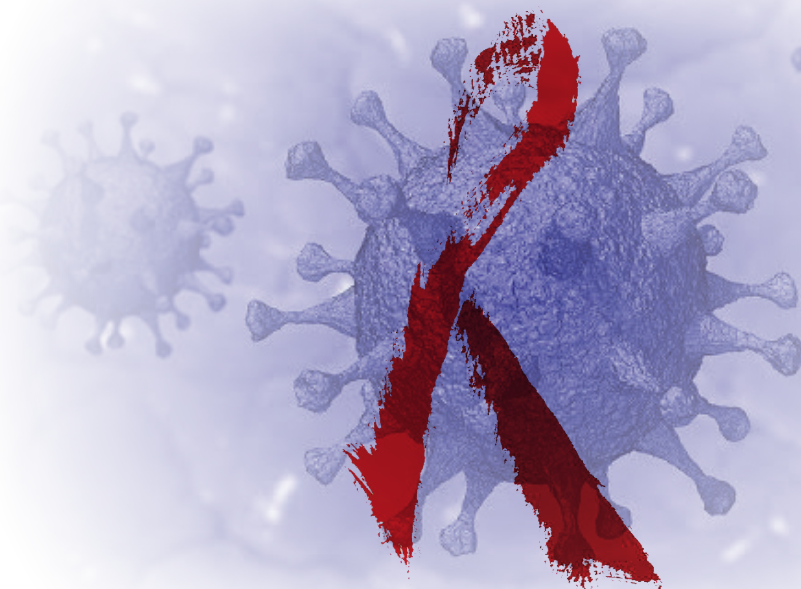
[www.who.int](http://www.who.int)

### **Are people living with HIV at increased risk of being infected with the virus that causes COVID-19?**


At present there is no evidence that the risk of infection or complications of COVID-19 is different among people living with HIV who are clinically and immunologically stable on antiretroviral treatment when compared with the general population. Some people living with HIV may have known risk factors for COVID-19 complications, such as diabetes, hypertension and other non-communicable diseases and as such may have increased risk of COVID-19 unrelated to HIV. We know


that during the SARS and MERS outbreaks there were only a few case reports of mild disease among people living with HIV. To date, there is a case report of a person living with HIV who had COVID-19 and recovered and a small study on risk factors and antiretrovirals used among people living with HIV with COVID-19 from China. This study reported similar rates of COVID-19 disease as compared to the entire population and increased risk with older age, but not with low CD4, high viral load level or antiretroviral regimen. Current clinical data suggest the main mortality risk factors are linked to older age and other comorbidities including cardiovascular disease, diabetes, chronic respiratory disease, and hypertension. Some very healthy people have also developed severe disease from the coronavirus infection. People living with HIV who are taking antiretroviral drugs should ensure that they have at least 30 days and up to 6-month supply of medicines and ensure that their vaccinations are up to date (influenza and pneumococcal vaccines). Adequate supplies of medicines to treat co-infections and comorbidities and addiction should also be ensured.

[www.who.int](http://www.who.int)




# A set of 15 promises, we need to follow, as part of COVID Appropriate Behaviours – MoHFW


1.  Greet without physical contact


2.  Maintain physical distance  
2 Gaj ki Doori  
(6 feet)


3.  Wear reusable face cover or mask

4.  Avoid touching eyes, nose and mouth


5.  Maintain respiratory hygiene


6.  Wash hands frequently and thoroughly

7.  Do not chew tobacco, khaini etc. or spit in the public places


8.  Regularly clean and disinfect frequently touched surfaces

9.  Avoid unnecessary travel


10.  Do not discriminate against anyone

11.  Discourage crowd - Encourage Safety

12.  Do not circulate social media posts which carry unverified or negative information

13.  Seek information on COVID-19 from credible sources

14.  Call National Toll-free helpline 1075 or State helpline numbers for any queries

15.  Seek psychosocial support for any stress or anxiety



# #Healthy@Home



## *Mental health*

As countries introduce measures to restrict movement as part of efforts to reduce the number of people infected with COVID-19, more and more of us are making huge changes to our daily routines.

The new realities of working from home, temporary unemployment, home-schooling of children, and lack of physical contact with other family members, friends and colleagues take time to get used to. Adapting to lifestyle changes such as these, and managing the fear of contracting the virus and worry about people close to us who are particularly vulnerable, are challenging for

all of us. They can be particularly difficult for people with mental health conditions.

Fortunately, there are lots of things that we can do to look after our own mental health and to help others who may need some extra support and care.

Here are some tips.

- **Keep informed.** Listen to advice and recommendations from your national and local authorities. Follow trusted news channels, such as local and national TV and radio, and keep up-to-date with the latest news from @WHO on social media.

