COVID-19 BULLETIN

9 JUNE 2020

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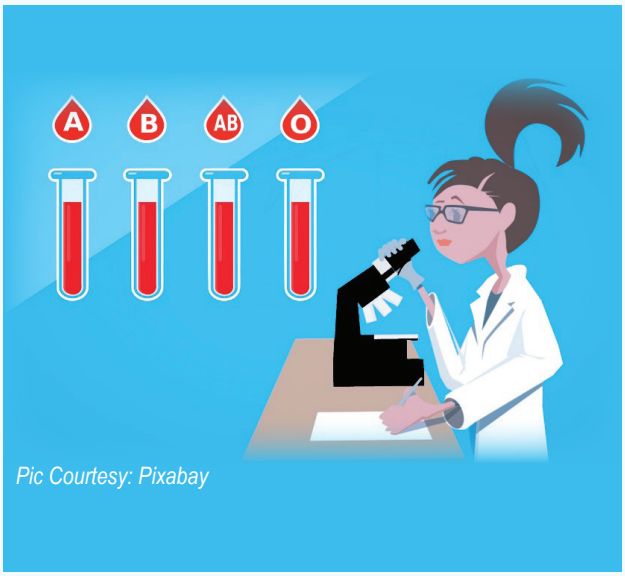
CORONA RESEARCH SNAPSHOT

Blood group might have a correlation to COVID-19 infection risk

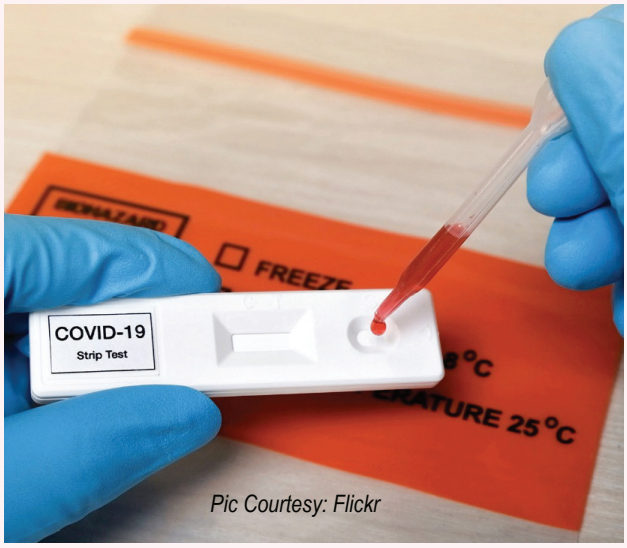


Pic Courtesy: Pixabay

Scientists of Oslo Hospital analysed the genomes of approximately 4,000 people from Spain and Italy, out of which 1,980 were already infected with COVID-19 and had encountered respiratory failure, the rest were healthy people. The possibility of carrying either of two gene variants was higher in severely infected COVID-19 patients than in healthy people. The analysis of data found people with A+ blood group had increased risk of lung failure and 'O' blood group people were found to be protected to some extent. The study is not peer-reviewed yet.

Source: Nature News, Preprint available at medRxiv: http://doi.org/dxk7

Antibody tests may underestimate the number of infected people



Pic Courtesy: Flickr

In response to COVID-19 attack, immune cells produce antibodies which can be detected to confirm the infection in a person. However, a very large number of infected people remain asymptomatic and the amount of antibodies in their blood samples varies from person-to-person. Researchers have voiced doubts that the amount of antibodies in the blood sample of people with less symptoms or asymptomatic people might be smaller than that of the severely infected people. Since diagnostic kits are mostly calibrated with samples from severely infected people with larger amount of antibodies in the blood, the devices/kits may underestimate the symptomatic people with less antibodies in the blood sample. Researchers from the University of California, USA are studying this phenomenon in detail. The primary results are available as pre-print and the study is still under peer-review.

Source: *Nature News* and Preprint at OSF Preprints: http://doi.org/dxc2

WHO to resume clinical trials for Hydroxychloroquine

Hydroxychloroquine (Pic Courtesy: Flickr)

Clinical trials for the anti-malaria drug Hydroxychloroquine in the treatment of COVID-19 are to be resumed by the World Health Organization. WHO took this step after strong opposition from several Indian scientists including Director General CSIR. The journal *The Lancet* also retracted the controversial statistical study which claimed poor safety concerns and ineffectiveness of Hydroxychloroquine in the treatment of COVID-19.

Source: *WHO Newsletter,* 04 June, 2020

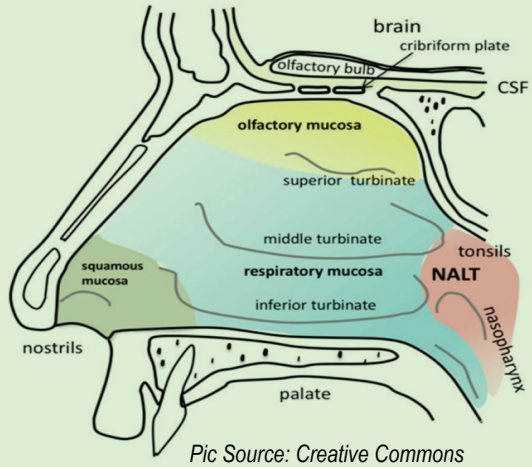
Cases of child obesity worsen during lockdowns


Pic Courtesy: Flickr

A recently published study on child obesity is raising concerns about the effects of lockdowns implemented to curb the COVID-19 infection. The study was performed in Italy among children and teens with obesity. The researchers collected information related to lifestyle such as diet, activity and sleep for three weeks. It was concluded that the children demonstrated negative change in behaviour and weight control. The study is published in the journal *Obesity* after peer review.

Source: *Obesity*, 2020; DOI: 10.1002/oby.22861

Nose could be the easiest entry point in the human body for COVID-19



Pic Source: Creative Commons

According to a recent study published in the reputed journal *Cell*, it is estimated that the nose could be the easiest entry point for the COVID-19 to enter into the human body and infect the respiratory system. Researchers from the University of North Carolina, USA studied the ease of infection of COVID-19 in various cells types of the respiratory tract. It has been found that the cells of the nasal cavity are the most easily infected cells. These findings support the use of mask and nasal cleansing to minimise the chances of infection.

