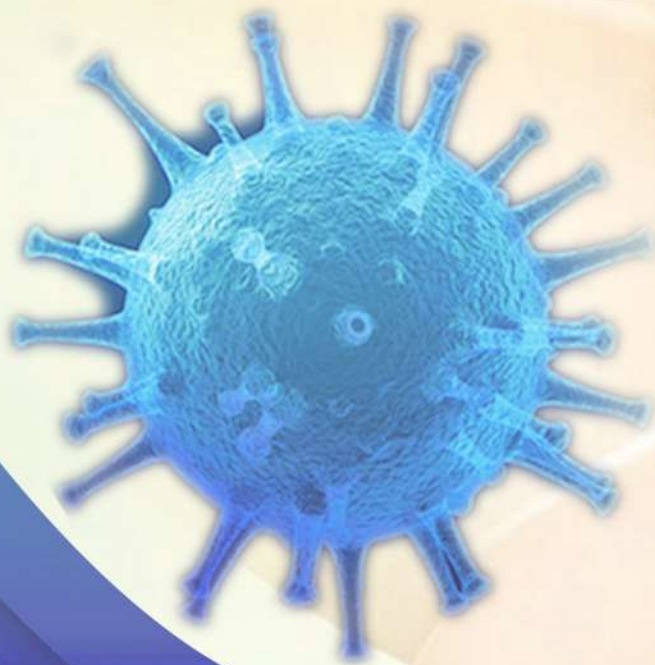


SCIENCE & TECHNOLOGY EFFORTS IN INDIA ON **COVID-19**

Exclusive Edition on
Outreach Initiatives

28th February 2021

VOL. III ISSUE 15



Compiled by
VIGYAN PRASAR
An Autonomous Organisation
of Department of Science &
Technology, Government of India





सत्यमेव जयते
FOREWORD

डॉ हर्ष वर्धन Dr Harsh Vardhan

स्वास्थ्य एवं परिवार कल्याण, विज्ञान और प्रौद्योगिकी
य पृथ्वी विज्ञान मंत्री, भारत सरकार

Union Minister for Health & Family Welfare,
Science & Technology and Earth Sciences
Government of India

सबका साथ, सबका विकास, सबका विश्वास
Sabka Saath, Sabka Vikas, Sabka Vishwas

The 2019 Novel Coronavirus (SARS-CoV-2) has spread rapidly throughout the world and has assumed the proportion of a Pandemic. Given the lack of an efficacious vaccine as well as non-availability of suitable chemotherapeutic interventions, mankind is experiencing an unprecedented existential crisis.

2. The Ministry of Science and Technology and the Ministry of Health & Family Welfare, with their various departments, are contributing in various ways towards the national R&D efforts for developing solutions to combat COVID-19. The Department of Science & Technology under the Ministry has launched a nationwide exercise to map and boost development of COVID-19 solutions with R&D, seed capital and scale-up support. All academic and research institutions are being reoriented to focus on the development of diagnostics, vaccines, antivirals, disease models and other R&D to enable a cure for this dreadful disease. Around 15 labs of Council of Scientific & Industrial Research (CSIR), under the Department of Scientific & Industrial Research, across the country are working in close partnership with major private sector Industries, PSUs, MSMEs and other Government departments to develop solutions for COVID-19. The Department of Biotechnology (DBT) under the Ministry has also formed a consortium to support the development of Medical equipment, Diagnostics, Therapeutics, Drugs and Vaccines to meet the Healthcare Challenges. Indian Council of Medical Research (ICMR), under the Ministry of Health & Family Welfare has already isolated the virus strain successfully, which is a first step towards vaccine research. Similarly, various other organizations under Ministry of Human Resource & Development, Ministry of Defence, Ministry of Chemicals & Fertilizers, etc. are also contributing substantively to our R&D efforts. The private sector has also come forward in a big way to supplement these efforts.

3. With a view to spreading awareness about the S&T efforts of the Government of India as well as private sector in finding solutions for COVID-19, Vigyan Prasar - an autonomous institution under Ministry of Science & Technology and engaged in large-scale science communication and popularization activities - has compiled all initiatives being undertaken in this field.

4. This document "Science & Technology Efforts on COVID-19 in India" shall serve as a ready-reckoner for policy makers, scientists, researchers, scholars and other stakeholders who might be interested in understanding and keeping themselves abreast with the latest S&T efforts being made to develop solutions to combat COVID-19.


(Dr. Harsh Vardhan)

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PREFACE

Greetings to all our readers on the occasion of National Science Day 2021 from Vigyan Prasar. National Science Day (NSD), celebrated on 28th February every year, commemorates the discovery of ‘Raman Effect’ by the great Indian Physicist, Sir Chandrasekhara Venkata Raman.

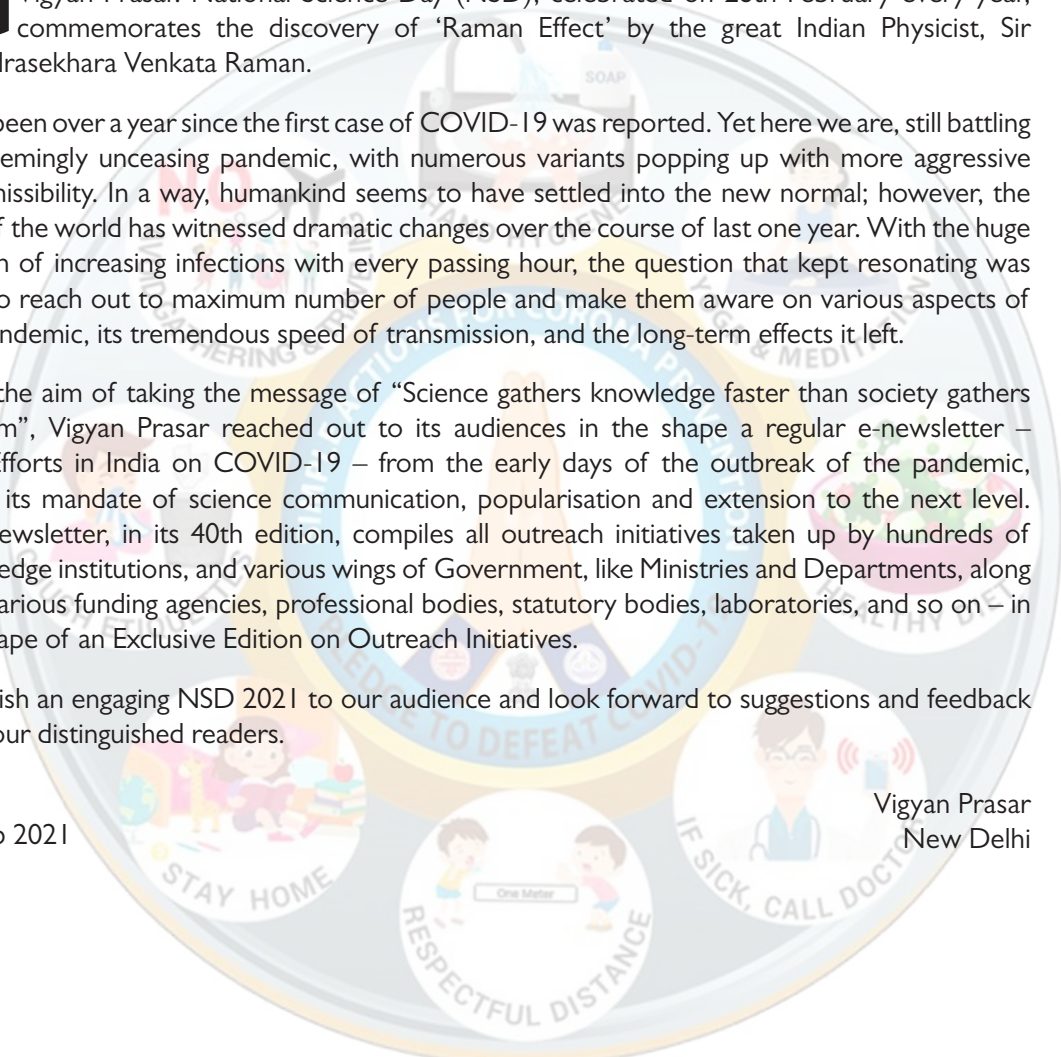
It has been over a year since the first case of COVID-19 was reported. Yet here we are, still battling the seemingly unceasing pandemic, with numerous variants popping up with more aggressive transmissibility. In a way, humankind seems to have settled into the new normal; however, the face of the world has witnessed dramatic changes over the course of last one year. With the huge burden of increasing infections with every passing hour, the question that kept resonating was how to reach out to maximum number of people and make them aware on various aspects of the pandemic, its tremendous speed of transmission, and the long-term effects it left.

With the aim of taking the message of “Science gathers knowledge faster than society gathers wisdom”, Vigyan Prasar reached out to its audiences in the shape a regular e-newsletter – S&T Efforts in India on COVID-19 – from the early days of the outbreak of the pandemic, taking its mandate of science communication, popularisation and extension to the next level. The newsletter, in its 40th edition, compiles all outreach initiatives taken up by hundreds of knowledge institutions, and various wings of Government, like Ministries and Departments, along with various funding agencies, professional bodies, statutory bodies, laboratories, and so on – in the shape of an Exclusive Edition on Outreach Initiatives.

We wish an engaging NSD 2021 to our audience and look forward to suggestions and feedback from our distinguished readers.

28 Feb 2021

Vigyan Prasar
New Delhi



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The e-newsletter is being published on a regular basis by collating all the inputs received till the preceding day of the release.

The older issues of e-newsletter are available in the Archival Section at <https://vigyanprasar.gov.in/covid19-newsletters/>

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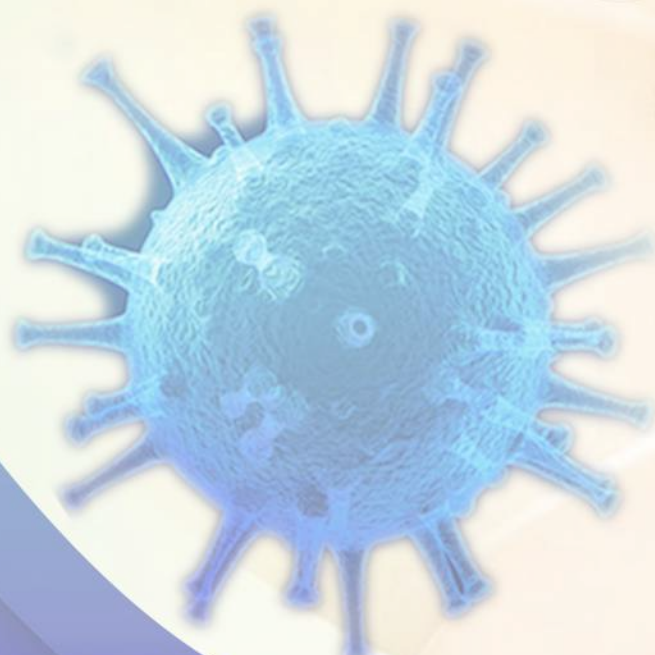
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SECTION I

Science & Technology Outreach Efforts on COVID-19 by Union Ministries & Departments



SCIENCE & TECHNOLOGY OUTREACH EFFORTS ON COVID-19

BY

OFFICE OF THE PRINCIPAL SCIENTIFIC ADVISER (PSA)

STI in the era of new normal – Survey report by IIT Madras Alumni Association and Office of PSA

There has been an immense need to understand the role of Science and Technologies during the new normal. This survey investigates the new normal of work and opportunities through research and development in science, technology, and innovation. The post-COVID-19 pandemic era, the new normal, is going to be full of challenges, agility, curiosity, risk assessment and mitigation; and learning by exploring and doing and centralized focus are highly expected. In this new normal, all the concepts are in transformation. Socio-economic problems will indicate the need for change and dependencies on innovative and disruptive scientific evolutions.

In response to the COVID-19 pandemic, the world is discovering a state of new normal. In this context, a study has been conducted during Nov-Dec 2020, by IIT Madras Alumni Association in collaborations with the Office of the Principal Scientific Adviser to Government of India, on India's public attitude to the new normal and in particular with relation to Science and Technology. The study provides an insight into the public perceptions of emerging technologies as well. The public in India demonstrate a sense of resilience and optimism about the future and repose their faith in science and technology to make their lives better. It is trusted that the study will be a useful input into the science and technology planning process and policies for India.

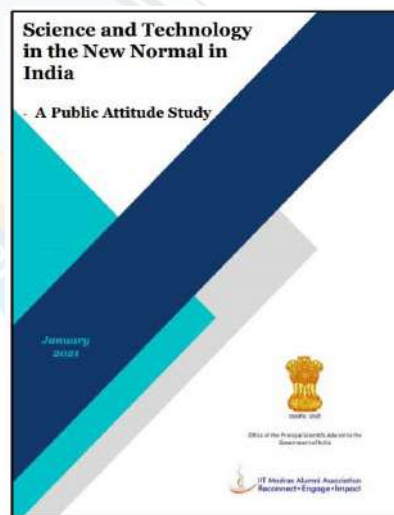
Website link:

<https://www.psa.gov.in/psa-prod/publication/Science%20and%20Technology%20in%20the%20New%20Normal%20in%20India%20-%20A%20public%20attitude%20study.pdf>

The Office of the PSA released document on agenda of reprioritising Health R&D in the context of COVID-19

COVID-19 pandemic is unprecedented in human history. It has resulted in colossal loss of life and has brought to the forefront the need of a robust healthcare system across all countries in the world.

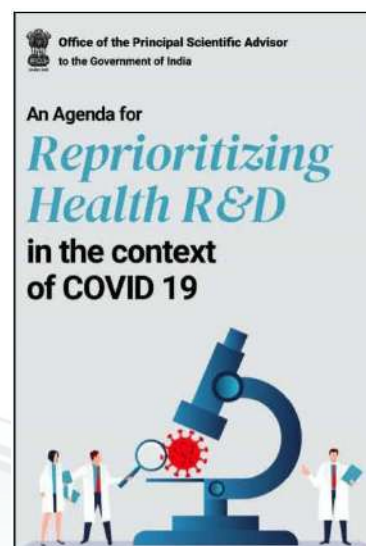
Economic Advisory Council to the Prime Minister had prepared a report on R&D Expenditure Ecosystem in consultation with the Office of Principal Scientific Adviser to the Government of India. It inter-alia recommended boosting of R&D investment in India to 2% of GDP by



2022. It has also highlighted the need to devote adequate resources to medical research for not only prevention of such unprecedented outbreaks but also its treatment.

The Objective of this agenda is to:

- Examine the role and relevance of R&D in the context of COVID-19;
- Discuss the share of Health R&D in the context of global health spend;
- Discuss the share of Health R&D in the context of India's public expenditure on R&D and overall R&D expenditure;
- Estimate Health GERD as a percentage of GDP in India and abroad; and
- Prepare a roadmap for boosting Health R&D for meeting COVID-19 challenge.



Public-private partnerships and other innovative mechanisms for research are concentrating on neglected diseases in order to stimulate the development of vaccines, drugs, and diagnostics where market forces alone are insufficient.

The broad components of this public spending are not readily available but going by OECD data, the various components of public spending on health are medical products and appliances, outpatient services, hospital services, public health services and health R&D.

Gross Expenditure on R&D (GERD) is mainly driven by the Government sector comprising of Central Government 45.4%, State Governments 6.4%, Higher Education 6.8% and Public Sector Industry 4.6% with Private Sector Industry contributing 36.8% during 2017-18.

Health R&D share in overall R&D spend in India was only 4% in 2017-18. This aspect needs to be examined in the context of COVID-19, which has ravaged the healthcare system across the world and has led to a mad rush for discovery of vaccine by all medical researchers. This requires higher level of R&D spending not only on basic research but also on building R&D infrastructure. Other key findings of this document are data on health GERD is not readily available and sectorial breakup of R&D Expenditure is also not available.

Website link:

<https://www.psa.gov.in/psa-prod/publication/COVID.pdf>

Government announced innovation challenge on COVID-19 biomedical waste treatment

The Prime Minister's Science, Technology and Innovation Advisory Council (PM-STIAC) through the Office of the PSA to the Government of India had set up the 'Swachh Bharat Unnat Bharat' Waste to Wealth Mission to identify technology solutions for India's waste challenges.

The mission invited technology applications from start-ups, corporates and entrepreneurs from research institutions to address the challenge of safe collection, disposal/treatment of large volumes of waste being generated during the on-going COVID-19 pandemic which included the use of masks, gloves, and PPEs by not only frontline workers and airports and railway stations but also by household community individuals such as municipal sanitary workers, barbers, the food business, and the general population.

Indian industry, start-ups, entrepreneurs, and research institutions were eligible to apply for innovations and solutions which could be deployed immediately.