- **Have a routine.** Keep up with daily routines as far as possible, or make new ones.
  - » Get up and go to bed at similar times every day.
  - » Keep up with personal hygiene.
  - » Eat healthy meals at regular times.
  - » Exercise regularly.
  - » Allocate time for working and time for resting.
  - » Make time for doing things you enjoy.
- **Minimize newsfeeds.** Try to reduce how much you watch, read or listen to news that makes you feel anxious or distressed. Seek the latest information at specific times of the day, once or twice a day if needed.
- **Social contact is important.** If your movements are restricted, keep in regular contact with people close to you by telephone and online channels.
- **Alcohol and drug use.** Limit the amount of alcohol you drink or don't drink alcohol at all. Don't start drinking alcohol if you have not drunk alcohol before. Avoid using alcohol and drugs as a way of dealing with fear, anxiety, boredom and social isolation. Be aware that alcohol and drug use may prevent you from taking sufficient precautions to protect yourself against infection, such as compliance with hand hygiene.
- **Screen time.** Be aware of how much time you spend in front of a screen every day. Make sure that you take regular breaks from on-screen activities.
- **Video games.** While video games can be a way to relax, it can be tempting to spend much more time on them than usual when at home for long periods. Be sure to keep the right balance with off-line activities in your daily routine.
- **Social media.** Use your social media accounts to promote positive and hopeful stories. Correct misinformation wherever you see it.
- **Help others.** If you are able to, offer support to people in your community who may need it, such as helping them with food shopping.
- **Support health workers.** Take opportunities online or through your community to thank your country's health-care workers and all those working to respond to COVID-19.

### Don't discriminate

Fear is a normal reaction in situations of uncertainty. But sometimes fear is expressed in ways which are hurtful to other people. Remember:

- Be kind. Don't discriminate against people because of your fears of the spread of COVID-19.
- Don't discriminate against people who you think may have coronavirus.
- Don't discriminate against health workers. Health workers deserve our respect and gratitude.
- COVID-19 has affected people from many countries. Don't attribute it to any specific group.

(Source: WHO)

FACT  
CHECK

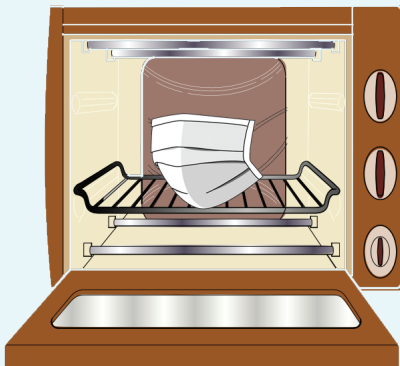
# COVID-19 MYTH BUSTERS

**MYTH** ❌

**Sesame oil blocks the new coronavirus from entering the body**



**Face masks can be reused if sterilized in a microwave**



**Algae offer the best treatment for coronavirus**



**FACT** ✅

No, sesame oil does not kill the new coronavirus. There are some chemical disinfectants that can kill the 2019-nCoV on surfaces. These include bleach/chlorine-based disinfectants, ether solvents, 75% ethanol, peracetic acid and chloroform. Scientists have also warned that if you put them on the skin or under your nose, it can turn out to be dangerous.

[www.newindianexpress.com](http://www.newindianexpress.com)

Heating up dirty face masks would only risk contaminating the inside of microwave ovens, even if the wire inside masks would spark a fire if microwaved. The face masks should not be reused unless advertised as washable. But if current shortages force one to use nonwashable types more than once, one is advised to wash them by gently “pushing” — instead of scrubbing — them multiple times in water mixed with a neutral detergent and then rinse them sufficiently and dry them, avoiding the use of a machine dryer in order to minimize damage.

[www.japantimes.co.jp](http://www.japantimes.co.jp)

There is some scientific evidence to show that red marine algae might help with certain viruses like herpes, but there is no evidence to show it will work against coronavirus.

[www.gulfnews.com](http://www.gulfnews.com)

**MYTH** ❌**Mustard oil in your nostrils will prevent COVID-19****Drinking chlorine dioxide will cure the virus****Using a mouthwash can kill the virus or prevent COVID-19****FACT** ✅

While mustard does contain some antiviral compounds, there is no proof so far that putting/applying mustard oil in the nose can protect you from coronavirus infection. Additionally, the nose isn't the only route of transmission. A study shows that the virus can transmit through any mucous membrane – like the ones of the mouth, eye as well as nose.

[www.firstpost.com](http://www.firstpost.com)

Bleach-based cleaners are helpful for keeping surfaces virus-free but they are NOT a cure for the coronavirus. In fact, chlorine dioxide is dangerous to human health and can cause vomiting, severe diarrhea and acute liver failure. The chemicals are dangerous when people put them on their skin, under their noses, or in their mouths, and they have “little or no impact on the virus”, warned the World Health Organisation.

[www.gulfnews.com](http://www.gulfnews.com)

No, there are no clinical studies supporting the virucidal effects of any pre-procedural mouth rinse against the coronavirus. But even if mouthwash temporarily killed off coronavirus in the mouth and upper throat, that doesn't mean it would reduce the spread of COVID-19. Mouthwashes with low concentrations of hydrogen peroxide may help treat gum disease caused by bacteria.

[www.medicalxpress.com](http://www.medicalxpress.com)

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