Source: *Cell*, http://doi.org/dw2j

CORONA INNOVATIONS

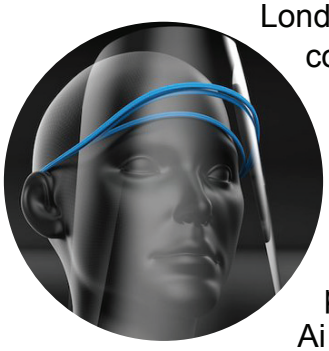
3D printed copper 'SPEE3D' kills coronavirus

Australia-based metal 3D printing company ***SPEE3D*** has successfully developed and tested a rapid and affordable 3D printed anti-microbial copper, which can kill the COVID-19 virus on metal surfaces. The process is called ACTIVAT3D copper. In this SPEE3D technology, existing metal parts are coated with copper harnessing the material's ability to eradicate bacteria, yeasts and viruses on contact. SPEE3D breaks down the cell wall and destroys the genome of the virus and other microorganisms.

Tests have shown that 96% of the viruses were killed in only two hours and 99.2% of the viruses were killed in five hours. Stainless steel which is commonly used showed no reduction of virus in the same time frame. SPEE3D enabled fixtures have already been installed at the Charles Darwin University in Darwin, Swinburne University in Melbourne, the University of Delaware in the USA and in Japan.

Source: https://www.tctmagazine.com)

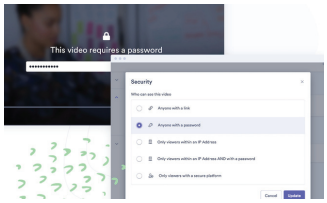
Ai Build open sources face shield design



London-based technology company ***Ai Build*** has done open source of a face shield design that can be produced with desktop 3D printing technology. Ai Build has deployed its AiSync software to generate machine instructions using freeform multi-axis paths which produces a curved design of a single strand with variable thickness. This will accommodate the shape of the human head. This geometry gives the face shield strength and makes it more comfortable to wear.

Source: https://www.tctmagazine.com)

Video messaging to stay visible and productive



As more companies work from home during COVID pandemic, *Vidyard video messaging technology* enables coworkers to share updates through quick video messaging with the entire team. Teams collaborate quicker to stay productive. It takes only a few clicks to share a video in a secure way. While working from home during the pandemic, this technology enhances visibility, communication as well as productivity in a safe and secure manner.

Source: https://www.industryweek.com

SUMERU PACS by DRDO

The Defence Research Development Organisation (DRDO) has developed a device called SUMERU PACS which is a personal air circulation system that helps wearers of Personal Protective Equipment (PPE) to feel comfortable without sweating. The device weighing approximately 500 grams can be used as a small backpack inside the PPE. The device works well at an ambient temperature of 39 degrees Celsius and keeps the wearer comfortable and cool without sweating.

Source: aninews.in

With SUMERU-PACS

Without SUMERU-PACS

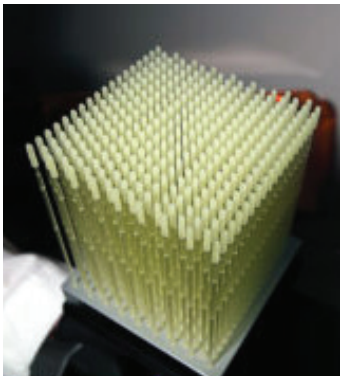
Condition of PPE Wearer after 45 minutes of wearing at ambient temperature of 39°C outdoors

"Ultra Swachh" for disinfection of PPEs

The Institute of Nuclear Medicine & Allied Sciences (INMAS), DRDO has developed a disinfection unit named "Ultra Swachh" with industry partner M/s Gel Craft Healthcare Private Ltd, Ghaziabad. The system can disinfect a wide range of materials, including Personal Protective Equipment (PPEs), electronics items, fabrics, etc. The system uses an advanced oxidative process comprising a multiple-barrier disruption approach using Ozonated Space Technology for disinfection.

Source: PIB

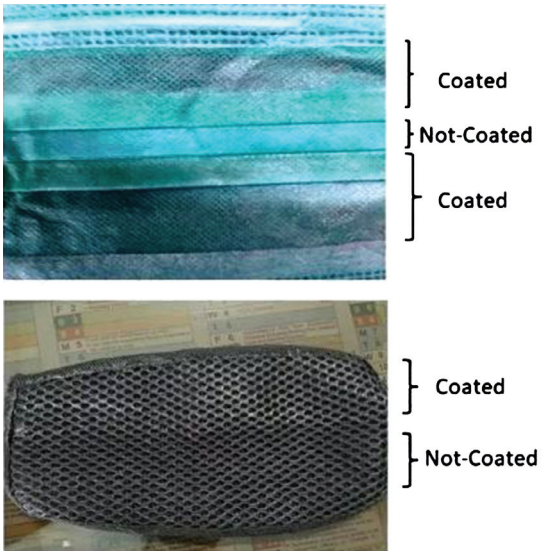
Coming together to address supply chain issues



Formlabs, a 3D printing company in Boston, is working to supply hospitals with 3D printed COVID-19 test swabs. To address the distribution and supply chain issues, Formlabs is mobilizing its users to deploy nearly 1000 printers to quickly mass-produce these swabs as well as other important Personal Protective Equipment (PPE). 300 test swabs can be produced by a single print at a time which enables Formlabs to produce 75000-150000 swabs per day. This development facilitates the smooth distribution of swabs and PPEs and rapidly provides hospitals with access to large quantities of these essential COVID-19 testing kit components. The company plans to print these swabs in-house and share the design files with its community as well as other healthcare systems.

Source: https://www.medicaldesignandoutsourcing.com

Anti-microbial nanocoating system



Face Masks Coated with Antibacterial & Antiviral Nano-coating

A team of researchers at IIT Roorkee has developed a nano-coating system for facemasks and PPE to reduce the transmission risk of COVID-19. This coating has been tested to effectively kill pathogens within 10-15 minutes. The nano-coating provides an additional layer of protection against pathogens in existing masks and can curb the transmission risk of the disease.

Source: republicworld.com

Contactless mobile App

IIT-Guwahati has developed a contactless mobile application for safe air travel during COVID-19 pandemic. The creators of the application 'Flyzy' have termed it as India's first dedicated modern aviation solution which enables safe and contactless air travel with a personalised experience for passengers, airlines and even airports. The App will help to maintain social distancing.

Source: aninews.in

AI company designs compounds capable of fighting Covid-19

PUCHO Technology Information Pvt. Ltd, a Bengaluru-based Artificial Intelligence (AI) firm, has come up with designs of several chemical molecules that may help stop SARS-CoV-2 virus from multiplying in an infected person. The firm used deep learning technology to identify structures of molecules that would inhibit a critical enzyme of the virus called 3CLpro.