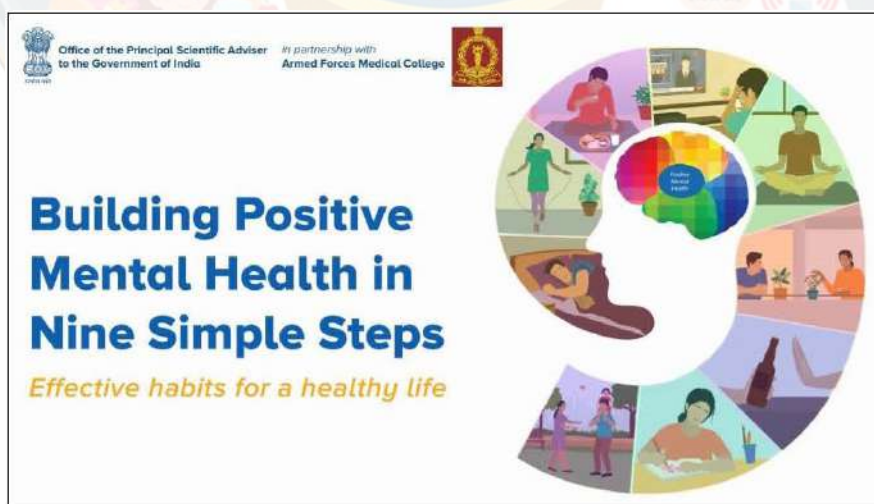
Website link:

<https://www.psa.gov.in/article/launch-covid-19-innovative-challenge/17>

Office of the PSA released a simple guide for building positive mental health

As news about SARS-CoV-2 (COVID-19) dominated the headlines and public concern was on the rise, taking care of mental health was as important as looking after physical health. Good mental health and positive well-being can help individuals better cope with the COVID-19 threat and deal with the stress due to uncertainty. Resilience is the process of finding healthy ways to adapt and cope with adversity and distress. Building resilience can be the key to helping the individuals get through the COVID-19 pandemic crisis and its aftermath. It can help protect one from various mental health symptoms, such as depression, anxiety and traumatic stress. It can also help those who already have mental health conditions cope better. Prior tragedies have shown the power of resilience. Knowing this and how to build strength can be a source of great hope for many people. People can even experience emotional growth after a tragedy.

In association with Armed Force Medical College (AFMC), Pune, Office of the Principal Scientific Adviser brought a guide book to build positive mental health. This e-book is published in fourteen languages to reach out to a larger audience.

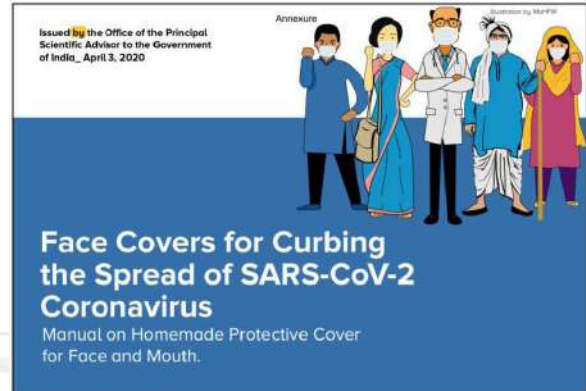


Website link:

<https://www.psa.gov.in/innerPage/psa-initiatives/building-positive-mental-health-nine-simple-steps-effective-habits-healthy-life/214/214>

Office of PSA released manual on homemade mask

With the outbreak of the COVID-19 pandemic, as anxious public frantically shopped hygiene products, in particular mask and hand sanitizers, the sudden increased demand could not be met by enough supply. The Office of the PSA released a detailed manual on homemade masks for curbing the spread of Coronavirus during the pandemic. The guide provided a simple outline of best practices to make, use, and reuse masks to enable NGOs and individuals to self-create such masks and accelerate the widespread adoption of masks across India. This has now become a part of the national advisory for citizenry issued by the MoHFW. The manual has been released in several regional languages.



Website link:

<https://www.psa.gov.in/innerPage/psa-initiatives/manual-homemade-protective-covers-face-and-mouth/209/209>

Aarogya Setu-linked contact tracing and testing

The Office of the PSA has been instrumental in the launch and outreach of the Aarogya Setu App. The App built through the public-private partnership helped people assess themselves the risk of catching the Coronavirus infection by tracking infected cases in the vicinity. Aarogya Setu App is a data-protected App using cutting edge Bluetooth technology, algorithms and artificial intelligence tools.

The App helped the administration take necessary, timely steps to assess the risk of spread of COVID-19 infection and ensuring isolation where required. The PSA also served on a committee constituted by the Cabinet Secretariat to evaluate and ensure the development and launch of the Citizen App technology platform to help citizens and government combat COVID-19 issues arising out of this pandemic.



Website link:

<https://www.psa.gov.in/>

COVID-19 Medical Inventory facilitated by PSA's Office was launched during the pandemic

The COVID-19 Medical Inventory is an academic initiation from Jawaharlal Nehru Centre for Advanced Scientific Research (JNSCAR), Bengaluru; Indian Institute of Science (IISc), Bengaluru; Indian Institute of Technology Bombay (IITB), Mumbai; and Armed Forces Medical Services (AFMS). The initiative was being facilitated by the Office of the PSA. The inventory is a district-level short-term conjecture of medical inventory for COVID-19. This includes inventory for intensive and acute supportive care requirements. The mathematical model has been tuned with the recent data and the projections have now been revised. The numbers presented are projections meant to help administrations plan for a worst-case scenario; however, the actual numbers could differ based on the interventions. This web application provides a four-week

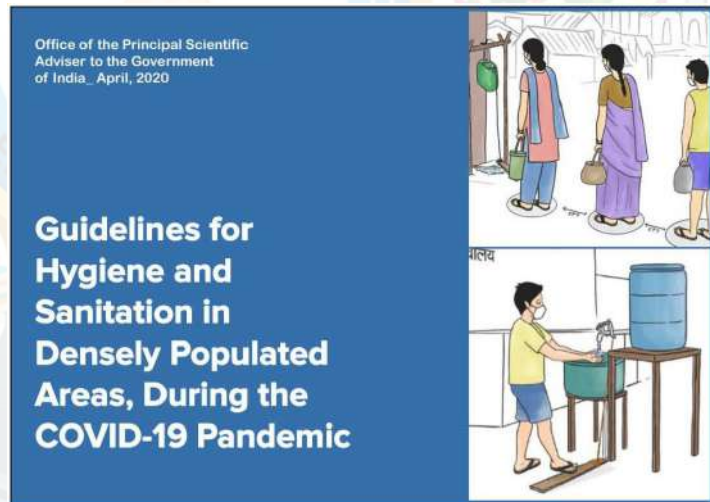
projected requirement for various medical inventories across districts, states, and the national level. The initiative aimed to help infrastructure plan, arranging essential human resources and procurement of materials. MSMEs and other industries working in the production and supply chain of these essentials may use these projections to support their local government administration.



Website link:
<https://covid19medinventory.in/>

Office of PSA released handbook on guidelines for hygiene and sanitation in densely populated areas during the COVID-19 Pandemic

Office of PSA released a handbook which provided an outline of some guidelines which states/local bodies and communities could adapt to contain the spread of COVID-19, especially in densely populated areas. The guidelines were created specifically for areas where toilets, washing, or bathing facilities are shared. The guidelines emphasised the need to ensure that authorities, volunteers, and communities co-manage these solutions to ensure sustainability. They also highlighted the need for full cooperation and respect for all



frontline workers and sanitation staff who play a critical role in ensuring its containment.

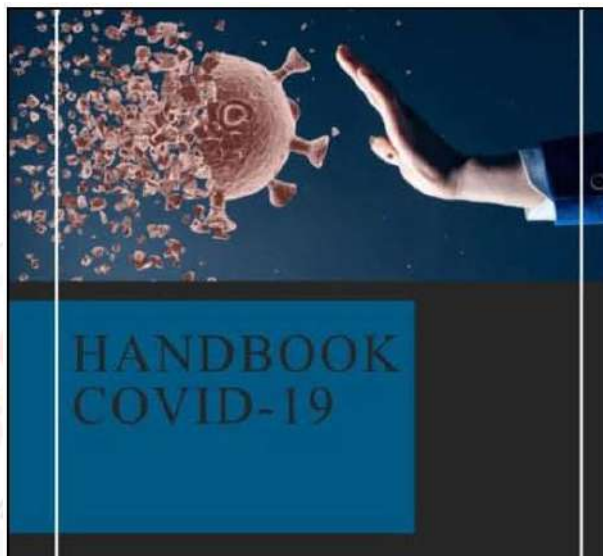
Website link:
http://164.100.117.97/WriteReadData/userfiles/PSA_DenseAreaGuidelines_Version8.pdf.pdf

The Office of the PSA developed handbook for COVID-19 testing in research institutions

The Office of the PSA developed a “Handbook for COVID-19 testing in Research Institutions” which allowed labs to self-assess its preparedness in terms of equipment, staff and expertise

required for COVID-19 testing. A detailed checklist had been outlined, which was used by a research lab to self-assess and indicate their preparedness for declaring the lab as a research and testing facility for COVID-19 after ICMR approval.

The purpose of this document was to provide interim guidance to laboratories and stakeholders involved in COVID-19 testing of patient samples.



Website link:

<https://www.psa.gov.in/innerPage/psa-initiatives/handbook-covid-19-testing-research-institutions/163/163>

Digital platform for COVID-19 critical medical supplies initiated by Office of PSA

A digital platform developed by Invest India (of DPIIT) in partnership with the Office of the PSA enabled COVID-19 critical medical supplies advisory cell to facilitate States with managing supply and demand of critical medical equipment and allow efficient decision making with regards to procurement of the same. The platform was provided to the States through the MHA Empowered Committee. The portal helped in:

- National Demand aggregation of critical medical equipment;
- Providing access to supplier information at one place – GeM, Invest India, Industry Association (FICCI, PhD Chamber of Commerce, CII, etc.);
- Enabling States to estimate numbers of critical medical equipment based on the number of patients and health care workers;
- Managing centralised query mechanism and online facilitation for States seeking advice on medical equipment demand/supply/usage single source of information for people, and infrastructure resources prepared by NSDS geotagging of crises management infrastructure (healthcare centres, isolation centres, etc.) along with the district-wise patient load.

Website link:

<https://www.psa.gov.in/web/article/psa-initiatives-against-covid-19-covid-19-critical-medical-supplies-digital-platform/484>



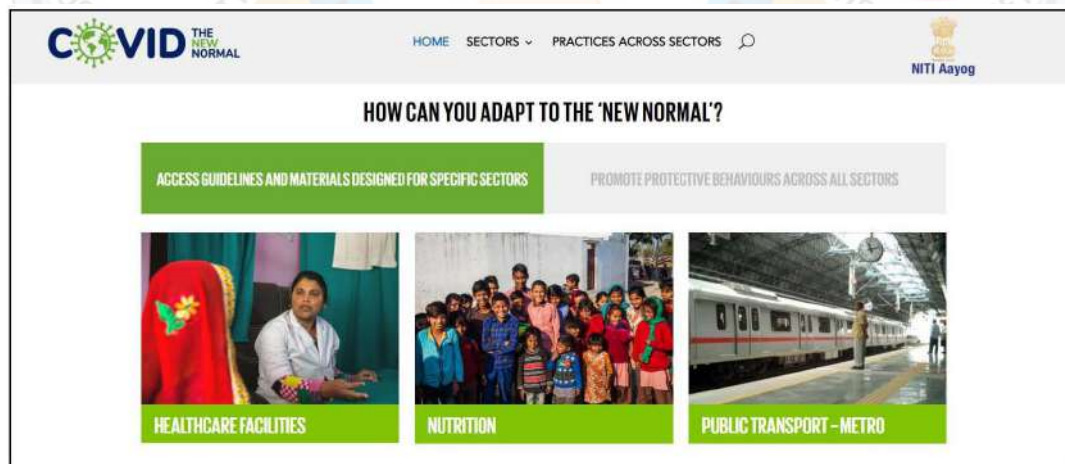
SCIENCE & TECHNOLOGY OUTREACH EFFORTS ON COVID-19

BY
NITI AAYOG

NITI Aayog launched a behaviour change campaign exploring the new normal in light of COVID-19

National Institution for Transforming India (NITI) Aayog, in partnership with Bill and Melinda Gates Foundation (BMGF), Centre for Social and Behavioural Change (CSBC), Ashoka University, and the Ministries of Health & Family Welfare (MoHFW) and Ministry of Women & Child Development (MoWCD) launched behaviour change campaign called 'Navigating the New Normal' and its website.

The website is concentrating on COVID-safe conduct, particularly wearing covers, during the 'Open' period of the COVID-19 pandemic. The website has sector-specific collaterals and guidelines for health, nutrition, and public transport (in metro cities). The campaign has two sections. The first is an online interface containing resources informed by behavioural science and the use of nudge and social norms theory, related to COVID-safe behavioural norms during the on-going Unlock Phase and the second is a media campaign concentrated on wearing of masks.



Website link:

<http://www.covidthenewnormal.com/>

<https://pib.gov.in/PressReleasePage.aspx?PRID=1634328>

NITI Aayog launched flagship initiative to promote women entrepreneurship

NITI Aayog launched a campaign, termed as Women Entrepreneurship Platform (WEP), to enable and promote the livelihoods of women home-based workers making reusable cloth

masks, in the aftermath of COVID-19 pandemic outbreak. The platform was a flagship initiative to promote women entrepreneurship in the country.

During the pandemic, home-based workers, especially women, were struggling to make ends meet and were looking for alternate sources of income. Women working with grassroots organisations and small women-led businesses who had the required skill set and capability to stitch had adapted to the need of the hour by making reusable cloth masks.

The 'Masking it Up with WEP' initiative empowered women home-based workers from grassroots organisations, not-for-profit organisations and women-led small businesses during the pandemic by facilitating connections with potential buyers. In these times of economic distress, WEP hopes to reach out to allies who may be interested in supporting the livelihoods of India's home-based workforce as it works to build the post-COVID India.

Make a difference

Are you looking to buy cloth masks?

Help enable the livelihoods of women home-based workers

SIGN UP HERE

#MaskingItUpWithWEP

#MaskingItUpWithWEP
#FromHomeForHealth

IMPACT

- 20+**
Women led grassroots organizations, not-for-profit organisations and small businesses
- ~ 1,00,000**
Masks Produced
- 100+**
Home-based workers benefitted
- 10+**
Raw material suppliers offered support

Website link:
<https://wep.gov.in/wepmask.html>

NITI Aayog initiated campaign to support senior citizens in fight against COVID-19

NITI Aayog initiated a nationwide campaign “Hum Honge Kamyab” to support the senior citizens in the society through enabling the participants to take a pledge. In the pledge, an individual took the undertaking that he/she will support senior citizens around, increase their awareness, and reach out to the isolated and the vulnerable.



Website link:

<https://pledge.mygov.in/seniorcitizens/>

NITI Aayog released Vision 2035 for Public Health Surveillance in India

India has made substantial progress in the prevention, control, and elimination of major communicable diseases. Smallpox was eradicated worldwide and Polio has been eliminated in India. India has substantially reduced the incidence of HIV infections by more than half in the last two decades. Recent outbreaks including the COVID-19 and Nipah virus have been effectively contained and controlled.

NITI Aayog, that functions as a think tank and resource centre or knowledge hub, fosters cooperative federalism, designs policy and program framework and guides monitoring and evaluation of national programmes in India. The COVID-19 pandemic has provided an opportunity to revisit (re)emerging diseases due to increased interaction between human-animal-environment. Early identification of this interface is essential to break the chain of transmission and to create a resilient surveillance system. NITI Aayog released a vision document on Public Health Surveillance in India by 2035. The Document is a white paper that articulates the vision and describes building blocks. It envisions integration, enhanced citizen-centric and community-based surveillance, strengthened laboratory capacity, expanded referral networks, and a unified Surveillance Information Platform that will provide data for decision making and action.



Website link:

https://niti.gov.in/sites/default/files/2020-12/PHS_13_dec_web.pdf

Mitigation & Management of COVID-19 Practices from India's States & Union Territories

A compendium titled 'Mitigation & Management of COVID-19 Practices from India's States & Union Territories' was released by NITI Aayog in November 2020 that detailed information about various practices and initiatives implemented by States, Districts and Cities in India for containing and managing the COVID-19 outbreak. It is important to note that these initiatives are not being termed as 'best practices' by NITI Aayog as that would require a separate and comprehensive evaluation exercise as well as longer-term follow-up. Moreover, in a rapidly evolving situation, it

can be challenging to consistently and fully correlate practices with outcomes. A practice might yield good results for a certain period of time but cease to do so thereafter.

All case studies/reports/papers highlighting practices/interventions/models implemented by State or Sub-State Governments on their own or in collaboration with civil society, private sector, volunteers were included in this review. Case studies/reports/papers focusing on interventions implemented by civil society organizations, private sector or individuals independent of any partnership with State/Local Governments were excluded from this review.