Source: thehindubusinessline.com

Innovative disinfection & sanitization solutions

National Innovation Foundation–India (NIF), recently supported two innovative disinfection solutions received as a response to its Challenge COVID-19 Competition (C3). A Vehicle Disinfectant Bay and a Foot-operated Height Adjustable Hands-free Sanitizer Dispenser Stand are the two recently supported innovations under the campaign.

Source: PIB

#CSIRFightsCovid19

Ever since 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.

Key Highlights

- CSIR labs across the country are extending support in sample testing and so far about 35,000 samples have been tested collectively. Labs that have recently received approval and have initiated testing are CSIR-NEIST in Jorhat and CSIR-IIP in Dehradun, which will help in speeding up testing in NE and Uttarakhand.
- Kits of CSIR-IGIB's CRISPR-Cas paper-based COVID-19 detection kits are being manufactured by TATA Sons for regulatory approval. The technology has attracted the attention of 17 more companies including Trivitron Neuberg.
- CSIR is working on a strategy to create mega testing labs in major cities across India for keeping the economic and commercial hubs open for business during this pandemic. These labs will use ultra-high-throughput sequencing of SARS-CoV-2 using the Novaseq 6000 platforms which can sequence thousands of genomes at one go. Further, CSIR-CCMB has partnered with Syngene for developing Next Generation Sequencing platforms for large-scale testing and sequencing.
- While the clinical trials on Sepsivac with Cadila and Favipiravir with Cipla are on, the phytopharmaceutical trial with Sun Pharma is expected to begin on 5th June. Further, CSIR-CDRI has submitted an application with DCGI for Umifenovir. Several other projects involving process development of various APIs towards repurposing are in progress in different CSIR laboratories. This will help in building a pipeline of single and combination drugs against COVID-19.
- CSIR labs have developed various models of ventilators ranging from non-invasive models to those that can be used in ICUs. Forbes India has signed NDA for taking the technology of the non-invasive BiPAP Ventilator developed by CSIR-NAL, whose clinical trials are ongoing at Manipal Hospital. CSIR–CSIO transferred the technology of Respiration Assistance Intervention Device (Respi-AID) to the industry and CSIR-CMERI has developed an indigenous and low-cost mechanical ventilator whose individual parts can be independently developed by different industries in the country.

DIGITAL AND 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

- **AI based diagnosis:** CSIR has initiated efforts to reduce the time taken for diagnosis using Artificial Intelligence tools. The "CovBase-AI" is an artificial intelligence algorithm that can screen a Chest X-ray and distinguish between normal and abnormal scans with a high degree of accuracy.
- **Monitoring immune response** to COVID-19 is being initiated. The data will apprise immune correlates of response to plasma therapy. This data is unique to the CSIR plasma therapy trial and will be very useful for future patient management.
- **Viral sequencing:** CSIR has set a target of sequencing 500 viral genomes. Till date CSIR has sequenced 400 viral genomes of which 200 genomes have been submitted to the international database.
- **Mega testing labs:** CSIR proposes to create mega labs in major cities across India for keeping the economic and commercial hubs open for business during this pandemic. These labs will use ultra-high-throughput sequencing of SARS-CoV-2 using the Novaseq 6000 platforms. The advantage of this platform is that, when it is combined with automation, it can scale to 3000 to 6000 samples every 12 hours, thus increasing scope and lowering costs.
- **ELISA-based kits**: CSIR is developing new ELISA-based kits to improve the scope of the existing ones. The commercially available serology kits indicate the presence or absence of SARS-CoV-2-IgG. However, the ELISA being developed by CSIR is aimed to determine viral titers. Plasma from convalescent donors will be collected and used for validating the serology ELISA.
- **Faecal DNA** is also being collected for future research on the role of the gut microbiome in COVID-19 disease.
- **CSIR-IGIB** has developed a sample sequence workflow for micro labs. Employing the use of the Oxford Nanopore Technology (ONT), the sample run on this system can be studied for understanding the COVID-19 footprint in India.

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.

Till date, CSIR laboratories have tested about 34,500 samples for COVID-19, which includes about 8,000 tested this week. In addition to this, CSIR labs have also facilitated testing of 13500 samples

in the government hospitals around them. The data on testing conducted by CSIR labs during the week is given below:

Labs	No. of tests during 29th May to 4th June 2020	Total tests done till 04 June 2020
CSIR-IIIM	2441	10292
CSIR-IMTECH	2	3710
CSIR-IHBT	1749	7171
CSIR-NEERI	469	1944
CSIR-IITR	1769	4491
CSIR-CCMB	354	3846
CSIR-CDRI	1139	3013
CSIR-CLRI*	22	44
CSIR-IGIB*	63	63

*CSIR-CLRI and CSIR-IGIB have just begun testing of COVID-19 patient samples. Further, testing numbers are dependent on the State Government providing samples.

- **CSIR-IIP as a testing lab:** CSIR-Indian Institute of Petroleum, Dehradun commenced RT-PCR testing of COVID-19 patient samples. The newly developed state-of-the-art BSL-2+ facility was inaugurated by Mr. Yugal Kishore Pant, Additional Secretary, Health & Director, Medical Education, Uttarakhand. This facility is designed using a porta-cabin so that it can be replicated in remote areas. The testing facility is capable of processing about 100 patient samples per day.

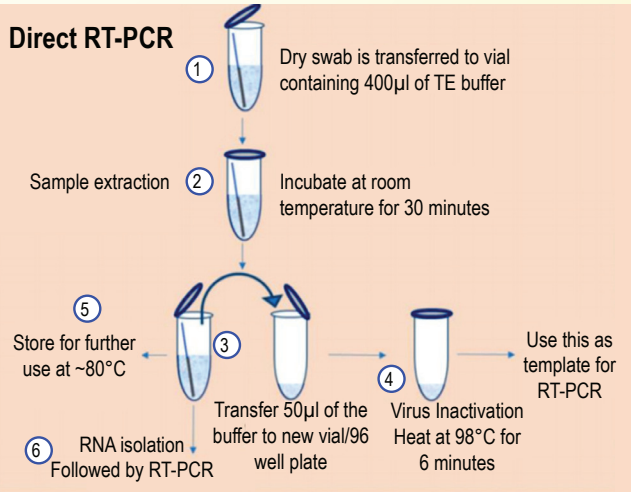
- **COVID-19 testing lab inaugurated in CSIR-NEIST, Jorhat:** A COVID-19 testing laboratory has been established in the Jorhat campus of the North East Institute of Science and Technology (NEIST). Dr Himanta Biswa Sarma, Minister of Health and Family Welfare, Finance, Education (Higher, Secondary and Elementary), Transformation and Development, PWD, Govt. of Assam, inaugurated the laboratory. A team of 10 scientists of the institute is actively involved in isolation of RNA from the virus besides 40 other staff members are acting as support system. The institute's Biotechnology Division is playing a pivotal role in carrying out RT-PCR-based COVID-19 testing. Besides, the Govt. of Assam and the district administration of Jorhat are actively cooperating and facilitating the efforts put in by the institute.