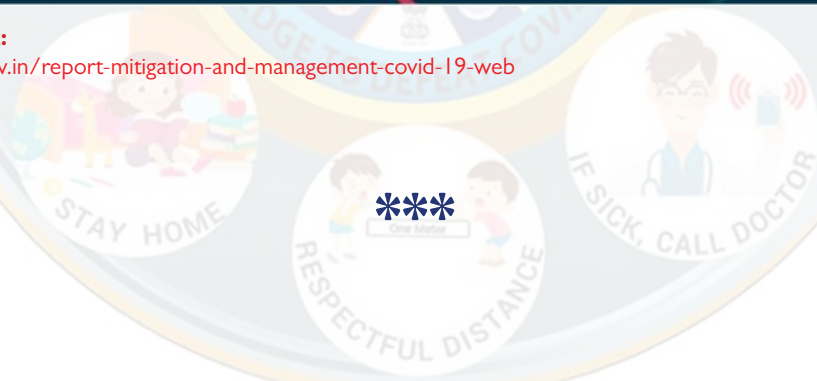
Practices have been categorized into the following broad themes: public health and clinical response, governance mechanisms, digital health, integrated models as well as Report on Mitigation and Management of COVID-19 as welfare of migrants and other vulnerable groups. While governance and technology cut across several themes, they have been included separately to highlight certain practices adopted by States which pertain primarily to putting in place governance mechanisms or leveraging technology for COVID-19 containment and management.

A summary of the relevant Government of India guidelines has been included for the aforementioned categories, wherever applicable. It is important to note that these guidelines are continually revised based on the emerging scenario with respect to the COVID-19 outbreak.



Website link:

<https://niti.gov.in/report-mitigation-and-management-covid-19-web>



SCIENCE & TECHNOLOGY OUTREACH EFFORTS ON COVID-19

BY
myGOV

Organization-wise COVID Warriors Dashboard

The Government of India has launched covidwarriors.gov.in to get doctors, paramedical staff, police and volunteers engaged in prevention and treatment of COVID-19. COVID Warriors portal aims to develop the capabilities of all individuals involved in prevention and treatment of coronavirus pandemic. This database contains information on 1.58 crore corona warriors.



Website link:
<https://covidwarriors.gov.in/>

COVID-19 Shri Shakti Challenge

myGOV launched COVID-19 Solution Challenge on its platform which has seen a very encouraging response from start-ups, entrepreneurs and individuals proposing technology solutions in the fields of bioinformatics, datasets, Apps for diagnosis, etc. that can be leveraged for strengthening the fight against COVID-19.

In order to support and promote women, entrepreneurs and women-led start-ups and also to provide solutions by entrepreneurs impacting a large number of women, UN Women has

proposed to partner with myGOV COVID-19 Solution Challenge. Accordingly, myGOV has launched COVID-19 Shri Shakti Challenge as an additional reward and support for women entrepreneurs and solutions by entrepreneurs that can impact a large number of women.



Website link:

<https://innovate.mygov.in/shrishakti/#tab1>

Government of India invited citizens to share their ideas & suggestions to help fight COVID-19 pandemic

Government of India is taking all necessary steps to ensure that every Indian is prepared well to face the challenge and threat posed by the COVID-19 pandemic. The most important factor in preventing the spread of the virus locally is to empower the citizens with the right information and taking precautions as per the advisories being issued by Ministry of Health & Family Welfare (MoHFW). In order to involve the community in the fight against the virus, myGOV has called for participation by inviting citizens to share their ideas and suggestions to help fight Coronavirus. These can include innovative and best practices regarding hygiene, hand washing, social distancing and preventing spread of rumours and being prepared rather than panicking, and at the same time, keeping calm and staying vigilant.



Website link:

https://www.mygov.in/group-issue/share-your-ideas-suggestions-help-fight-coronavirus/?utm_source=webcampaign&group_issue&285571

myGOV India appealed to become a COVID WARRIOR by volunteering or donating for fight against Corona

myGOV India, in collaboration with National Disaster Management Authority (NDMA) and the Ministry of Health & Family Welfare (MoHFW), is calling upon individuals and organisations to volunteer or donate towards India's fight against corona.

As per the need, the person will be contacted by the concerned authorities of States/UTs/ Ministry of Health and Family Welfare for the donated medical supply items/equipment.



Website link:
<https://self4society.mygov.in/>

myGOV initiated Jan Andolan for COVID-19-appropriate behaviour

Government of India takes an initiative through Jan Andolan to create awareness for practicing appropriate behaviour related to hygiene to protect oneself and the society from COVID-19 transmission.



Website link:
<https://pledge.mygov.in/janandolan-covid/>

'Share your Story' on appropriate behaviour during COVID-19

We all know India's coronavirus fight is people-driven. It is important to make people aware of the various efforts they can take to protect themselves and the collective efforts they are taking to fight against this virus and help save many lives and to crowd-source behavioural discipline from citizens across the country and recognize the key contributors.

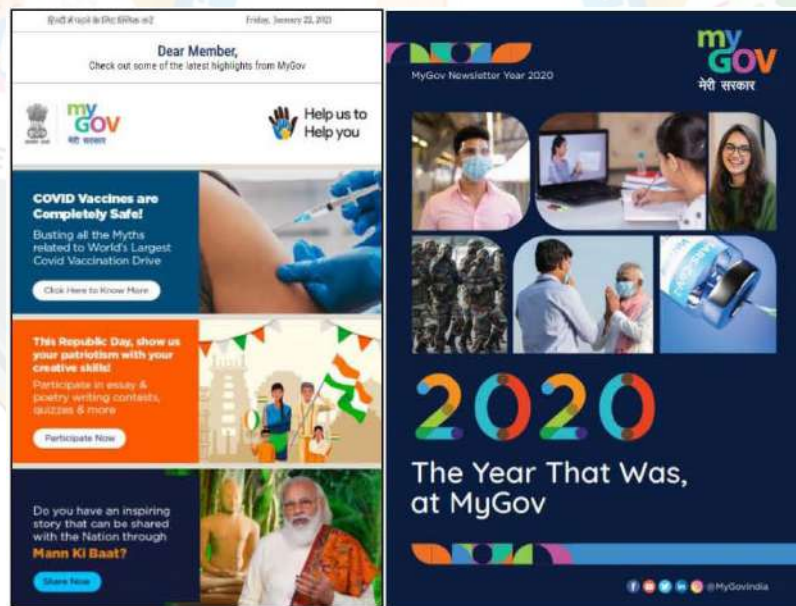
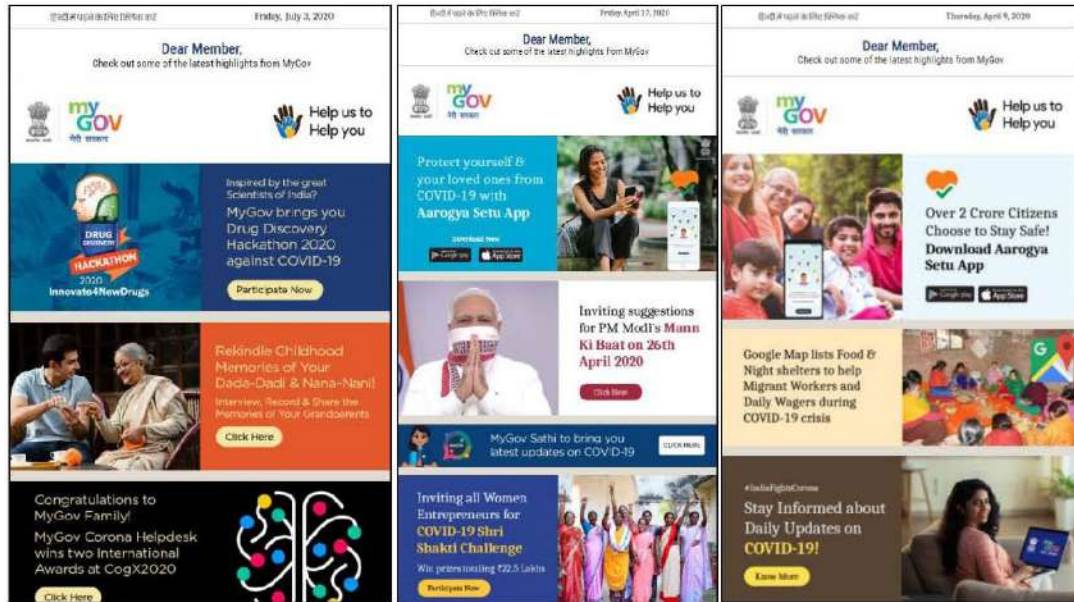
'Share your story' will help us get real-life stories of citizens on how they are protecting themselves and also protecting their friends, relatives and neighbours to fight against the spread of this deadly virus.



Website link:
<https://www.mygov.in/task/%E2%80%98share-your-story%E2%80%99-appropriate-behavior-during-covid-19/?tar>

myGOV published weekly newsletters on COVID-19

myGOV is an innovative platform to build a partnership between citizens and the Government with the help of technology for India's growth and development. Weekly newsletters are published on the myGOV portal as a part of government initiatives to create awareness of myGOV activities on COVID-19.



Website link:

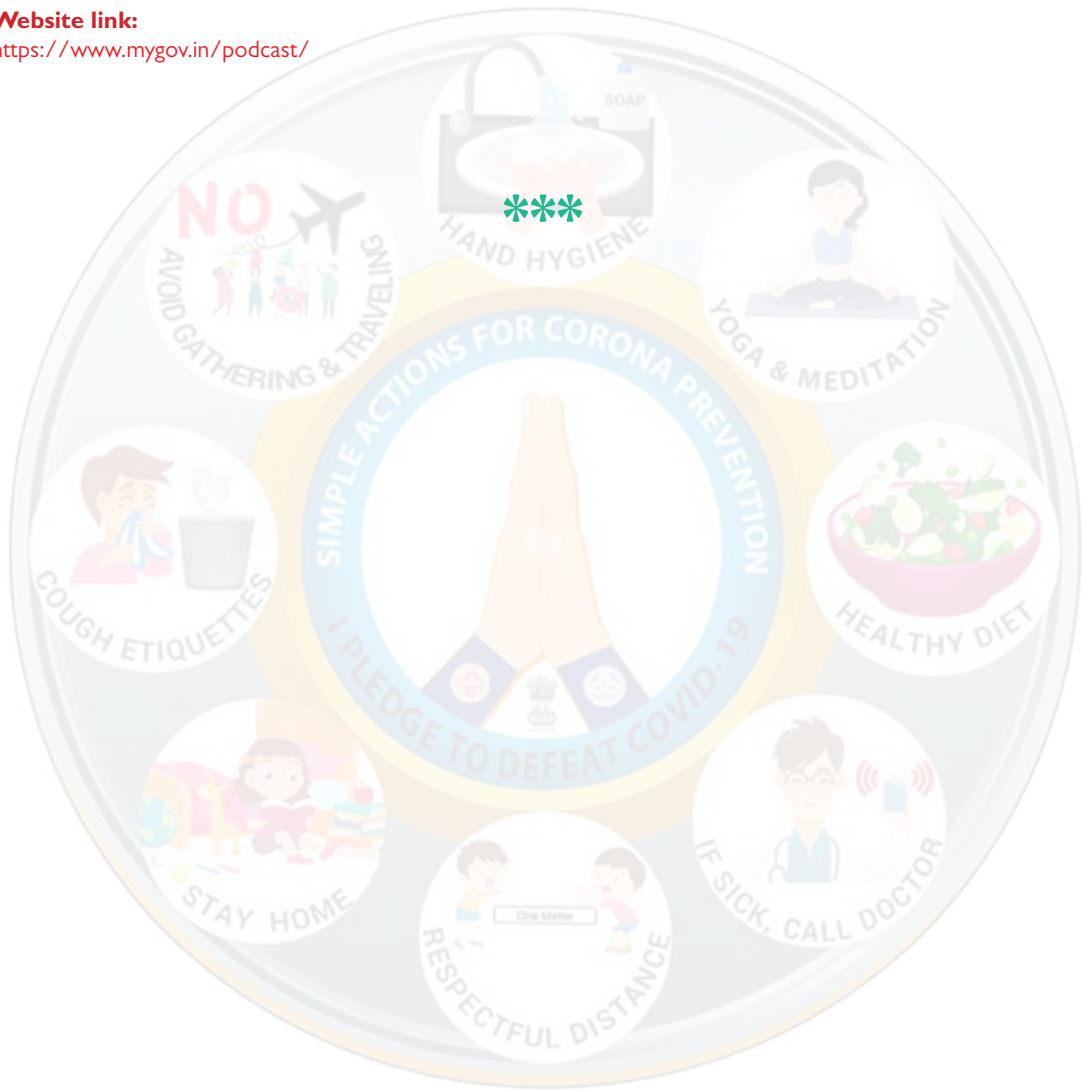
<https://www.mygov.in/weekly-newsletter/>

myGOV launched podcast on COVID-19 to create awareness

Government of India is taking all necessary steps to ensure that we are prepared well to face the challenge and threat posed by the COVID-19 pandemic. To aware the general public of COVID-19 and vaccination, myGOV launched podcasts where Dr V K Paul and Dr Randeep Guleria released 2-minute audio related to COVID-19 vaccination.



Website link:
<https://www.mygov.in/podcast/>



SCIENCE & TECHNOLOGY OUTREACH EFFORTS ON COVID-19

BY

DEPARTMENT OF SCIENCE AND TECHNOLOGY (DST)

DST Media Cell effectively communicated DST's efforts to combat the COVID-19 pandemic through various media

The Media Cell of the DST, Government of India through various means of information dissemination like articles, blogs, info graphics, e-news letters on digital media and posts on social media has played a proactive role in carrying out outreach activities to spread information and also contain misinformation against the COVID-19 pandemic. The media cell was effectively engaged in communicating all the R&D, new technologies, innovation and interventions carried out by the DST and its autonomous institutions to combat COVID-19 throughout the pandemic period. The Media Cell released a special edition of 'Strides', its monthly e-newsletter, in April 2020 which brought together some of the fruits of the hard work that went into preparing for the battle against the pandemic. It has also dedicated a section to COVID-19 efforts in the editions from April onwards.

DST and its autonomous institutions rose up to the COVID challenge with several arms to fight the pandemic. These include efforts by Sree Chitra Tirunal Institute for Medical Sciences and Technology (SCTIMST) which carried out research and developed technologies to combat the pandemic; International Advanced Research Centre for Powder Metallurgy & New Materials (ARCI), Hyderabad which produced disinfection technologies and hand sanitizer as per the WHO standards and distributed it among police personnel in Hyderabad, students, and staff of the institution. SCTIMST staff kick-started several social service initiatives on a massive scale. Rural Women Technology Parks supported by SEED Division DST prepared products like hand sanitizer and homemade mask, and similar activities were also supported by DST under the societal programme for women. The National Innovation Foundation (NIF) put out the Challenge COVID-19 Competition (C3) which triggered innovative disinfection and sanitization solutions by common people. An information brochure for the programme on health and risk communication 'Year of Awareness on Science & Health (YASH) with focus on COVID-19' was developed by National Council for Science and Technology Communication (NCSTC) and a multimedia guide on COVID-19 called COVID Katha launched by them. All these efforts were successfully communicated through social, digital and print media by the DST Media Cell and it created a lot of impact among the media in particular and public in general.

Innovative disinfection & sanitization solutions by common people selected in NIF's Challenge COVID-19 Competition (C3)

The National Innovation Foundation (NIF), an autonomous body of the DST, supported two innovative disinfection solutions by common people which were 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 were the two supported innovations under the campaign.

The Vehicle Disinfectant Bay is a device to disinfect vehicles automatically, which reduces time and energy by completing the disinfection process of a vehicle in a very short time without much effort. It consists of a frame, tank, motor, MCB Board, agronet, nozzles, valves, pipes, and fittings and works on the principle of spraying disinfectant liquid by using an AC motor for operation. It can be deployed easily at State Border/Check-posts, which are the entry point of vehicles in a State. It is already installed at two check-posts in the State of Sikkim - Rangpo checkposts, East Sikkim and Melli checkposts, South Sikkim.



The Vehicle Disinfectant Bay deployed at Rangpo Checkposts, East Sikkim

The foot-operated, height adjustable, hands-free sanitizer dispenser stand is an ideal ubiquitous hygiene solution for residential, commercial, and industrial applications wherein one simply needs to press with the foot a pedal and the sanitizer will be dispensed. Its height is adjustable as per the size of the sanitizer bottle and it is steel epoxy powder coated. It also has non-skidding rubber shoes and has a special bottle holder made of high quality elastic. It can be deployed at malls, airports, theatres, banks, business parks, factories, educational institutions, bus depots or railway stations, hotels, restaurants, and so on. It is being commercialized by Mumbai-based Visco Rehabilitation Aids Pvt. Ltd, a leading manufacturer of orthopaedic products and mobility aids.

"NIF is not only scouting for relevant and frugal innovations from a large number of citizens but also helping with end-to-end solutions to see the best ideas take wings. A topical competition of this kind satisfies the creative, social service, and entrepreneurship urges all at the same time from the people from all walks of life," said Prof Ashutosh Sharma, Secretary, DST.

NIF is providing incubation and mentoring support for further dissemination to the generator of the ideas.

Under the C3, NIF managed to attract ideas and innovations from more than 1700 citizens through the website, email, and WhatsApp from nearly 360 districts spread across 33 States and Union Territories of the country.

The competition attracted ideas from a wide range of professionals, students, farmers, entrepreneurs, academicians, IT and ITES professionals, doctors and pharmacists, and so on from ages ranging from 5 to 76 years.

CHALLENGE

COVID-19

COMPETITION

(C3)

Today when the country is facing a great challenge crisis due to the Corona pandemic, National Innovation Foundation - India (NIF) wishes to engage innovative citizens in its Challenge COVID-19 Competition (C3) by requesting them to participate with their creative ideas and innovations for the following problems/issues.

Reducing transmission of Corona virus
The Government has suggested a slew of measures to reduce the transmission however can there be some original creative ideas / innovations, which can supplement the efforts of the government in slowing or eliminating the spread further.

Sanitising one's hands, body, home items and home, public places wherever required
To reduce transmission, sanitisation is very important. Government has urged people including Caregivers, to wash their hands periodically, not to touch their face and clean house daily. Any creative idea/innovation, which can make these tasks more interesting and effective?

Supply and distribution of essential items to people specially the elderly living alone
Despite lockdown, many people are seen outside their homes for the purchase of groceries or medicines. Ideas for door-to-door supply of essential products and services are invited which obviates the need to move out of the home.

Gainful engagement of people at home
It is increasingly becoming difficult for people, specially the children to be at home all the time. Legitimate ideas, which help people stay at home and also engage in productive activities, are invited.

Healthy food for nutrition and boosting immunity
The damage due to the virus can be minimised if a person is healthy. Ideas for food or drinks, which help people build their immunity while at home may also be sent. It should be noted that the availability of raw materials is limited during the lockdown period hence only those food items may be suggested whose raw materials may be easily available.

PPE's and Rapid diagnostic testing facilities for capacity building of healthcare
Any amount of healthcare preparedness seemed very tiny while dealing with COVID-19. PPE's (Personal Protective Equipment) like masks etc. and other important requirements like ventilators, rapid diagnostic testing facilities are needed in extraordinary quantities. Innovations in the PPE's category and those contributing to Rapid diagnostic testing are encouraged to participate. Innovations which could provide protection against respiratory droplets from coughing and sneezing of the infected and also against airborne transmission when tiny droplets remain in the air even after the person with the virus leaves the area.

Rethinking "contactless" devices for the post-Corona implementation needs
COVID-19 has forced the world to look touchpoints with a lot of suspicion. For all practical purposes, touchpoints are inevitable and it is quite common to deal with utilities like Elevators, rest rooms etc especially at public places or at shared spaces. Certain countries have to start using touchless in elevators for pressing buttons which are temporary workarounds. These needed to be looked more holistically and how to make devices "contactless" or "minimal contact" is a dimension that design thinking will have to start embedding. Innovations around such design thinking in day to day devices and facilities we use are encouraged to participate in this category.

Varying needs of the different segment of population during COVID-19
COVID-19 has impacted all sections of global population be it the children, youth or the elderly people; Corona Warriors; Medical and Essential Services Providers and most importantly the Differently - abled, Special Needs and Mentally Challenged Population. Innovations for the Differently - abled, Special Needs and Mentally Challenged Population, is a very important dimension as that the pandemic is addressed for everyone in an inclusive manner.

Your Safety is country's concern

In case of technological ideas worthy for prototyping, NIF will provide requisite financial help. Those ideas which may be implemented or disseminated, NIF will engage with relevant District/ State/ National authorities for their implementation.

The details of ideas and innovations may be sent to the following email id (campaign@nifindia.org) with complete details about the person (Name, Age, Education, Occupation, Address, Contact Number, Email) and details about the idea/ innovation (including photo and video, if any). Alternatively, ideas and innovations can also be submitted through the following link - <http://nif.org/challenge-covid-19-competition>

The C3 is being announced on March 31, 2020 and will be accepting entries on a rolling basis until further notification.

राष्ट्रीय नवप्रवर्तन प्रतिष्ठान - भारत
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National Innovation Foundation - India
Autonomous Body of the Department of Science and Technology, Govt. of India
Annapur, Gandhinagar, Mahatma Road, Gandhinagar, Gujarat, Tel: 0278-26181/32/38/19, www.nif.org.in

Website Link:

<https://dst.gov.in/nif-invite-innovative-citizens-participate-challenge-covid-19-competition-c3>

<https://nif.org.in/challenge-covid-19-competition>

DST launched programme on health & risk communication with focus on COVID-19

National Council for Science & Technology Communication (NCSTC), DST launched a programme on health and risk communication 'Year of Awareness on Science & Health (YASH)' with focus on COVID-19.

It is a comprehensive and effective science and health communication effort for promoting grass-root level appreciation and response on health and would help saving and shaping the lives of people at large, as well as build confidence, inculcate scientific temper and promote health consciousness among them.

The current pandemic scenario has posed concerns and challenges all around, where scientific awareness and health preparedness play a significant role to help combat the situation. This requires translation and usage of authentic scientific information to convey the risks involved and facilitates communities to overcome the situation. The programme will encompass development of science, health, and risk communication software, publications, audio-visual, digital platforms, folk performances, trained communicators, especially in regional languages, to cater to various cross-sections of the society in the country.

Under the programme, strategies have been worked out to involve academic, research, media, and voluntary organizations to facilitate necessary actions and emergency preparedness of society to address the challenge. Planning has been done to translate and use authentic scientific and health information to communicate the risks and facilitate risk management, which is an effective science communication requirement for promoting community-level response. The initiative targeted at assessing public perceptions, encouraging public engagement and participation in risk-related reciprocal communication processes will open routes for building capacities, involving

stakeholders and enabling communities to develop a sense of awareness, an analytical mind, change behaviours and take informed decisions regarding healthcare and associated risks.

The programme is aimed at minimizing risks at all levels with the help of public communication and outreach activities, promoting public understanding of common minimum science for community care and health safety measures like personal sanitation and hygiene, physical distancing, maintaining desired collective behaviours and so on. It also includes information dissemination mechanisms to reduce the fear of risks and build confidence with necessary understanding for adopting sustainable healthy lifestyles and nurturing scientific culture among masses and societies.

"In the absence of vaccines and cure for COVID-19, conveying the authentic best practices on cutting down on the transmission of virus and its management are of paramount significance. In order for a widespread grass-roots impact, our communication strategies have to be multidimensional, engaging, informative, and delivered with speed and scale," said Professor Ashutosh Sharma, Secretary, DST.

YASH will envisage specific outcomes, like improved risk understanding amongst target groups including working with local sensitivities, belief systems, traditions, and indigenous knowledge; bringing about attitudinal changes among target groups about appreciating risks, associated challenges, solutions, and coping with the situation with courage and confidence; better working relations with community leaders, influencers including doctors, faith leaders and so on. It also encompasses improved ability to clarify misperceptions, misbeliefs as well as introduce practices based on authentic knowledge duly verified by scientific processes, trust in scientific competence of solutions and service providers.

DST released information brochure on health & risk communication programme focusing on COVID-19

The National Council for Science & Technology Communication (NCSTC), DST released an information brochure for their programme on health and risk communication 'Year of Awareness on Science & Health (YASH) with focus on COVID-19'. The brochure carries information on the genesis and need of such a mega programme in the country to address the issues of risks, crises, disasters, and uncertainties especially posed by the COVID-19 pandemic. The programme focuses on enhancing public understanding and awareness on science and health for better preparedness to cope with the present and future challenges.

Prof. Ashutosh Sharma, Secretary, DST said that a wide array of programmes and activities built around awareness and outreach have been envisaged involving print, electronic, digital, folk and interactive media to reach out to large cross-sections of the society under the campaign. He added that the logo of the YASH programme has been designed to create a wave of peace and bliss and it depicts a sense of overcoming the situation at large and would act as a harbinger of taking forward the messages of science, health, risk and awareness.

The National Health & Risk Communication programme has been planned and being implemented in a big way with a mechanism of PAN India presence and reach. State Councils of Science & Technology have been involved. The three major ingredients of the programme include software/content development, capacity development, and dissemination and outreach.

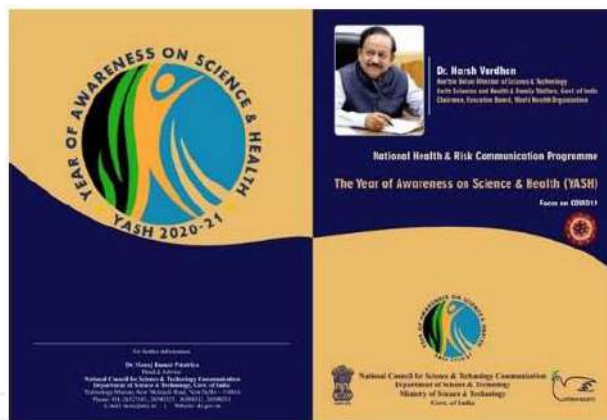
The activities are spread over six regions, East, West, North, South, Central and Northeast. Special communication modules are developed depending upon especially marked zones, and networking and training of communicators and volunteers for activities related to community

health would be an advantage. The current scenario of the pandemic caused by COVID-19 has posed concerns and challenges all around where scientific awareness and health preparedness can play a significant role to help combat the situation with translation and usage of authentic scientific information and to convey the risks involved and facilitate the communities to overcome the situation.

The information brochure highlights a comprehensive and effective science and health communication effort for promoting grass-root-level appreciation and response on health and saving and shaping the lives of people at large, as well as building confidence, inculcating scientific temper and promoting health consciousness among them.

Website link:

<https://dst.gov.in/callforproposals/call-proposals-under-national-health-and-risk-communication-programme-year>
<https://dst.gov.in/sites/default/files/YASH%20Backgrounder.pdf>



NCSTC brought out COVID Katha for sensitising common public towards COVID-19

The National Council for Science & Technology Communication (NCSTC), DST, in association with Dr Anamika Ray Memorial Trust, brought out the Hindi and English versions of its popular multimedia guide for mass awareness carrying important information on A-to-Z of COVID-19 pandemic.

Both the English and Hindi versions of COVID Katha have been brought out. Prof. Ashutosh Sharma, Secretary, DST while appreciating COVID Katha said

that the interpretation of science in common man’s language is important for awareness among laypersons and Hindi being largely spoken language the Hindi version of COVID Katha carries more value. Prof. Sharma said that science cartoons (scientoons) while carrying scientific messages and explaining the health concepts in a simple banner also add humour and amusement during the present health crisis when people feel stressed!



Website link:

<https://dst.gov.in/sites/default/files/COVID%20KATHA%20English.pdf>
<https://dst.gov.in/sites/default/files/COVID%20KATHA%20Hindi.pdf>
<https://dst.gov.in/news/covid-katha-multimedia-guide-mass-awareness>

Outreach initiatives by India Science Channel

India Science is an Internet-based Over-The-Top (OTT) Science TV channel. It is an initiative of the DST, Government of India, implemented and managed by Vigyan Prasar (VP), an autonomous

organisation of the DST. This 24x7 video platform is dedicated to science and technology knowledge dissemination, with a strong commitment to spreading scientific awareness, especially with Indian perspectives, ethos and cultural milieu. The initiative is supported by the National Council of Science and Technology Communication (NCSTC), DST.

Science and Technology are the main driving forces of the nation and fundamental to progress and growth. So, the advantages of science and technology must reach all sections of the society through popular media of communication. India's large Internet user base of 500 million is split between 305 million urban Indians and 195 million rural Indians, all of whom need to be reached with authentic science and technology content. And to do so, the Internet is fast becoming the most accessible and preferred media for content delivery.

Since the onset of COVID-19, India Science has been working tirelessly to connect with the people, in the form of regular bulletins, documentaries, interviews, bytes and live sessions of scientists, doctors, experts, science administrators and policymakers. The following is a brief account of the information products produced by India Science.

1. Weekly COVID-19 video bulletin: Produced in both Hindi and English language on weekly basis from 7 July 2020, COVID-19 bulletin apprises the audience about the latest developments happening in the S&T scenario in India that are helping in managing and overcoming the challenges thrown up by the pandemic. Vigyan Prasar produced daily COVID-19 Bulletin from 11th April to 06 July 2020. Thereafter, a weekly bulletin is being produced which provides details about the most important S&T updates from the country related to COVID-19. From January 2021 onwards the COVID Bulletin carried news about vaccination drive initiated by the Government of India.
2. COVID Explained - Short films to explain the important research findings related to COVID-19 and COVID-19 vaccination in layman's language are produced on weekly basis. The topics chosen for COVID Explained cater to the curiosity of common man towards COVID-19.
3. Facebook live sessions on interviews of various stakeholders on COVID-19 Vaccination programme.
4. Facebook and India Science live sessions on interviews with experts on COVID-19 Vaccination.
5. Live Phone in programme: A live phone in programme on COVID-19 vaccination is telecasted from India Science on every Monday and Tuesday. Experts from the field give answers to the questions related to COVID-19 vaccination received from the audience.

List Titles of Programmes:

1. Science this week: Interview with AIIMS Director Dr Randeep Guleria (E)
2. Vigyan Darpan - Coronavirus and mental health (H)
3. Vigyan Darpan - Interview with DG, CSIR (H)
4. Vigyan Darpan - Interview with DG, CSIR (E)
5. Aarogya Setu app (H)
6. What was the source of origin for novel coronavirus? (E)
7. What are features of a good diagnostic test? (E)
8. What is a paper-based test for diagnosing coronavirus? (E)
9. COVID-19 Jagrukta (H)
10. Can lockdown alone help us to contain coronavirus? (E)
11. What drugs are being tested to treat coronavirus infection? (E)
12. Are we testing enough for coronavirus infection? (E)
13. What are various approaches being taken to fight coronavirus? (E)
14. Ghar main mask kaise bnaaye? (H)

15. Interview with Dr. K.K. Aggarwal (H)
16. Corona ke samay kaisa ho hamara samajik vyavahar? (H)
17. Hotspot ki sealing kyun zaruri hain? (H)
18. Kya hain coronavirus ke sankraman ki shrakhala? (H)
19. Kya Hai Convalescent Plasma Therapy? (H)
20. What is Hydroxychloroquine? (E)
21. Dr. Harsh Vardhan - Interview on Coronavirus (H)
22. COVID-19 Explained (E)
23. Coronavirus Sharir Ke Bahar Kitni Der Reh Sakta Hai? (H)
24. Dr. Harsh Vardhan on How Research Institutions Can Fight COVID-19 (E)
25. Convergence of Technologies in the Times of Virus: Coding for COVID-19 (E)
26. Science Monitor - Interview on COVID-19 with Dr. Renu Swarup, Secretary, DBT (E)
27. Vigyan Darpan - Interview on COVID-19 with Dr. Renu Swarup, Secretary, DBT (H)
28. How does COVID-19 testing work?
29. How can technology help to meet the healthcare demand for COVID-19? (E)
30. Why should we work in multidisciplinary teams? (E)
31. Combating Coronavirus Through Technology - A talk by Dr. Anurag Agrawal (E)
32. Combating Coronavirus Through Technology - A talk by Prof. B. S. Murty (E)
33. Science This Week - Interview on COVID-19 with Dr. Madhavan Nair Rajeevan, Secretary, MoES, GoI (E)
34. Vigyan Darpan - Interview on COVID-19 with Dr. Madhavan Nair Rajeevan Secretary, MoES, GoI (H)
35. How can coding enhance the experience of virtual meetings? (E)
36. Vigyan Darpan - Interview on COVID-19 with Prof. K. VijayRaghavan, Principal Scientific Adviser to the Government of India (H)
37. Science This Week - Interview on COVID-19 with Prof. K. VijayRaghavan, Principal Scientific Adviser to the Government of India (E)
38. How does vaccine works? (E)- Explained
39. Explained- How is a vaccine developed? (E)
40. Types of COVID-19 Vaccines Explained!(E)
41. The Journey of COVID Vaccine (H)
42. All About COVID-19 vaccines | Vaccines are here! (H)
43. All About COVID-19 vaccines | Vaccines are here! (E)
44. COVID-19 VACCINE Fact File (E) with Expert-Dr. Anil Gurtoo, (Director Lady Hardinge Medical College)
45. COVID-19 VACCINE Fact File (E) with Expert-Dr. Sameer Gulati, (Associate Professor of Medicine VMMC and Safdarjung Hospital)
46. All About COVID-19 Vaccine | Who will be prioritized for COVID-19 vaccine? (E)
47. Question Hour COVID-19 Phone in Let's Talk Vaccine
48. COVID-19 VACCINE Fact File (E)
49. All About COVID-19 Vaccine | Important Vaccines for India (H)
50. All About COVID-19 Vaccine | Important Vaccines for India (E)
51. All About COVID-19 Vaccine | How is India conducting COVID-19 vaccination drive? (H)
52. COVID-19 Vaccine, Are People Ready?
53. COVID-19 VACCINE Fact File (E) with Expert-Dr. Virander Singh Chauhan, (Eminent Scientist and ETI Founder)
54. COVID-19 Question Hour (H) with Expert-Dr. Swati Maheshwari, (Internal Medicine Expert)
55. COVID-19 Question Hour (E) with Expert-Dr. Anil Gurtoo, (Director Lady Hardinge Medical College)
56. COVID-19 Question Hour (E) with Expert-Dr. Anshumaan Kumar, (Dharmshila Cancer Hospital)