The Covid-19 testing facility at CSIR-IIP, Dehradun

Hon'ble Minister of Health and Family Welfare, Govt. of Assam inaugurated COVID-19 testing lab at CSIR-NEIST, Jorhat

Developments/Improvements in existing technologies/methods:

- **Paper-based detection**: In addition to Tata Sons, CSIR-IGIB's paper-based COVID-19 detection kit, FELUDA that is under validation by ICMR, has attracted the attention of 17 more companies who are interested to adopt the technology. An agreement with Trivitron Neuberg is the latest addition.
- **Nested PCR**: During the week, CSIR-CCMB reached an advanced stage of Nested polymerase chain reaction (Nested PCR) development. Nested PCR is a modification of polymerase chain reaction intended to reduce non-specific binding in products due to the amplification of unexpected primer binding sites. This enables more sensitive detection of the coronavirus. The technique also enables pooling 20 samples for testing (as compared to the current ability to pool 5 samples together) in areas where COVID-19 incidence is not too high or too low. This strategy also does not need a qPCR machine, and can be done with a regular PCR setup that many more biology and pathology labs have.
- **Large scale sample testing using NGS:** CSIR and Syngene continued to work on this strategy during the week. Next-generation sequencing (NGS) allows for analyzing a large number of viral sequences from infected patients, presenting novel prospects for studying the structure of viral populations, and understanding virus evolution and epidemiology. Using sample pooling and barcoding, it is possible to do sample testing of about 20,000 samples in two days.
- **Pooled Sample Testing:** During the week, to further increase the pace and scope of testing, CSIR has developed methodology for pooled sample testing. Diagnostic assays using quantitative Polymerase Chain Reaction most commonly process patient samples one by one. While this is usually an effective and reliable method, the current efforts against the COVID-19 pandemic demand more efficient measures. Diagnostic assays can be scaled up by the method of High-Throughput qPCR via sample pooling. Pooling, the action of combining multiple samples into one tube, is most effective when the chance of positive detection of the target, SARS-CoV-2 RNA, is low. In such cases, large groups of samples can be conclusively classified as negative with a single test, with no need to individually test every sample.
- **Improved and Simplified Diagnosis of COVID-19:** A new method using dry swabs and with no step of RNA isolation, which is laborious and expensive, has been developed. This is cost-effective and can be used as a quick screening procedure. In addition, sensitivity is enhanced by at least 20% by using RNA isolated from TE buffer extract compared to the traditional method.



REPURPOSED DRUGS/NEW DRUGS/ VACCINES/AYUSH PRODUCTS

To combat the virus, CSIR is exploring all avenues and supporting new ideas that have a clear deployment strategy. CSIR has further defined its strategy in this vertical by setting up focused groups to look at multiple pathways for developing drugs: i) Molecular modelling of drugs; ii) Host-target interactions; iii) Crystal engineering; iv) Batch to continuous process; v) In-silico screening of existing drugs and natural products; vi) Scouting for non-infringing routes, and vii) Host-dependent pathways for APIs.

Repurposed Drugs: CSIR is working with Cipla and other industries for leading repurposed drug candidates Remdesivir and Favipiravir by synthesizing API and Key Starting Materials and providing to the industry.

- Remdesivir has received emergency approval by FDA and Gilead has given voluntary license to several Indian companies. CSIR is working on cost-effective synthetic processes and has already demonstrated to industry.
- Cipla has received approval for clinical trials of Favipiravir which are set to begin soon. CSIR-IICT is working with Cipla. Further, CSIR-IIIM is working on cost effective synthetic process for Favipiravir with M/s Anaphar and also nicolosamide and ribavirin internally.
- CSIR-CDRI has submitted application to DCGI for Umifenovir and many CSIR labs are working on synthesis of repurposed drugs so as to build a pipeline.
- **Host-dependent pathways for APIs:** A combination of Bromhexine, the mucolytic drug, and Favipiravir, the antiviral targeting RdRp of COVID-19, is being evaluated for clinical trials.
- **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 COVID-19 patients; hospitalized (but not critically ill) patients, and high-risk contacts of COVID-19.
  - » The clinical trial on critically ill COVID-19 patients is progressing well at AIIMS-Bhopal, AIIMS-New Delhi and PGI Chandigarh.
- **Clinical trial of 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 trial will start on 5th June 2020.
- **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

Drug	Indication
Umifenovir	Broad-spectrum Antiviral
Baricitinib	Rheumatoid Arthritis
Ruxotinib	Myelofibrosis
R-20-0001	Anti-hypertensive
Camostat mesylate	Chronic pancreatitis & postoperative reflux
Niclosamide	Influenza A and influenza B flu
Ribavirin	RSV infection, hepatitis C
Tilorone	Oral Synthetic interferon inducer
EID 1931 & 2801	SARS and MERS
Galidesivir	Broad-spectrum Antiviral
Centhaquin	Hypotensive agent

Pippali, and a polyherbal formulation (Ayush-64). Trials to start soon.

» Clinical trial protocols are being worked out with Ministry of Ayush.

- **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. These plasma samples will be very useful for validating the serology ELISA as well.

HOSPITAL ASSISTIVE DEVICES AND 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.

- **PPE Coverall**: CSIR-NAL has supplied 50000 units to HLL, PSU, GoI Trivandrum with Industry Partner M/s MAF Clothing.
- **BiPAP Ventilator**: The ventilator designed by CSIR-NAL has obtained certificate of calibration from various agencies including:
  - » Certificate of calibration for performance from M/s Transcal, NABL accredited agency as per IEC 62353
  - » Certificate of calibration for electrical safety from M/s Transcal, NABL accredited agency as per ISO 1705
  - » Certificate of calibration for medical equipment from M/s TUC Rhienland as per IEC 60601-1
  - » Bio compatibility test by M/s Bioneeds, Tumkur

Transfer of Technology (ToT) completed to:

- » Apollo Computing Laboratories, Hyderabad
- » Parad Defence & Space Pvt Ltd, Mumbai
- » Kavital Technologies Pvt Ltd, Vadodara
- » Datasol (B) Pvt Ltd, Bangalore

ToT partners are in discussion with hospitals for clinical trials – SSG Govt. Hospital, Vadodara; GMERS Gotri Medical College, Vadodara and Apollo Hospitals, Hyderabad.