57. The Science Behind Vaccines with Prof. K. VijayRaghavan (H)
58. The Science Behind Vaccines With Prof. K. VijayRaghavan (E)
59. Protein-based COVID-19 Vaccine (H)
60. COVID-19 Vaccine New Year's Gift (H)
61. Understanding The Science Behind COVID-19 Vaccine Clinical Trials - Life in Science with Pallava Bagla (E)
62. Understanding The Science Behind COVID-19 Vaccine Clinical Trials - Life in Science with Pallava Bagla (H)
63. India's Corona Vaccine Portfolio: Life in Science with Pallava Bagla (E)
64. India's Corona Vaccine Portfolio: Life in Science with Pallava Bagla (H)
65. Protein-based COVID-19 Vaccine (E)
66. COVID-19 Vaccine Approval and Dry Run (H)
67. COVID-19 Vaccine Approval and Dry Run (E)
68. Vaccine, Safety and Rules (H)
69. All About COVID-19 Vaccine | Who will get COVID-19 Vaccine First? (H)
70. Vaccine, Safety and Rules (E)
71. How does a vaccine work? (E)
72. How is a vaccine developed? (E)
73. Journey of COVID-19 vaccine (H)
74. COVID-19 Vaccines (H)
75. COVID-19 Question Hour (E)
76. Let's talk vaccine (E)
77. All About COVID-19 Vaccine | Covishield (E)
78. All About COVID-19 Vaccine | Covishield (H)
79. COVID-19 Vaccine Song (H)
80. All About COVID-19 Vaccine | Covaxin- How has it been developed? (E)
81. Covaxin Effectiveness Against Mutant UK Strain (H)
82. All About COVID-19 Vaccine | What is the Safety, Efficacy and Efficiency of a Vaccine? (H)
83. All About COVID-19 Vaccine | What is the Safety, Efficacy and Efficiency of a Vaccine? (E)
84. Bharat Biotech Intranasal Vaccine (E)
85. Co-WIN app: All you need to know (E)
86. COVID-19 Vaccine Trial (E)
87. How is India conducting COVID-19 vaccination drive? (E)
88. All About COVID-19 Vaccine | Important Vaccines for India (E)



89. COVID-19 Vaccination (E)
90. COVID-19 Vaccination (H)
91. COVID-19 Vaccine Approval and Dry Run (E)
92. Question Hour COVID-19 Phone in Programme With Dr. Aditya Aggarwal
93. Question Hour COVID-19 Phone in Programme With Dr. Vaishhali Bhardwaj
94. Question Hour COVID-19 Phone in Programme With Dr. Swati Maheswari

Contact info: kapil@vigyanprasar.gov.in

Website link:

<https://www.indiascience.in/>

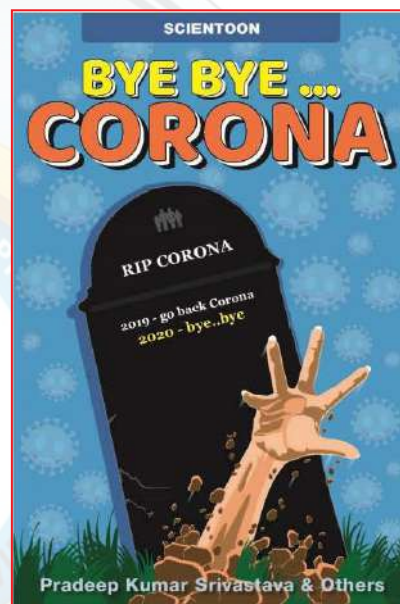
Vigyan Prasar published ‘Bye Bye Corona’ for making people aware of COVID-19 in an engaging way

World’s first scientoon book on COVID-19 titled “Bye Bye Corona”, written by ‘scientoonist’ Dr Pradeep Srivastava, former Senior Principal Scientist at CSIR-Central Drug Research Institute (CDRI), Lucknow, was released by Ms. Anandiben Patel, Governor, Uttar Pradesh. The book is published by Vigyan Prasar. Dr Nakul Parashar, Director, Vigyan Prasar, and Nimish Kapoor, scientist and head of publication division, Vigyan Prasar, are the chief editor and editor of the book, respectively.

The book is an attempt to show that how common man can be made aware about SARS-CoV-2 infection or COVID-19 disease with the help of colourful, interesting and eye-catching Scientoons. Awareness is the best tool for prevention, which in turn is the best way to save us from this pandemic.

Website link:

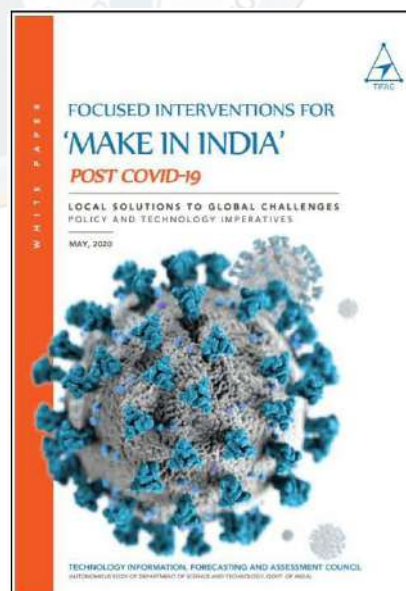
<https://vigyanprasar.gov.in/bye-bye-corona/>



TIFAC released White paper on ‘Focused Interventions for ‘Make in India’: Post COVID-19’

Dr Harsh Vardhan, Union Minister for Science & Technology, Health and Family Welfare and Earth Sciences on 10 July, 2020 released a white paper titled “Focused Interventions for ‘Make in India’: Post COVID-19” prepared by Technology Information, Forecasting and Assessment Council (TIFAC), at Nirman Bhawan, New Delhi.

Dr Harsh Vardhan congratulated TIFAC for bringing out this White Paper document at a right time when India is gearing up for boosting economy with a new Mantra ‘Local Solutions to Global Challenges - Policy and Technology Imperatives’. “The road to national economy recovery would traverse through measures like Policy support to unconventional strategies, leveraging into new international partnerships in important sectors of Agriculture, Electronics, Health, ICT and Manufacturing



and providing new technology stimulus”, he added. Dr Harsh Vardhan requested “our Industry friends, Research and Policy Bodies to refer this White Paper in designing the path for upliftment of economy.”

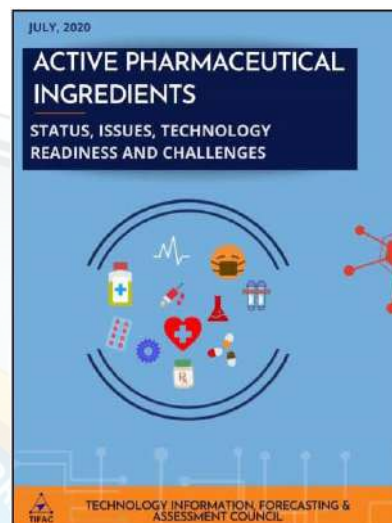
Website link:

<https://dst.gov.in/dr-harsh-varadhan-releases-white-paper-focused-interventions-make-india-post-covid-19-tifac>

<https://dst.gov.in/sites/default/files/Focused%20Interventions%20for%20E%80%98Make%20in%20India%20E%80%99%20Post%20COVID%2019%20-%20TIFAC.pdf>

TIFAC released report on ‘Active Pharmaceutical Ingredients Status, Issues, Technology Readiness and Challenges’

Technology Information Forecasting and Assessment Council (TIFAC), an autonomous organization under the Department of Science & Technology, Government of India released a report titled ‘Active Pharmaceutical Ingredients Status, Issues, Technology Readiness and Challenges’. Indigenous production of Active Pharmaceutical Ingredients (APIs) needs to be scaled up to a level where the production is economically viable, says the report which identified a list of APIs that need prioritized manufacturing and the associated advantages.



Website link:

<https://dst.gov.in/tifac-releases-report-active-pharmaceutical-ingredients-status-issues-technology-readiness-and>

NATMO brought forth COVID-19 dashboard to create awareness amongst general public

COVID-19 pandemic is a worldwide health disaster and a state of global emergency leading towards immense hardships throughout the world to fight against this deadly disease. Under such circumstances, spreading awareness among the citizen to overcome the anxious and worrisome panic is solicited. Creation of visualisation of situation analysis through a dashboard is considered as one of the most popular approaches.

National Atlas & Thematic Mapping Organisation (NATMO) has taken an initiative to host the COVID-19 dashboard with the guidance from Geospatial Group, Department of Science & Technology, to create a single window platform to integrate all Government Department data including COVID-19 combat initiatives. As part of the societal commitment, NATMO has created the COVID-19 DASHBOARD to provide up-to-date information on the COVID-19 Pandemic. The related information is covered under two headings, namely Dashboard and Information. The



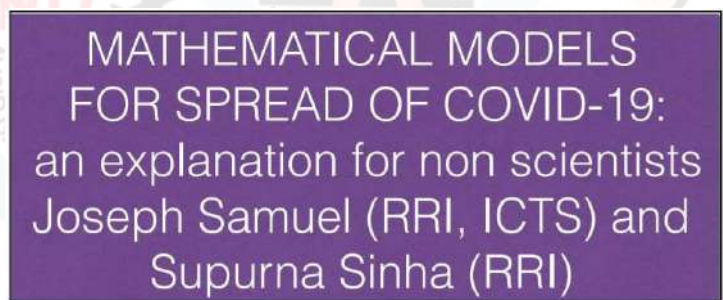
dashboard includes features related to the spread of COVID-19 pandemic based on the daily data updated and published by the Ministry of Health and Family Welfare. The Information section contains the COVID-19-related information decentralised up to district level. Thematic layers such as COVID-19 health facilities, ICMR Test Labs and Blood Banks are available under this section.

Website link:

<http://geoportal.natmo.gov.in/Covid19/>

Book chapter on the structure of the coronavirus by RRI

Scientists from Raman Research Institute (RRI), an autonomous institute funded by the DST, Government of India have come up with a book chapter that includes general morphological features as well as ultrastructural details with references to structure-function correlation and drug targeting aspects. It will be part of a book on the coronavirus pandemic, its control and treatment as well as its social, political and economic effects on India and the world. Theorists at RRI are writing a popular article titled: “MATHEMATICAL MODELS FOR SPREAD OF COVID-19: an explanation for non-scientists” to help clear the confusion and be socially useful.



Website Link:

<https://dst.gov.in/sites/default/files/covidpublicapr18.pdf>

Storytelling through Comic Characters – Vigyan Prasar sensitised common public on COVID-19 in an engaging way

The COVID-19 pandemic posed multiple prevalent challenges to the entire humanity. In the wake of its outbreak, our lives have changed in ways no one had ever imagined before. All indications are leading to the conclusion that we all would have to learn to live with coronavirus. This required an adjustment to a new normal of several aspects of our day-to-day life. It is only natural to feel scared, stressed and saddened because of it. However, there are measures that we can take to be both physically safe and mentally healthy in these times. Dr B K Tyagi, Senior Scientist at Vigyan Prasar is continuously preparing several interesting awareness material in which the information is depicted with the help of comic characters.

Contact info: bktyagi@vigyanprasar.gov.in



Website link:

<https://drive.google.com/file/d/1HSOsvn2EoewALc-KsqBnnMxqldoiNjEp/view>

Special issue of monthly science popularization magazine 'DREAM 2047' on COVID-19

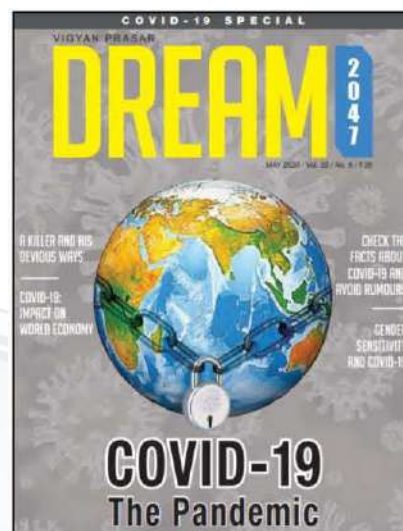
In May 2020, Vigyan Prasar brought out an exclusive edition on COVID-19 of its monthly bi-lingual science magazine Dream 2047. The magazine is being published by VP for last twenty-three years. Vigyan Prasar encourages reading the electronic version of this popular science magazine which is posted every month in Vigyan Prasar's website <https://vigyanprasar.gov.in/>. All previous issues of the magazine are available online.

In this special issue, every possible aspect that one would be interested to know about the pandemic have been covered including cause and effects, the vaccine development, and eventually update on the road to recovery efforts.

Contact Info: dream@vigyanprasar.gov.in

Website link:

<https://vigyanprasar.gov.in/dream-2047/>



Training Course on Laboratory Diagnosis of COVID-19

To help build capacity for the national fight against COVID-19, the COVID Diagnostic Training Centre has been established at the Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), an autonomous institute of the DST, Government of India (www.jncasr.ac.in). The Centre had offering comprehensive training in molecular clinical diagnostics effective immediately. The six-day residential training course was designed to impart theoretical knowledge and hands-on expertise in required molecular biology techniques and BSL-2 workflow.

Website Link:

<http://www.jncasr.ac.in/covid/index.html>

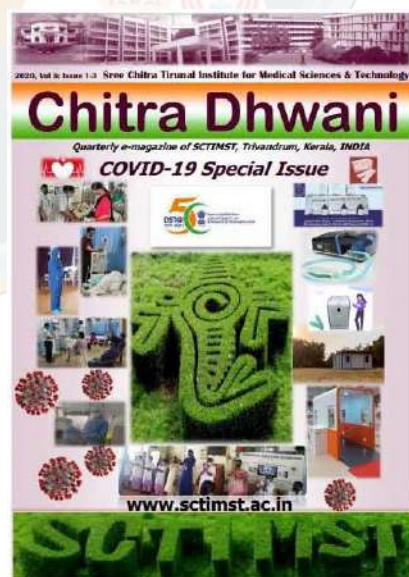
SCTIMST published an exclusive edition of its quarterly newsletter – Chitra Dhvani –COVID -19

With the outbreak of COVID-19, the country faced extreme challenging situations, but at the same time, it offered a golden opportunity to display our strength to deal with the extraordinary situation. With this context, Sree Chitra Tirunal Institute for Medical Sciences and Technology (SCTIMST), Thiruvananthapuram had released its e-magazine called Chitra Dhvani 2020. This opening volume is a combined special COVID-19 mega issue 1-3, covering events from January to September 2020.

Contact Info: newsletter@sctimst.ac.in

Website Link:

<https://sctimst.ac.in/About%20SCTIMST/Chitra%20Dhwani/resources/Chitra%20Dhwani%202020-Vol%206%20Issue%201-3.pdf>

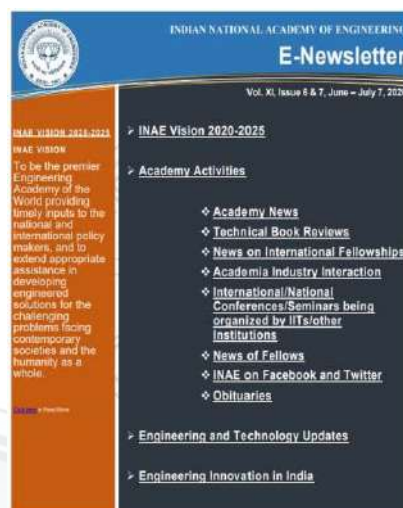


Indian National Academy of Engineering published “Technologies for Fighting COVID-19”

Indian National Academy of Engineering (INAE) was published Special Issue of Transactions of the Indian National Academy of Engineering - Volume 5, Issue 2, June 2020 on “Technologies for Fighting COVID-19” and is available on INAE website as well as in open access domain on Springer website. This issue enlightened about the COVID-19 content like articles, technical notes etc. The articles in the issue may be downloaded either through the log in facility provided to INAE Fellows or with the help of the link given below.

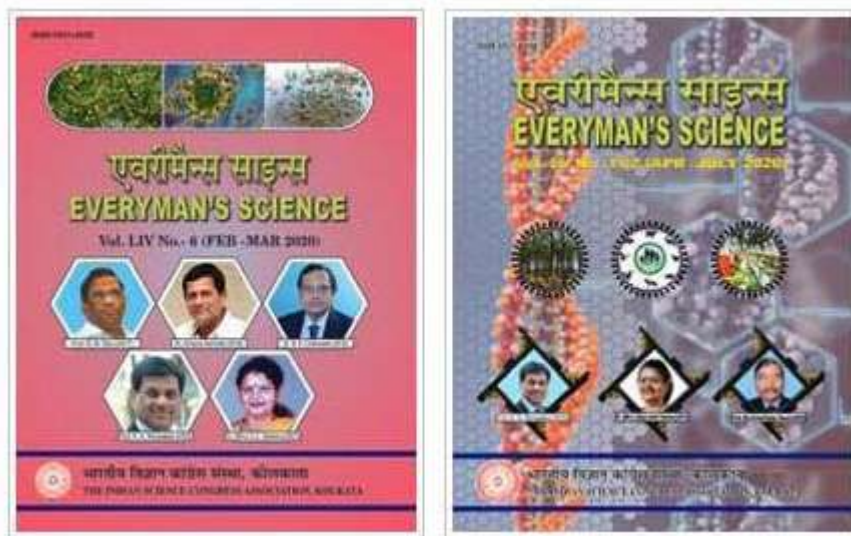
Website Link:

<https://www.inae.in/storage/2020/10/INAE-e-Newsletter-Vol.-XI-Issue-6-7-June-July-7-2020.pdf>



Indian Science Congress Association (ISCA), Kolkata released its two publication named Everyman's Science

Indian Science Congress Association (ISCA), Kolkata released its two publications named Everyman's Science (Feb-March, 2020 and April-July, 2020) to outreach the public on COVID-19. The Feb-March, 2020 issue of this provides the information on Popular terms emerging in COVID-19, COVID Symptoms, Transmission and Prevention, Diagnosis and treatment of Covid19. The April-July, 2020 issue was mainly focused on the COVID diseases and other diseases that are influenced by it.



Website Link:

http://sciencecongress.nic.in/everymans_science.php

DST published an exclusive edition of its monthly e-Newsletter 'STRIDES' on COVID-19

Science Technology Research Innovations and Developments (STRIDES) - A DST Communication e-newsletter has been developed to bring news on S&T Development from DST support and beyond. It brings together articles, news stories, features, blogs and event reports. The

Newsletter gives snapshot of the science and technology in India with focus on the activities, achievements and events of DST and its autonomous and attached Institutions. Through this effort, DST tried to bring to the table its efforts delegated towards research, technology and innovation that one would be interested to know and eventually update on the road to recovery and winning the combat.



Website link:
<https://dst.gov.in/e-newsletter>

Publication of S&T Efforts on COVID-19 in India – An e-Newsletter on COVID-19

For the benefit of its target audience and reaching out to researchers and scientists in special and common public in general, Vigyan Prasar published a regular e-Newsletter on the most relevant initiatives and efforts taken by Government of India through its various Science Ministries, Departments, and Funding Organisations. These organisations are continuously striving for combating the outbreak of COVID-19. These research-driven and technology-based interventions have been initiated to combat the outburst of the pandemic.

The e-Newsletter aims to be a handy guide to scientists, researchers, and scholars, especially those who are interested in knowing various aspects of COVID-19 and contributing to the coronavirus warfare and making the nation Atmanirbhar.

Contact Info: kdgm@vigyanprasar.gov.in





Website link:

<https://vigyanprasar.gov.in/covid19-newsletters/>

<https://www.indiascienceandtechnology.gov.in/covid-19-the-pandemic/newsletter-archive>

Outreach initiatives through India Science, Technology and Innovation (ISTI) Web Portal

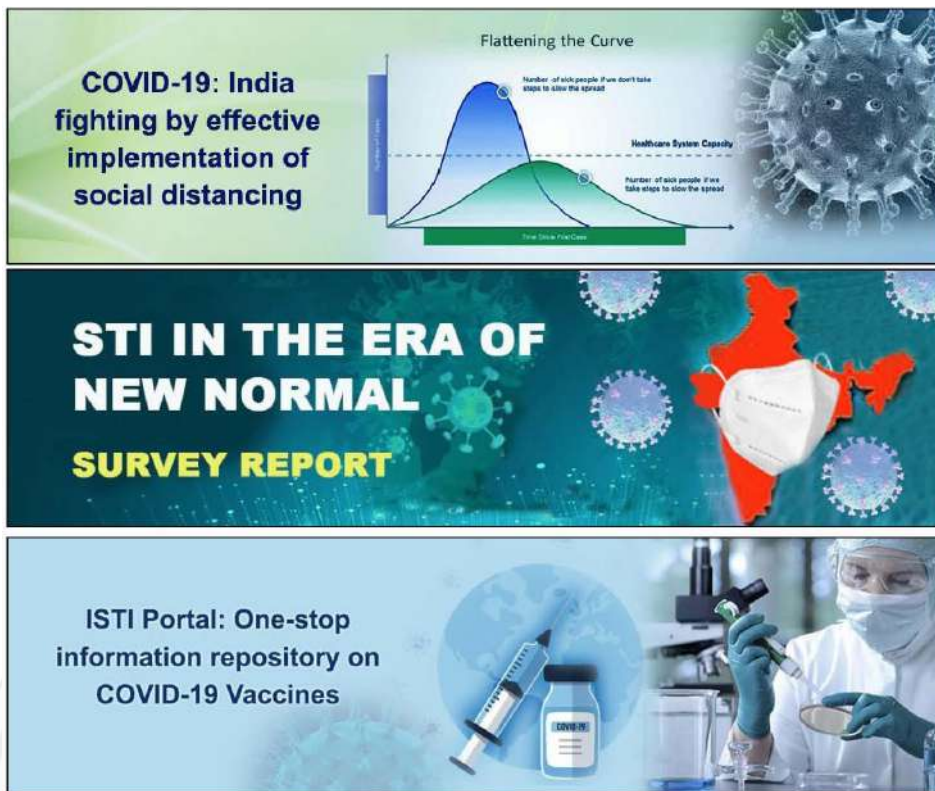
The India Science, Technology and Innovation Portal (ISTI) is a one-stop window for information about developments in India on science, technology and innovation. The portal focuses on bringing all stakeholders and Indian STI activities on a single online platform; helping efficient utilisation of resources; highlighting functioning of scientific organisations, laboratories and institutions; aggregating information on science funding, fellowship and award opportunities spanning from school to faculty level; pooling together conferences, seminars and events; and projecting science in India with its major achievements. The ISTI web portal has been developed by Vigyan Prasar, an autonomous organisation of the DST.

In the critical times of outbreak of COVID-19 pandemic, the web portal serves as a one-stop online information guide to bring together a collection of resources in response to COVID-19. These resources are generated by efforts made by numerous initiatives and schemes taken up by several Departments and Ministries of Government of India. These are being implemented by public-supported research institutions in India. The content presented here relies on the best available scientific understanding of the disease and its transmission.

The web portal provided all information related to COVID-19, its presentation of symptoms, transmission modes and mechanisms, and various models of protection of individuals, healthcare professionals and prevention from spreading to the community. The reasons, usefulness, and impact of social distancing have been communicated in an easy-to-understand manner.

The Research and Development efforts made at Ministry level and various funding organisations are enumerated here on as-and-when-available basis. The innumerable infographics have been





provided here are sourced from various organisations for efficient delivery of the information and targeting the common people as the largest stakeholder. The frequently asked questions and myth busters are also answered here.

Awareness outreach on COVID-19 vaccine by ISTI Portal:

Science communication has been at the heart of the debate about coronavirus worldwide, helping to understand the virus and the disease and also behaviours that can minimise its impact. This section on COVID-19 vaccination in ISTI Portal is for healthcare workers, frontline workers, researchers, teachers, students, parents, and communicators. The section provides all the basic and latest updates related to COVID-19 vaccine, its types, testing and approval process, Indian contribution in vaccine development, list of licensed human vaccine manufacturing facilities in India, under-trial vaccines in India, guidelines, data points and so on.

Vaccine: Introduction

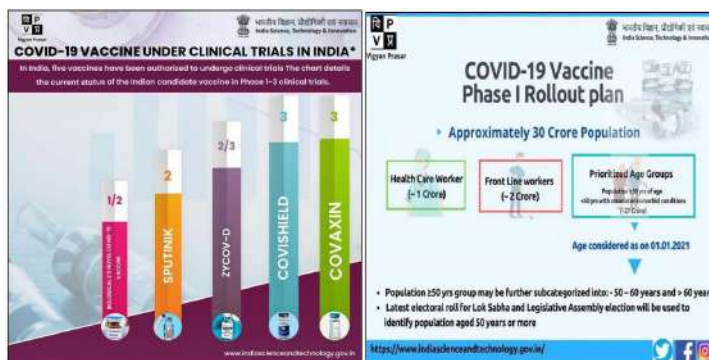
Vaccine: Introduction	Vaccine: A vaccine is a biological agent that prevents us from an infectious disease-causing pathogen such as a virus, bacteria or parasite. It guides the body on defending itself against the pathogen attack by generating an immune response. Usually, it is administered in our body in liquid form, either by injection, by oral dose, or by intranasal routes.
Types of Vaccine	
Vaccine Testing and Approval Process	
Indian contribution in Vaccine development	
List of Licensed Human Vaccine Manufacturing Facilities in India	
COVID-19 Vaccines under trials in India	
Institutes / Labs involved in Vaccine Development	
The Science Behind Vaccines	
Science Stories	
E-Newsletter on COVID-19 Vaccines	
FAQ's	
Guidelines	
Data Points	

How vaccines work: A disease-causing organism can cause two types of responses in our body. The first can be seen as symptoms such as fever, nausea, vomiting, diarrhoea, rash etc, which we experience initially. The second is the immune system's response to the infection. Over time the strength of immune system increases, which in turn reduces the number of infectious agents and slowly the symptoms disappear.

Vaccines are composed of either the entire disease-causing microorganism or some of its components in non-pathogenic form which initiate the second type of response without the consequences of the first. The following steps summarize how a preventive vaccine can protect an individual from infection or disease:

1. The vaccine introduces a small component or a non-harmful form of the pathogen into the body. This is called the foreign antigen or immunogen.
2. The body's immune system produces an immune response to the pathogen by generating antibodies, killer cells, or both.
3. A small group of 'memory' B-cells and T-cells remain in the body and can quickly initiate a strong immune response, i.e., by producing antibodies, and helping the production of killer T-cells or antibodies, respectively. The next time the real pathogen enters the body, the immune system remembers it and mounts a much larger, quicker response than it would have if the individual had never received the vaccine.

HOW DO VACCINES WORK?
Illustration below: the role of antibodies in working with the body's natural defences to safely clear up germs to disease.



For the COVID-19 vaccination rollout, media and social media are playing a critical role in creating and influencing perceptions across the wider public. Digital media platforms, especially social media channels, can reach and engage large audiences quickly. To maximize the reach of COVID-19 communications and ensure visibility and amplification, consistent, simple, and precise messaging with a consistent branding will be disseminated through the use of multiple social media channels. ISTI Portal has its own social media handle where information related to COVID-19 vaccine is posted every day.

Connect with ISTI Portal at:

YouTube: <https://www.youtube.com/channel/UCj7WVUnczjHcP4Hfu4F5hfw>

Facebook: <https://www.facebook.com/ISTIPortal>

Twitter: <https://twitter.com/ISTIPortal>

LinkedIn: <https://www.linkedin.com/company/istiportal>

Instagram: https://www.instagram.com/isti_portal/

Contact Info: kdgm@vignaprasar.gov.in

Website link:
<https://indiascienceandtechnology.gov.in/covid-19-the-pandemic>

VIPNET CURIOSITY - VIPNET Monthly Newsletter – created awareness related to COVID-19 through science clubs

Vigyan Prasar launched the new version of VignaprasarNETwork (VIPNET) Newsletter, under the new cover name ‘VIPNET CURIOSITY’. During the pandemic, the newsletter provided a significant platform for the science clubs to exchange views and ideas, express opinions, and gain insight(s) into a vast array of science and technology happenings going around. The Newsletter also acts as a medium to publicise the activities performed by the clubs, through a dedicated column of ‘Club Speak’. May 2020 issue of VIPNET curiosity was a special issue on COVID-19 that described ways to remain stress-free and safe during the lockdown.



Contact Info: curiosity@vignaprasar.gov.in

Website link:
<https://vignaprasar.gov.in/wp-content/uploads/vp-vipnet-curiosity-magazine-may20.pdf>



SCIENCE & TECHNOLOGY OUTREACH EFFORTS ON COVID-19

BY

DEPARTMENT OF BIOTECHNOLOGY (DBT)

DBT-Wellcome Trust developed “Wash Karo” App for COVID-19 awareness

An India Alliance fellow, Dr Tavpritesh Sethi at IIIT (Indraprastha Institute of Information Technology) Delhi and his team have developed an android-based app “Wash Karo” that functions as a complete Infodemic Management Suite. It was presented to WHO, Geneva on 8 April, via video conferencing. Wash Karo aims to provide the right information to the right people in the right format at the right time.

This APP aims to help the public with its updated content in Hindi in the form of bite-sized audios for those who may not be able to read. Dr Sethi is also part of a Technology Innovation Group constituted by the Delhi Government to develop and maintain IT platforms viz. website and an app for COVID-19 management for Delhi.

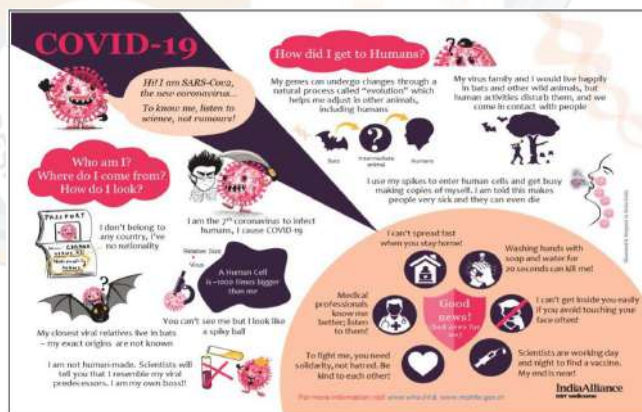


Website link:

https://vigyanprasar.gov.in/wp-content/uploads/vigyan_samachar_dbt-03B-24APRIL-2020.pdf

DBT – India Alliance developed infographic on COVID-19 for public awareness

India Alliance developed its third infographic on COVID-19 in two languages: English and Hindi. More translated versions in other Indian languages will be released soon. This infographic was to be used to educate the general public about the coronavirus. It simply illustrates the origins of the novel coronavirus, how it may have come in contact with humans and shares basic preventive measures to reduce the spread of COVID-19. The infographic conveyed these messages in the voice of the new coronavirus itself thereby making it fun and interesting.



Website link:

<https://www.indiaalliance.org/news/415>

DBT-BIRAC brought out a compendium of Indian products, technologies, and innovations for combating COVID-19

Biotechnology Industry Research Assistance Council (BIRAC), a non-profit Public Sector Enterprise of the DBT had brought out a compendium that showcased several innovations from all programmes that are being nurtured to move them forward in the innovation pipeline. This Compendium provides products, technologies, and innovations developed by various start-ups on multiple aspects of mitigating the COVID-19 pandemic.

The Compendium enumerates COVID-19-related products that are already commercialized, to be commercialized within next six months, research pipeline and additional facilitations towards mitigation of novel coronavirus outbreak.



Website link:

https://www.birac.nic.in/webcontent/Birac_Compndium_2020.pdf

DBT released e-Book on S&T solutions for COVID-19

DBT released an e-Book on S&T solutions for COVID-19 that showcased the initiatives undertaken by the Department for mitigation of the COVID-19 pandemic. From the development of indigenous vaccines, novel point-of-care diagnostics, and therapeutic formulations based on traditional knowledge, to the establishment of research resources and offering services, the Department is focused on creating an ecosystem to foster Atmanirbhar Bharat for innovative product development, with societal relevance. The e-Book showcased the indigenous COVID-19 interventions developed by DBT-supported initiatives.



Website link:

<https://thsti.res.in/writereaddata/Ebook%20on%20DBTs%20S&T%20Solutions%20on%20COVID-19.pdf>

DBT released compendium on collective efforts for COVID-19 diagnostics

DBT released a compendium on collective efforts for COVID-19 diagnostics on how India scaled up its laboratory testing capacity for COVID-19 and made commercial COVID-19 diagnostic kits in India. DBT and BIRAC, in collaboration with NBM, initiated the COVID-19 Research Consortium to facilitate the holistic development of the diagnostic ecosystem of the country. Their N-BRIC initiative targeted towards the long pending demand of the country of domestic manufacturing diagnostics components/reagents for making India self-reliant.