- **CSIR–CSIO transfers technology of Respiration Assistance Intervention Device** to M/s Sivapriya Exim Private Limited, Chennai on 29 May 2020.

Respi-AID portable CSIO-Ventilator

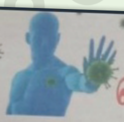
CSIR-CMERI ventilator

- **CSIR-CMERI** has indigenously developed a ventilator costing around Rs. 80,000-90,000. The bellow design, controllers and embedded electronics of this ventilator have all been customised to ensure price efficacy as well as meeting the requirements of the relevant industries.
- **CSIR-NIIST**'s technology for air sanitizer was transferred to an MSME M/s Ecocure Technologies.
- **Smart hand sanitizer dispenser** ("Palm Safe") technology developed by CSIR-NIIST transferred to Tachlog, a Trivandrum based industry.
- **Flocculation-based Disinfection Systems:** CSIR-NIIST signed a non-disclosure agreement with CML Biotech (P) Ltd. Angamaly, Kerala for the development of Flocculation-based Disinfection Systems for Pathogenic Medical Waste Disposal.

CSIR-NIIST air sanitizer

CSIR Media Coverage

நோய் எதிர்ப்புசக்தி கொரோனாவுக்கு தீர்வு ஆகுமா?



'During this coronavirus pandemic, CSIR decided to partner with corporates ... we're glad ice has been broken now'

May 27, 2020, 3:00 AM IST TOI Q&A in The Interviews

Blog | Edit Page India Q&A | TOI

India's Council of Scientific & Industrial Research (CSIR), with 38 national labs under it, works on a wide spectrum of areas. An immediate priority for

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The Indian **EXPRESS**

Favipiravir trial results to be out soon, waiting for DCGI nod for emergency use against Covid-19: DG-CSIR

Russia has enabled Afivavir, based on Favipiravir, to become the first registered drug against Covid-19; and in India, results on this antiviral drug will be out in a day or two.

Written By Anuradha Mascarenhas | Pune |

Updated: June 4, 2020 7:34:33 pm

The DG-CSIR said repurposed d... ere an attractive op... as they were known to be saf... other diseases and was reason to believe that it ... ork against Covid-19. (Source: File Photo)

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hindustantimes

NBRI to begin Covid-19 testing

LUCKNOW: The National Botanical Research Institute (NBRI) is all set to become the fourth Lucknow-based research institute to conduct Covid-19 test in June.

In a major push to the fight against Covid-19, three research Institutes namely Central Drug Research Institute (CDRI), Birbal Sahni Institute of Palaeosciences (BSIP) and Indian Institute of Toxicology Research (IITR) began conducting test in Lucknow in May.

Director of NBRI, SK Barik said, "We have put in some changes in the Institute that allowed better handling of samples for Covid-19. We also have a group of trained experts who will conduct the testing."

The premier institute, known for its work in the field of plant sciences, was approached by authorities to share the burden of Covid-19 testing, the most important aspect in fighting coronavirus.

"Though we had the know how and resources to handle plant viruses we didn't have any experience with viruses like Covid-19. However, we decided to work on the matter, made the required changes in our testing lab, trained people and are now ready to begin testing," said Barik.

Around 3000 to 4000 tests are conducted every day in Lucknow. Most of these tests are conducted at KGMU and PGI while around 500 to 600 tests are conducted at the research institutes.

This number expected to go up to 800 with involvement of NBRI.

HTC

CFTRI signs MoU with Schevaran Labs

To develop efficient environment-friendly and cost-effective quality products post-COVID

Mysuru, June 2- CSIR-Central Food Technological Research Institute (CFTRI), Mysuru, has signed an MoU with Schevaran Laboratories Pvt. Ltd., Mysuru, on May 29, 2020 making way forward for collaborative avenues towards the development of personal hygiene, cleaning and related industrial products and solutions.

In the post-COVID scenario, both the organisations have felt the need to have more efficient environment-friendly and cost-effective quality products in the market and the partnership would be highly beneficial in ...

CSIR-CFTRI delivered over 30 tonnes of ready-to-eat (RTE) food supplements and flavoured water to the migrant workers across the country in mitigating the sufferings of the people.

Further, hand sanitisers prepared in the lab as per WHO guidelines were distributed to District Administration and others.

The Institute is also planning innovative solutions to promote rural entrepreneurships with the involvement of FPOs, NGOs, Women Self Help Groups and to address reverse migration to the country side. Though the primary ...

... potential of quality disinfectants and affordable sanitisers based on plant extracts for employment generation.

Mysuru-based Schevaran Labs was established in 1988 at a time when India was still at infancy or primitive in the area of clean environment as well as think of quality cleaning and hygiene products. Drawing parallel with today's scenario, when Sam Cherian started Schevaran Labs, in a way, it was a true start-up of the present market scenario, but with no support as of today.

... and largest manufacturer of hygiene and cleaning products with success in B2B and B2C sectors. Requisite R&D support is provided by Schevaran Innovation Centre. Besides the CSR activity with Personal Hygiene School Campaign, Schevaran has moved ahead in the combat against COVID-19 by providing large quantities of sanitisers to the local District Administration for use by frontline warriors.

With pride, it can be said that the thought process of Schevaran initiated 32 years back has become a reality today with 'Cleaning & Hygiene' being given top priority by the Union Govt. along with emphasis on 'Make in India & Self Reliance.'

Speaking on the occasion, Dr. Raghavarao, Director, CSIR-CFTRI, said that CFTRI would be keen to involve industry from the early stages of product development while fulfilling the customer's aspiration and industrial viability. He also said that co-branding is one of the promising routes for successful commercialisation of innovation directly from lab to market.

Sam Cherian, MD, Schevaran Labs, said that the partnership with the National Laboratory would help building a robust platform to promote innovations and enable the diverse industry sectors towards achieving cleaning and hygiene in its true form. In reality, the impact will be more in food industry sector that would usher in better hygienic standards through customised formulations.

The MoUs were exchanged in the presence of Dr. T.N. Bhavanishankar, Director, Schevaran Innovation Centre, Dr. K.N. Gurudutt, Dr. M.C. Varadaraj and Anna Cherian from Schevaran along with Scientists from CFTRI.

One-Time Compensation...

जागरण सिटी चंडीगढ़ चंडीगढ़, 2 जून 2020 दैनिक जागरण 3

कोविड–19 मरीजों को नई जिंदगी देगा सीएसआइओ का खास पोर्टेबल वेंटीलेटर

जागरण विशेष

यह है वेंटिलेटर

CSIR Media Coverage

AICTE, CSIR to host hackathon for Covid-19 drug discovery

The hackathon is being organised by the Council of Scientific and Industrial Research (CSIR) and AICTE. The ideas submitted will be worked upon by CSIR labs, startups and other private organisations.

ET Bureau | Last Updated: May 25, 2020, 09.30 PM IST

MUMBAI: A hackathon for potential drug discovery to beat the Covid-19 virus outbreak will be launched, Anil Sahasrabudhe, chairman of the All India Council for Technical Education (AICTE) announced at a Bennett University webinar on Monday.

CCMB tech to increase speed of COVID-19 tests

THE NEW INDIAN EXPRESS

By V Nilesh | Express News Service | Published: 03rd June 2020 09:09 AM

For representational purposes (Photo | Shekhar Yadav, EPS)

Halting hydroxychloroquine trials based on faulty Lancet study is 'knee jerk reaction', say CSIR, IGIB, CMI

ANI

Representative image

ANI | Updated: May 30, 2020 00:55 IST

By Suchitra Mukherjee

New Delhi [India], May 30 (ANI): Council of Scientific and Industrial Research (CSIR) Director-General Shekhar Mande, Institute of Genomics and Integrative Biology (IGIB) Delhi Director Anurag Agarwal and Chennai Mathematical Institute (CMI) Chennai Director Rajeev Karandikar have written to the World Health Organisation (WHO) and asked the global health body to resume trial of hydroxychloroquine (HCQ) [illegible] 19 patients as [illegible] that the

Scientists chase new tools to fight Covid-19

Amrita Didyala | TNN | Jun 2, 2020, 04:24 IST

TOI

TNN

Get Notifications on latest Hyderabad News

Hyderabad: Scientists, supported by Centre for Cellular and Molecular Biology (CCMB), are working on six [illegible] rapid testing [illegible]ovid-19. These [illegible]ected from

NBRI to begin Covid-19 testing

hindustantimes

LUCKNOW: The National Botanical Research Institute (NBRI) is all set to become the fourth Lucknow-based research institute to conduct Covid-19 test in June.

In a major push to the fight against Covid-19, three reaserch Institutes namely Central Drug Research Institute (CDRI), Birbal Sahni Institute of Palaeosciences (BSIP) and Indian Institute of Toxicology Research (IITR) began conducting test in Lucknow in May.

Director of NBRI, SK Barik said, "We have put in some changes in the Institute that allowed better handling of samples for Covid-19. We also have a group of trained experts who [illegible] conduct the testing."

authorities to share the burden of Covid-19 testing, the most important aspect in fighting coronavirus.

"Though we had the know how and resources to handle plant viruses we didn't have any experience with viruses like Covid-19. However, we decided to work on the matter, made the required changes in our testing lab, trained people and are now ready to begin testing," said Barik.

Around 3000 to 4000 tests are conducted every day in Lucknow. Most of these tests are conducted at KGMU and PGI while around 500 to 600 tests are conducted at the research institutes.

This number expected to go [illegible]

Coronavirus cell culture to make vaccines and test drugs at CCMB

UNI United News of India

India's Multi Lingual News Agency

Tuesday, Jun 2 2020 | Time 14:14 Hrs(IST)

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President extends greetings on 6th Telangana formation Day

States »

South

Posted at: May 29 2020 12:03AM

Hyderabad, May 28 (UNI) Hyderabad-based Centre for Cellular and Molecular Biology (CCMB) has established stable cultures of C 19 causing coronavirus, SARS-CoV-2 from patients' samples since over a month and A team of researchers led by the Virologis CCMB, Dr Krishnan H Harshan have isola infectious viruses from several isolates. T ability to culture the virus in the lab ena CCMB to work towards vaccine develop and testing potential drugs to fight COV also makes them a potential donor of th to other authorized centres that can co growing the virus for their use.

This virus is known to infect epithelial the human respiratory tract. The virus

NEW DELHI: Indian scientists, including director general of the country's premier research body CSIR, on Friday questioned the World Health Organisation (WHO) for its decision to stop use of malaria drug Hydroxychloroquine (HCQ) trial on Covid-19 patients, saying its move based on findings of a Lancet study "appears to be a knee-jerk reaction".

In a joint letter sent to the WHO's chief scientist Soumya Swaminathan, the CSIR's chief Shekhar C Mande and two other scientists said that the Lancet study has several limitations as the authors have themselves acknowledged it in the article.

BusinessLine

THE HINDU

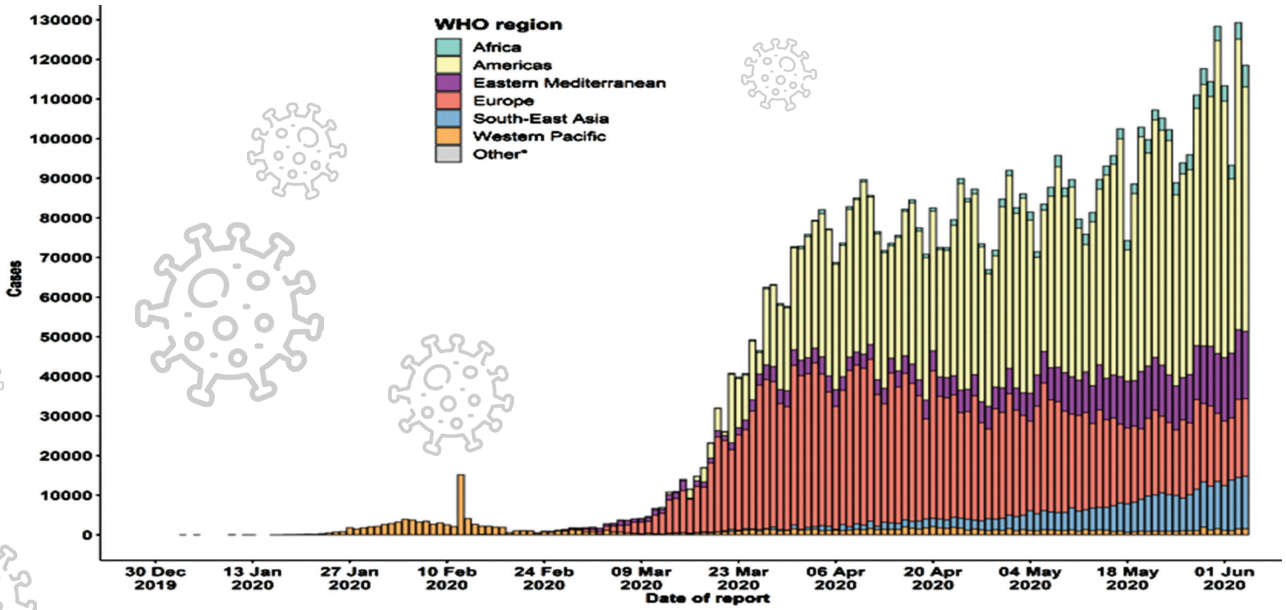
North-East Institute of Science and Technology (NEIST) will make all possible efforts to reach out to about 500 villages of north-east India through its various entrepreneurship and skill development programmes in the aftermath of Covid-19 pandemic. This information has been given by Dr G Narahari Sastry, Director of the institute. He was addressing the CSIR-NEIST fraternity on the occasion of the National Technology Day through e-mode.