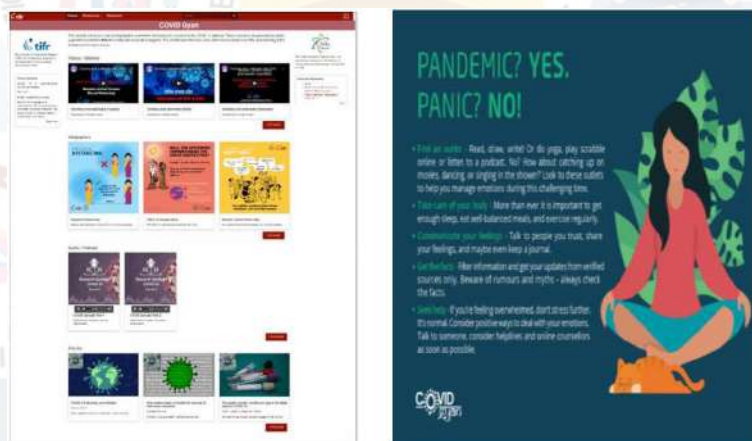
Website link:

<http://dbtindia.gov.in/sites/default/files/uploadfiles/Indian%20IVDs%20Industry%20Through%20the%20Pandemic%20E-Brochure-23rd%20Dec%202020.pdf>

COVID Gyan Website for COVID-19 Outreach Effort

To bring in the scientific and factual aspects to the COVID-19 pandemic outbreak, a multi-institutional, multi-lingual science communication initiative, called COVID Gyan was created in early April 2020. This unique pan-institutional initiative on scientific advances towards understanding the virus and disease spread and its mitigation was the brainchild of the Tata Institute of Fundamental Research (TIFR), the Indian Institute of Science (IISc), and the Tata Memorial Centre (TMC). Other prominent partners that had joined their hands in this noble effort include Vigyan Prasar, India Bioscience, and the Bangalore Life Science Cluster (BLiSc), which includes Institute for Stem Cell Science and Regenerative Medicine (inStem), Centre for Cellular and Molecular Platforms (C-CAMP), and National Centre for Biological Sciences (NCBS).

This website serves as a hub to bring together a collection of resources in response to the COVID-19 outbreak. These resources are generated by public-supported research institutions in India and associated programmes. The content presented here relies on the best available scientific understanding of the disease and its transmission. Apart from being the authentic source of information, the primary objective of this website is to create public awareness and bring in a holistic approach to the understanding of this disease and potential means to mitigate it.



Website Link:

<https://www.instem.res.in/content/covid-ghan-website-covid-19-outreach-effort>

A call on COVID-19 Research Consortium announced by BIRAC

A call on COVID-19 Research Consortium had been announced and the first phase of the call ended on 30 March 2020. This multi-tiered review process was done after stringent evaluation and funding support for selected proposals were recommended. Diagnostics, vaccine candidates, therapeutics, other interventions, and Proposals on devices were included in this Research Consortium



Website Link:

<http://dbtindia.gov.in/sites/default/files/uploadfiles/BIRAC.pdf>

COVID-19-related publications & pre-prints from NIBMG

Several COVID-19-related publications/pre-prints had been published by NIBMG. There are eight publications on COVID-19 and these publication/pre-prints are as follows:

1. SARS-CoV-2 mutation 614G creates an elastase cleavage site enhancing its spread in high AAT-deficient regions;
2. Association of clade-G SARS-CoV-2 viruses and age with increased mortality rates across 57 countries and India;
3. Host response to SARS-CoV-2: Insight from transcriptomic studies;
4. Dynamic dysregulation of IL-6 and genes functional in NETosis, complement and coagulation in severe COVID-19 illness;
5. SARS-CoV-2 infection in India bucks the trend: trained innate immunity?
6. PAN-INDIA 1000 SARS-CoV-2 RNA Genome Sequencing Reveals Important Insights into the Outbreak;
7. Global cataloguing of variations in untranslated regions of viral genome and prediction of key host RNA binding protein-microRNA interactions modulating genome stability in SARS-CoV-2;
8. Phylogenetic clustering of the Indian SARS-CoV-2 genomes reveals the presence of distinct clades of viral haplotypes among states;
9. Mutations in SARS-CoV-2 Viral RNA Identified in Eastern India: Possible Implications for the Ongoing Outbreak in India and Impact on Viral Structure and Host Susceptibility;
10. Global Spread of SARS-CoV-2 Subtype with Spike Protein Mutation D614G is Shaped by Human Genomic Variations that Regulate Expression of TMPRSS2 and MXI Genes; and
11. Analysis of RNA Sequences of 3636 SARS-CoV-2 Collected from 55 Countries Reveals Selective Sweep of One Virus Type.

Website Link:

<https://www.nibmg.ac.in/academic/Covid19/COVID%2019%20Papers%20and%20Preprints%20from%20NIBMG.pdf>

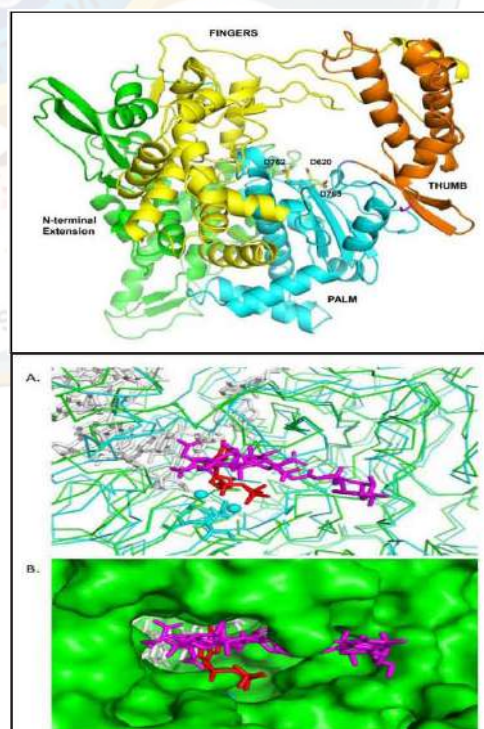
Research Publications from RCB, Faridabad on COVID-19

Regional Centre for Biotechnology (RCB) printed research publications on COVID-19 to reach out to the people. These publications had details about effects of Coronavirus and COVID-19 on the human body. There are three publication/research papers that were published during pandemic which focuses on the following:

1. Ritonavir may inhibit exoribonuclease activity of nsp14 from the SARS-CoV-2 Virus and potentiate the action of chain-terminating drugs;
2. Vitamin B12 may inhibit RNA-dependent-RNA polymerase activity of nsp12 of the COVID-19 Virus; and
3. Loss of Smell and Taste: Potential of Using Them as Markers for Early Detection of Covid-19.

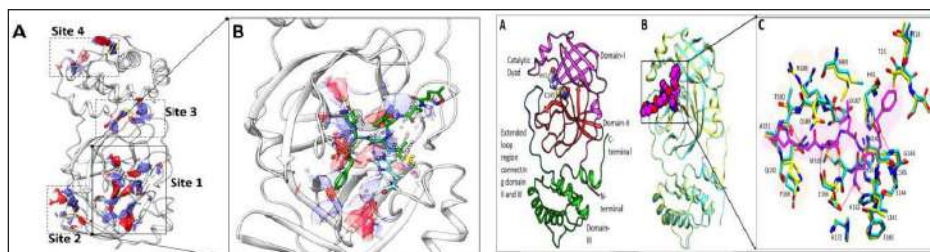
Website Link:

<https://www.rcb.res.in/index.php?param=quicklinks/COVID-19>



THSTI, Faridabad published publications to reach out to research scholars

Researchers from Translational Health Science and Technology Institute (THSTI), Faridabad, an autonomous institute of the DBT did the research on Coronavirus structure and therapeutics against COVID-19. These published research papers are very useful for people to understand the coronavirus. The papers are as follows: Identification of potential molecules against COVID-19 main protease through structure-guided virtual screening approach and Responding to a Pandemic. 2020. The COVID-19 Story.



Website Link:

<https://thsti.res.in/publications.php>

BIRAC released Compendium on COVID-19 publications

BIRAC released compendium which focuses on a wide range of research publications and insights from information available on various public portals publishing research on COVID-19. The document contains links to information on a range of topics from epidemiology, characteristics, diagnostics, therapeutics, preventive strategies, drugs, vaccines, etc. and other relevant issues on COVID-19.



Website link:

https://birac.nic.in/webcontent/1600937103_COVID_19_Compendium_ver_1.3.pdf

BIRAC published newsletter on COVID-19

Ever since the COVID pandemic unfolded itself, India ramped up its efforts to tackle this crisis and made concerted efforts in terms of preparedness and response measures. The DBT and its PSU Biotechnology Industry Research Assistance Council (BIRAC) has been working to support the nations fight against COVID-19; working towards both, immediate as well as long-term solutions. The newsletter includes all initiatives taken by the department to address the global pandemic.

Website link:

https://birac.nic.in/webcontent/1600758956_BIRAC_i3_Newsletter_june_issue_22_09_2020.pdf



DBT-inStem conducts Q&A session on COVID-19 vaccination

DBT-Institute for Stem Cell Science & Regenerative Medicine (DBT-inStem) conducted a 'question and answer' session on matters related to COVID-19 vaccination as well as possible medical issues at its campus. It was coordinated by Prof. Raghu Padinjat (M.B.B.S) and Medical

Centre Consultant Dr Patil, from the campus Medical Centre. The aim was to address concerns, create awareness, and ensure compliance of complete dosing.

The main aspects raised in the interactive session related to:

1. Side effects including attended medical conditions for which one should avoid vaccination or take it under medical advice.
2. The requirement of the second dose for vaccines such as Covishield, which is being administered to the community. There was a discussion on the statistical argument about partial protection offered by one dose. In response to this, the experts explicitly clarified that the vaccines available in India right now required two doses and reviewed the evidence for the same.
3. Reinforcing the requirement of use of masks and social distancing to continue post vaccination.

Contact Info: tripathya@instem.res.in



Website Link:

https://vigyanprasar.gov.in/wp-content/uploads/Vigyan_samachar_dbt_01S_16Feb2021.pdf



SCIENCE & TECHNOLOGY EFFORTS ON COVID-19

BY

COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH (CSIR)

CSIR reached out to its audience and stakeholders through a number of means

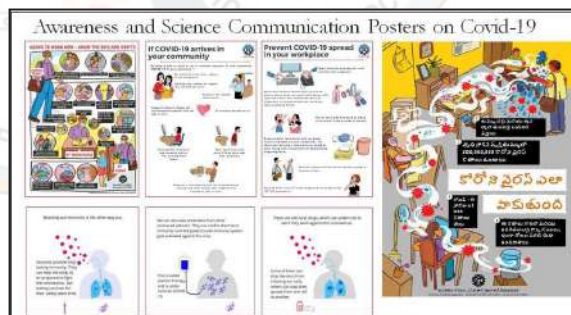
COVID-19 not only set-off a pandemic but also triggered an infodemic all over the world. Mis-information and dis-information about the COVID-19 lead to several problems including instilling fear psychosis in the minds of people. Governments all over the world battled both the pandemic and the infodemic through suitable means. In India too, the Government played an important role in slowing the spread of the infodemic.

CSIR was at the forefront of the battle against COVID-19 pandemic and it also put in place measures to counter the infodemic. The Science Communication and Dissemination Directorate closely coordinated with its many laboratories and other institutions to fight the infodemic. With the objective of taking the right information to the masses, CSIR embarked on a multipronged outreach strategy. Traditional and modern means were harnessed to reach out to the masses and also inform and educate them about COVID-19. The following have been some of the outreach measures:

Communication outreach

1. Compendium
2. Posters (including in vernacular languages)
3. Webinars (including in vernacular languages)
4. Blogs
5. COVID-19 Portal
6. Clinical Trials Portal
7. Videos
8. Social Media
9. COVID-19 Newsletter
10. COVID-19 Book

Multi-lingual Posters: One of the earliest outreach initiatives taken by CSIR as the pandemic hit the country was to create awareness about the disease and the dos and don'ts. This was done by creating colourful posters and distributing them widely in both printed and digital forms.



Webinars: Several informative popular webinars on various aspects of COVID-19 including PPEs, drugs, vaccines, diagnostics and so on were held on a regular basis. The webinars in Kannada, Telugu, Bangla, Oriya, Malayalam, Tamil, Marathi, and so on were well attended.



Compendium: A compendium on the COVID-19 technologies of CSIR was brought out in July 2020. An updated version of the compendium was brought out in January 2021. The compendium gave details of nearly 100 technologies brought out by CSIR including the contact details of the CSIR labs and their industry partners.

COVID-19 Portal and Blog: A COVID-19 portal was set-up that was regularly updated with CSIR's COVID-19 efforts. It also includes a blog where scientists and researchers in CSIR labs share COVID-19 stories. The portal can be accessed at: <https://covid19csir.urdip.res.in/>

Clinical Trials Portal: CSIR is a partner of many clinical trials that are being carried out in India for various drugs and vaccines. To keep the general public updated about the progress of the clinical trials, a website, CSIR ushered Repurposed Drugs (CuRED) was set-up that gives the details of the various trials including the clinical trial partners, the trial phase and so on. The same can be accessed at: <https://iiim.res.in/cured/>

Videos: Many informational short videos were created about the CSIR's COVID-19 efforts. These are available on CSIR's YouTube Channel: www.youtube.com/csirindia1942

Social Media: The Twitter and Facebook pages of CSIR were effectively used for digital outreach activities. Announcements, updates, and information related to COVID-19 were regularly shared on the social media. Further, the social media were used as streaming platforms for taking all webinars to the general public. Collectively, CSIR social media platforms have over 100,000 followers.

COVID-19 Bulletin: CSIR-NISCAIR brought out the COVID-19 Bulletin giving news and updates about the pandemic, focusing on the CSIR efforts. The Bulletin archive can be accessed at: <https://www.niscair.res.in/covidbulletin>

COVID-19 Book: CSIR brought out a book, CSIR Fights COVID-19. The book gives glimpses of the CSIR's fight against COVID-19. The book is available at: <https://www.csir.res.in/sites/default/files/CSIR%20COVID%20efforts.pdf>

Among other outreach activities, CSIR supplied masks and sanitizers in large numbers and also distributed tons of nutritious food to the needy.

CSIR's Kisan Sabha App connected farmers to supply chain

In order to curb down the spread of COVID-19, India had to impose lockdown in several phases. But it threatened the agriculture sector as the lockdown overlapped with the time of harvest. Farmers were looking for help in taking their produce to the market, as also in procuring seeds, fertilizer, etc. from the market. A robust supply chain management was urgently required to facilitate the timely delivery of the produce at the best possible prices.

The Central Road Research Institute (CRRRI), a CSIR lab, came up with an app called Kisan Sabha to resolve the problems related to agricultural supply chain. The App was remotely launched by the Director General, Indian Council of Agricultural Research (ICAR) and Secretary, Department of Agricultural Research and Education (DARE), Dr Trilochan Mohapatra. The primary objective of Kisan Sabha was to connect farmers to supply chain and freight transportation management system.

Dr Mohapatra complimented CSIR for developing this App as a one-stop solution for farmers, transporters and other entities engaged in the agriculture sector. He also suggested that ICAR can work together with CSIR and use the wide network of Krishi Vigyan Kendra (KVK) in the country for implementation.

Website link:

<https://vigyanprasar.gov.in/wp-content/uploads/Vigyan-Samachar-CSIR-News-I-01MAY2020.pdf>



CSIR launched 'AarogyaPath', a portal to strengthen healthcare supply chain

CSIR launched AarogyaPath, a web-based solution for the healthcare supply chain, which provided real-time availability of critical supplies. AarogyaPath served manufacturers, suppliers, and customers through the web portal <https://www.aarogyapath.in>.

The COVID-19 pandemic posed a situation of national health emergency, leading to severe disruption in the supply chain. In particular, the ability to produce and deliver the critical items was compromised due to a variety of reasons. The integrated public platform, named AarogyaPath, was developed with the vision of "providing a path which leads one on a journey towards Aarogya (healthy life)" to address the challenges related to the supply of essential healthcare goods.

This platform provided a single-point source for key healthcare goods, which could help customers in tackling a number of routinely experienced issues. The issues included dependence on limited suppliers, time-consuming processes to identify good quality products, limited access to suppliers who can supply standardized products at reasonable prices within desired timelines, lack of awareness about the latest product launches, etc.

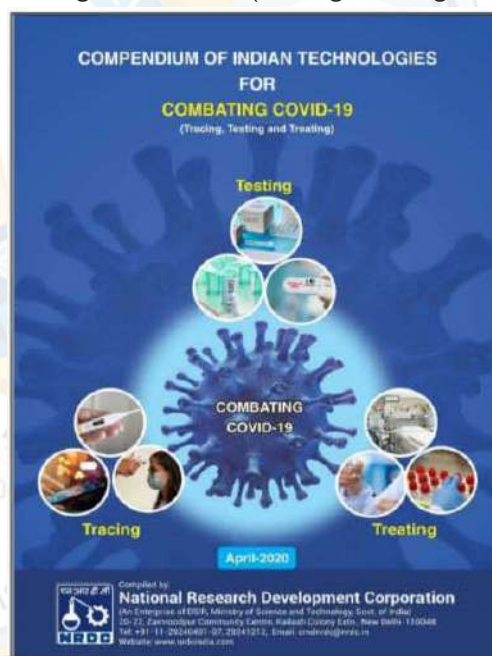


Website link:

<https://vignyanprasar.gov.in/wp-content/uploads/Vignyan-Samachar-CSIR-News-I-13-June-20.pdf>

NRDC brought out compendium of indigenous technologies for combating COVID-19

A 'Compendium of Indian Technologies for Combating COVID-19 (Tracing, Testing and Treating)' prepared by National Research Development Corporation (NRDC) was launched by Dr Shekhar C Mande, Director General, CSIR and Secretary, DSIR, Government of India at CSIR Headquarters, New Delhi on 6 May, 2020. The compendium carries information about 200 COVID-19-related Indian technologies, on-going research activities, technologies available for commercialisation, initiatives and efforts taken by the Government of India, categorised under 3Ts of Tracking, Testing and Treating. Most of these technologies are proof-of-concept (POC) tested and can help the entrepreneurs to take the product to market faster as they do not have to reinvent the wheel. Dr Mande appreciated the initiative of NRDC for bringing out the Compendium of Indian Technologies for Combating COVID-19 by saying, "it is very timely and would benefit the MSMEs, Start-ups and the public at large."