COVID-19 Dashboard

COVID-19 Cases and Deaths in World

(Data as of 5 June 2020)

	Worldwide
Total Confirmed Cases	6535354
New Cases	118526
Total Death	387155
Total New Death	4288



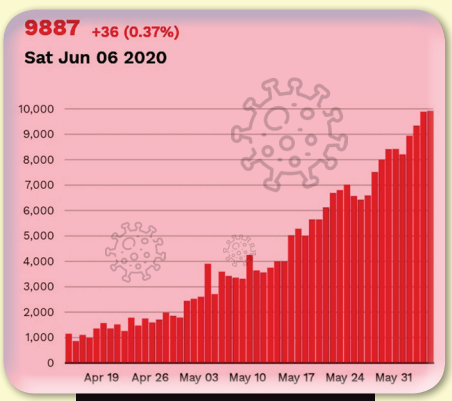
Graph
India

115942 Active Cases

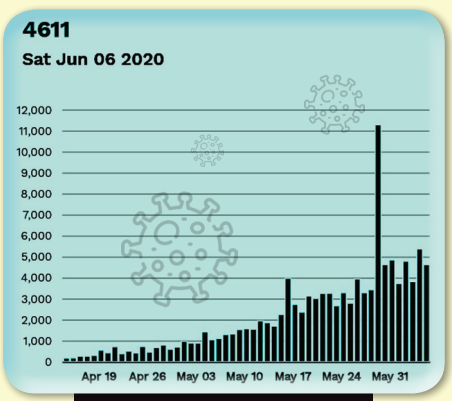
114072 Cured / Discharged

6642 Deaths

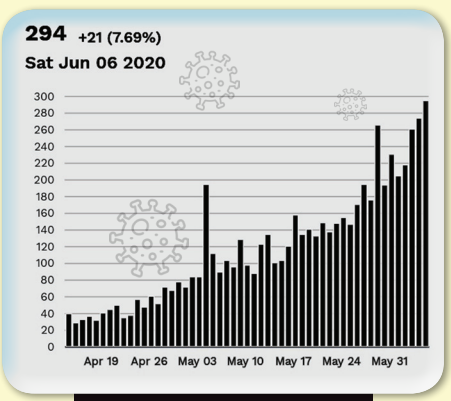
1 Migrated



Confirmed Cases



Recovered Cases



Deceased Cases

Source: Aarogya Setu App

CORONA Q&A

What is the risk of getting COVID-19 while exercising?

Exercising poses a potential risk from SARS-CoV-2 infection to athletes and coaches. This is particularly an issue in settings where athletes train in groups, engage in contact sports, share equipment or use common areas, including locker rooms. Community and individual-level recreational sport activities could also potentially heighten the risk of spreading coronavirus. Transmission could occur through person-to-person contact, exposure to a common source, or aerosols/droplets from an infected individual. Nevertheless, in light of the benefits of regular physical activity to physical and mental health it is important to remain active during the COVID-19 pandemic while respecting physical distancing and personal hygiene recommendations.

www.ecdc.europa.eu

As a vaper, am I more likely to be infected or to have more severe symptoms if infected?

There is no evidence about the relationship between e-cigarette use and COVID-19. However, existing evidence indicates that electronic nicotine delivery systems (ENDS) and electronic non-nicotine delivery systems (ENNDS), more commonly referred to as e-cigarettes, are harmful and increase the risk of heart disease and lung disorders. Given that the COVID-19 virus affects the respiratory tract, the hand-to-mouth action of e-cigarette use may increase the risk of infection.

www.who.int

Are public systems for disinfecting individuals such as spraying via tunnel or chambers safe to use?

No, spraying of individuals with disinfectants (such as in a tunnel, cabinet, or chamber) is not recommended under any circumstances. This practice could be physically and psychologically harmful and would not

reduce an infected person's ability to spread the virus through droplets or contact. Even if someone who is infected with COVID-19 goes through a disinfection tunnel or chamber, as soon as they start speaking, coughing or sneezing they can still spread the virus. The toxic effect of spraying with chemicals such as chlorine on individuals can lead to eye and skin irritation, bronchospasm due to inhalation, and potentially gastrointestinal effects such as nausea and vomiting. In addition to health safety concerns, the use of chlorine in large-scale spraying practices may prevent this resource from being used for important interventions such as drinking water treatment and environmental disinfection of health care facilities.

www.who.int

Why people with weak immunity get viral infections easily?

Exposure to germs (virus, bacteria, etc.) and the state of immunity or fight back system of our body are two major components that define our health. People with weakened immunity are likely to get infectious diseases than healthy persons. The immune system of our body acts like a triple layer. The skin and mucus glands are the first layer of our body's defense system which functions as a strong wall. Often the bacteria and viruses enter from the nose, mouth or wounds due to our hygiene related derelictions. Here these germs have to face the second layer of defense – the white blood cells (WBC). The third layer of defense system is comprised of specific WBCs which are known as B cells and T cells. B cells identify intruder germs while T cells mark the infected body cells and destroy them. In this way further spread of the infection is checked. If our immunity or defense system is weak, then germs keep on reproducing and the affected person becomes sick from the infection

HOW TO WEAR A NON-MEDICAL FABRIC MASK SAFELY

who.int/epi-win

Do's


Clean your hands before touching the mask


Inspect the mask for damage or if dirty


Adjust the mask to your face without leaving gaps on the sides


Cover your mouth, nose, and chin


Avoid touching the mask


Clean your hands before removing the mask


Remove the mask by the straps behind the ears or head


Pull the mask away from your face


Store the mask in a clean plastic, resealable bag if it is not dirty or wet and you plan to re-use it


Remove the mask by the straps when taking it out of the bag


Wash the mask in soap or detergent, preferably with hot water, at least once a day


Clean your hands after removing the mask

Don'ts


Do not use a mask that looks damaged


Do not wear a loose mask


Do not wear the mask under the nose


Do not remove the mask where there are people within 1 metre


Do not use a mask that is difficult to breathe through


Do not wear a dirty or wet mask


Do not share your mask with others

A fabric mask can protect others around you. To protect yourself and prevent the spread of COVID-19, remember to keep at least 1 metre distance from others, clean your hands frequently and thoroughly, and avoid touching your face and mask.

World Health Organization

#Healthy@Home

Physical Activity

The COVID-19 pandemic means that many of us are staying at home and sitting down more than we usually do. It's hard for a lot of us to do the sort of exercise we normally do. It's even harder for people who don't usually do a lot of physical exercise. But at a time like this, it's very important for people of all ages and abilities to be as active as possible.

- Remember, just taking a short break from sitting, by doing 3-4 minutes of light intensity physical movement, such as walking or stretching, will help ease your muscles and improve blood circulation and muscle activity.
- Regular physical activity benefits both the body and mind. It can reduce high blood pressure, help manage weight and reduce the risk of heart disease, stroke, type 2 diabetes, and various cancers – all conditions that can increase susceptibility to COVID-19.
- Exercise also improves bone and muscle strength and increases balance, flexibility and fitness. For older people, activities that improve balance help to prevent falls and injuries.
- Regular physical activity can help give our days a routine and be a way to stay in contact with family and friends. It's also good for our mental health, reducing the risk of depression, cognitive decline and delay the onset of dementia, and improves overall feelings.

www.who.int

Safe use of alcohol-based hand sanitizers

To protect yourself and others against COVID-19, clean your hands frequently and thoroughly. Use alcohol-based hand sanitizer or wash your hands with soap and water. If you use an alcohol-based hand sanitizer, make sure you use and store it carefully.

- Keep alcohol-based hand sanitizers out of children's reach. Teach them how to apply the sanitizer and monitor its use.
- Apply a coin-sized amount on your hands. There is no need to use a large amount of the product.
- Avoid touching your eyes, mouth and nose immediately after using an alcohol-based hand sanitizer, as it can cause irritation.
- Hand sanitizers recommended to protect against COVID-19 are alcohol-based and therefore can be flammable. Do not use before handling fire or cooking.
- Under no circumstance, drink or let children swallow an alcohol-based hand sanitizer. It can be poisonous.
- Remember that washing your hands with soap and water is also effective against COVID-19.

www.who.int

COVID-19 MYTH BUSTERS

MYTH ✗

People who suffer from pollen allergy, should self-isolate if they develop typical hay fever symptoms

FACT ✓

No, there is no more reason for people suffering from pollen allergy to self-isolate if they develop their typical hay-fever symptoms than for anyone else. They should continue following the general guidance for physical distancing and seek medical advice if their symptoms get worse, if they develop fever or progressive difficulty breathing.

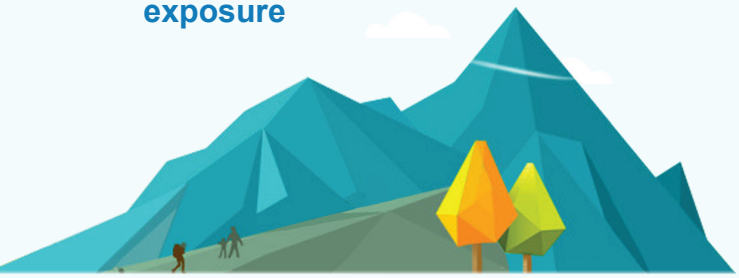
www.ecdc.europa.eu

COVID-19 can be spread from coins and banknotes

There is currently no evidence to confirm or rule out that SARS-CoV-2 can be transmitted through coins or banknotes. Just like doorknobs and handrails in public places, coins and banknotes are touched by a large number of people. Thorough hand washing with soap and water or use of alcohol-based hand sanitisers – especially before eating, drinking or smoking – and avoidance of touching the face, eyes and mouth is recommended after physical contact with frequently touched objects, including banknotes and coins.

www.ecdc.europa.eu

People living in high altitudes and the North-East regions are protected from the coronavirus due to higher UV exposure



No, the highest energy UV rays capable of deactivating the novel coronvirus are almost completely blocked by the ozone layer and do not reach the earth's surface. Thus hilly regions and the North-East regions do not have any special protection from solar UV radiation.

www.indscicov.in

MYTH ✗

FACT ✓

Consuming Datura will prevent coronavirus infection

No, there is no proof for antiviral properties of Datura. On the contrary, consuming Datura can cause disorientation and rapid irregular heart beat, which can be fatal.

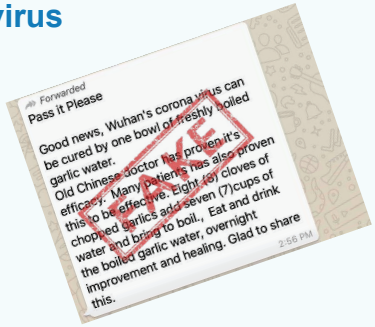
www.indscicov.in

Bats spread COVID-19 and we should cut trees to remove bats

No, bats in India are not known to spread the novel coronavirus. But they are important for agriculture and pest control. Cutting big trees to remove bats will only lead to environment damage. Let the bats live, just maintain a safe distance from them.

www.indscicov.in

The miracle cure messages circulating in social media cure you of the novel Coronavirus



No, subjecting yourself to any miracle cures based on supplements, alternative medicines or other rituals can be dangerous or ineffective. If you believe you have the virus, quarantine yourself and consult a doctor or visit an authorized testing centre.

www.indscicov.in

5G mobile networks spread COVID-19

No, viruses cannot travel on radio waves/ mobile networks. COVID-19 is spreading in many countries that do not have 5G mobile networks. COVID-19 is spread through respiratory droplets when an infected person coughs, sneezes or speaks. People can also be infected by touching a contaminated surface and then their eyes, mouth or nose.

www.who.in

Content in this bulletin has been compiled from various sources, and wherever available, due credit has been given to the original source.