Website link:

<https://drive.google.com/file/d/1wTtuYtzGG5S3kKpIHgY6493pShIoHHJM/view>

Special issued of monthly e-Newsletter 'CSIR Samachar' on COVID-19

CSIR-Samachar is a monthly Newsletter published by CSIR-NISCAIR. The Newsletter consists of various contemporary activities. The monthly e-Newsletter of CSIR Samachar focused on COVID-19 pandemic and efforts towards its mitigation.



Website link:
<https://www.niscair.res.in/periodicals/csirsamachar>

Special issue of monthly magazine Science Reporter on COVID-19 by NISCAIR

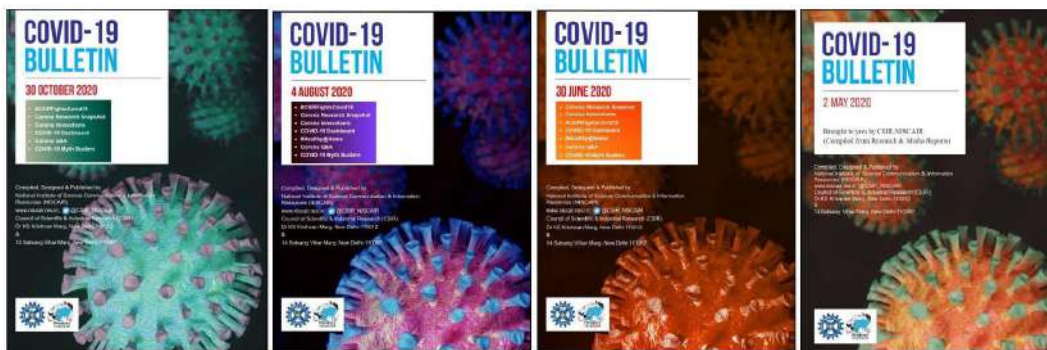
Science Reporter is a monthly popular science magazine that has been published in India since 1964 by the National Institute of Science Communication and Information Resources (NISCAIR), New Delhi. It seeks to disseminate information about S&T developments throughout the world, with special focus on Indian scientific achievements. The magazine provides insight into all the major scientific and technological developments, presents facts about controversial scientific concepts and tries to bring to its readers interesting, exciting and informative information from various disciplines of science. During the COVID-19 pandemic, Science Reporter has brought special issues on various aspects of mitigating the COVID-19 pandemic.



Website link:
<http://nopr.niscair.res.in/handle/123456789/52957>

CSIR-NISCAIR brings out weekly e-Newsletter on COVID-19

National Institute of Science Communication and Information Resources (CSIR-NISCAIR) brought out a regular newsletter dedicated for the COVID-19 outbreak from May 2020 to October 2020. The newsletter covered stories and information on various aspects, like research, technology and innovation efforts to fight out the pandemic and related awareness and sensitisation information.

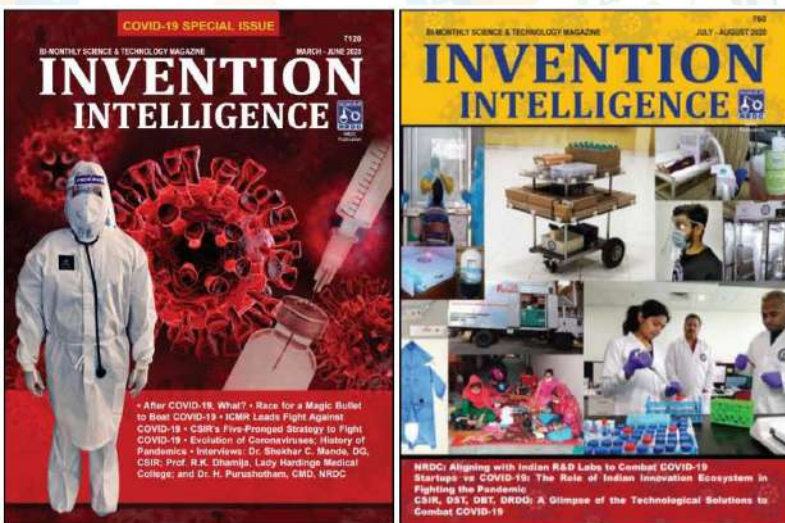


Website link:

<https://www.niscair.res.in/covidbulletin>

NRDC published special editions of 'Invention Intelligence' on COVID-19

National Research Development Council (NRDC), an enterprise of Department of Scientific & Industrial Research (DSIR), published special edition of its bimonthly S&T magazine 'Invention Intelligence.' These two editions covered various aspects related to COVID-19 pandemic outbreak, like the unfolding new normal. The main objectives of



the magazine are to disseminate information and create awareness about new technologies, inventions, innovations, IPR issues, etc. among the masses and foster the spirit of inventiveness, innovativeness and entrepreneurship among the students, scientists, technicians, budding entrepreneurs, etc. Invention Intelligence focuses on topics of current public interest and national importance relating to science, technologies, inventions, innovations and intellectual property rights. The special issues of Invention Intelligence also highlighted the various indigenous technological solutions to combat COVID-19 pandemic provided by NITI Aayog; CSIR; DST; DBT; DRDO; leading Indian academic institutions; and the efforts of NRDC.

Website link:

http://www.nrdcindia.com/assets/vendor/filemanager/userfiles/Invention_Intelligence/IICovid19SplEdn.pdf

http://nrdcindia.com/assets/vendor/filemanager/userfiles/Invention_Intelligence/NRDC_Invention_Intelligence_Jul-Aug_2020.pdf

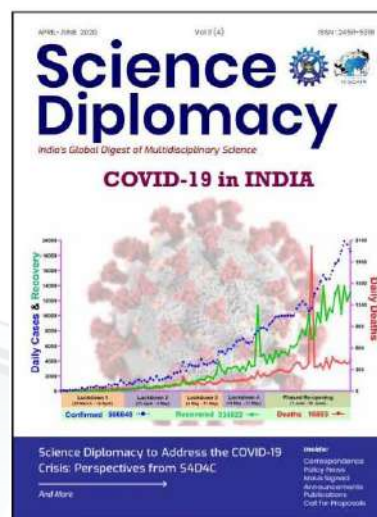
NISCAIR published a special edition of 'Science Diplomacy' on COVID-19

National Institute of Science Communication and Information Resources (CSIR-NISCAIR) published a special edition of 'Science Diplomacy' on COVID-19 in India in Apr-Jun 2020, Vol. 3(4). 'Science Diplomacy' is among the first endeavours to bring highlights of Indian scientific achievements in foreign languages. It helps in identifying priority areas for collaboration and involvement of stakeholders in policy-making and strategic engagements, including scientists, academicians, senior diplomats, science counsellors and experts.

In the special edition, perspectives from S4D4C have been covered along with the correspondence with scientists across the globe sharing their stories on COVID-19 global reverberations. S4D4C – the full project title 'Using Science for/in Diplomacy for Addressing Global Challenges' – is a European project, co-funded by the European Commission under the Horizon 2020 programme.

Website link:

<https://www.niscair.res.in/includes/images/sciencediplomacy/Science-Diplomacy-April-June-2020.pdf>

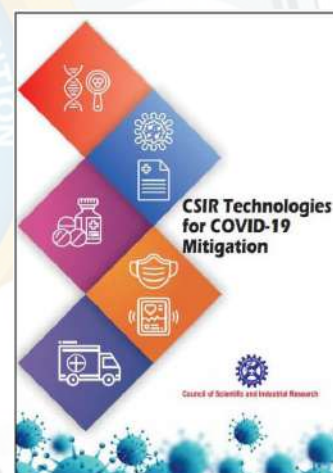


CSIR published compendium on technologies for COVID-19 mitigation

CSIR published a compendium on technologies for COVID-19 mitigation to provide an insight into the technologies developed by its organisations as well as to spur more innovations. With an 'Aatmanirbhar Bharat' high on its agenda, CSIR is eager to partner with more industries to take these technologies to the users although around 60% of technologies listed in this compendium have already been transferred to industry partners.

Website link:

https://www.csir.res.in/sites/default/files/Final%20Covid-19%20Compendium-Jan2021_0.pdf



Drug Discovery Hackathon 2020 launched for drug discovery against COVID-19

Drug Discovery Hackathon 2020 (DDH2020) platform welcomed all those who wished to join the open-source drug discovery Hackathon against COVID-19. DDH2020 was a joint initiative of All India Council for Technical Education (AICTE) and Council of Scientific and Industrial Research (CSIR) and supported by Office of the Principal Scientific Adviser (PSA), Government of India, National Informatics Centre (NIC) and MyGov India.

The vision and mission of DDH2020 was to established 'Open innovation Model' for in silico drug discovery against COVID-19 virus and to cover the various processes in drug discovery, including but not limited to, in silico screening of molecules, lead optimization and identification of drug-able non-toxic targets. The targets/tools/lead molecules identified through the process of DDH2020 will be further taken forward for synthesis followed by subsequent steps in routine drug discovery programme.

Objective of the Hackathon was to identify drug candidates that are effective against coronavirus SARS-CoV-2 by employing a hackathon for in-silico drug discovery, followed up by chemical synthesis and biological testing.



Website link:

<https://innovateindia.mygov.in/ddh2020/>

COVID-19 genome sequencing analyses generated by CSIR-CCMB

Centre for Cellular & Molecular Biology (CSIR-CCMB) strove to stay a transparent and credible source of information in the unprecedented COVID-19 crisis. As the science around the virus evolved every day, the CCMB leadership communicated it to the journalists. Genome Evolution Analysis Resource for COVID-19 (GEAR-19) is a resource to track the genomic evolution of SARS-CoV-2, the virus which is responsible for the worldwide pandemic of COVID-19. Sequencing of viral genomes could provide insights of the spread, changes in the sequence over time and demographic associations. This information was useful in viral surveillance and could be used to monitor the spread across states in India. As sequenced viral genomes are rapidly deposited on public repositories like GISAID, it is the need of the hour for even quicker analysis and interpretations.

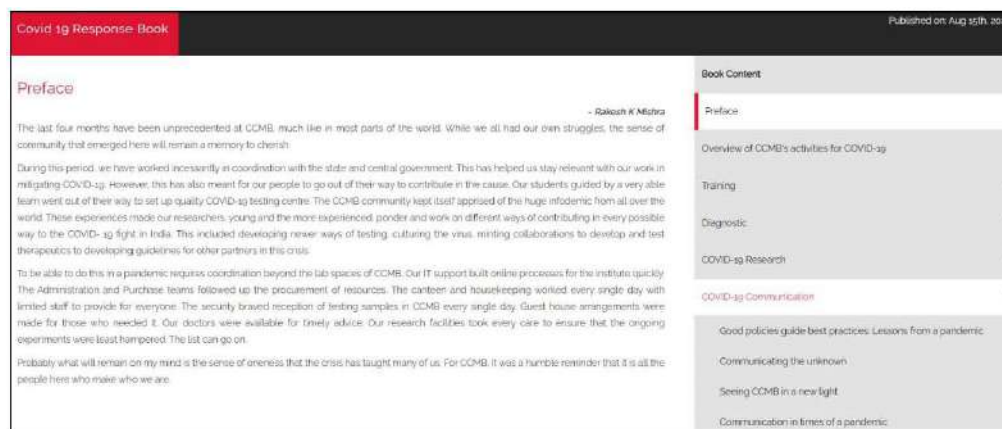


Website Link:

<https://data.cmb.res.in/gear19/>

CSIR-CCMB released a response book on COVID-19

COVID-19 response book was prepared by Centre for Cellular & Molecular Biology (CSIR-CCMB) to bring news on S&T development, articles, news stories, features, blogs and event reports. The book presented snapshot of the science and technology in CCMB with focus on the activities and events. Through this effort, CCMB tried to bring to the table its efforts delegated towards research, technology and innovation that one would be interested to know and eventually update on the road to recovery and winning the combat.



Website link:

http://e-portal.ccmb.res.in/app_space/covid_book/

CSIR-NISCAIR published information handbook on COVID-19 in Urdu and Hindi

National Institute of Science Communication and Information resources (CSIR-NISCAIR) published an information handbook on COVID-19 in Urdu and Hindi. The handbook contains information on frequently asked questions and answers, myths and facts, various on-going research and innovations, and CSIR's efforts towards the mitigation of COVID-19 disease.



Website link:

<https://www.niscair.res.in/includes/images/urducompedium/urducompedium.pdf>

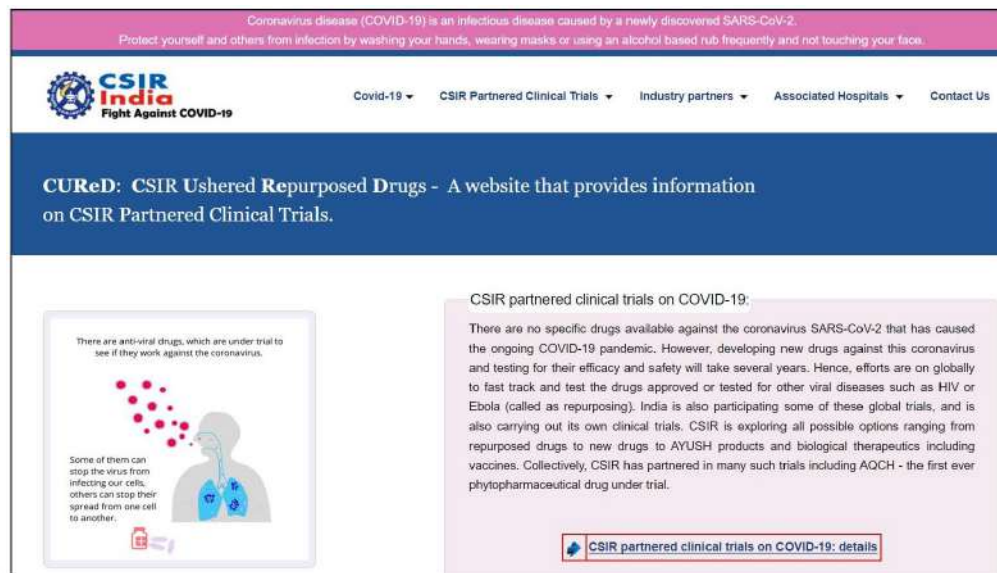
<https://www.niscair.res.in/covidbulletin/urducompedium>

CSIR launched clinical trials website “CUREd”

Dr Harsh Vardhan, Union Minister for Science & Technology, Health and Family Welfare and Earth Sciences, launched a website that gives comprehensive information about the numerous COVID-19 clinical trials that CSIR is engaged in partnership with Industry, other government departments and ministries.

Called CuRED or CSIR Ushered Repurposed Drugs, the website provides information about the drugs, diagnostics and devices including the current stage of the trials, partnering institutions and their role in the trials and other details. The site can be accessed at <https://www.iiim.res.in/cured/> or <http://db.iiim.res.in/ct/index.php>.

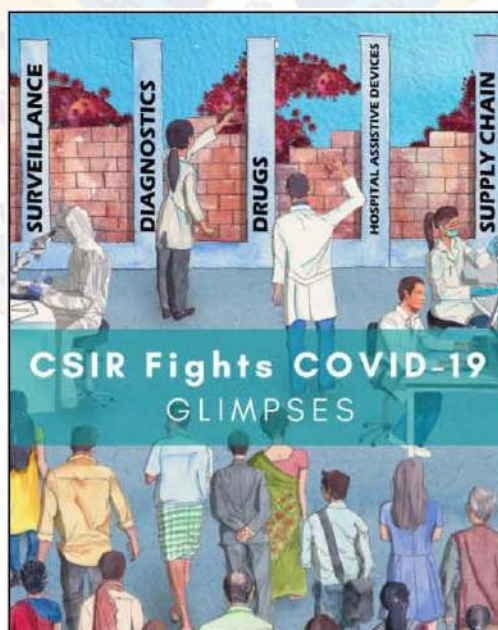
The Minister lauded the efforts of CSIR for being at the forefront of the on-going fight against COVID-19 and prioritizing clinical trials, generating data for their regulatory approval and helping launch drugs and diagnostics in the market. He commended the approach of using repurposed drugs and also synthesizing COVID-19 drugs through new processes and transferring to Industry.



Website link:
<https://iiim.res.in/cured/>

CSIR released digital book 'CSIR Fights COVID-19'

CSIR Fights COVID-19, the digital book on CSIR's response to COVID-19, is an effort to convey the essence of the journey. The readers of this digital book will get a peek into the spirit of CSIR and about some of its COVID-19 contributions. By the initiative, CSIR aims to serve the resource as a template for facing future pandemics and calamities in times to come.



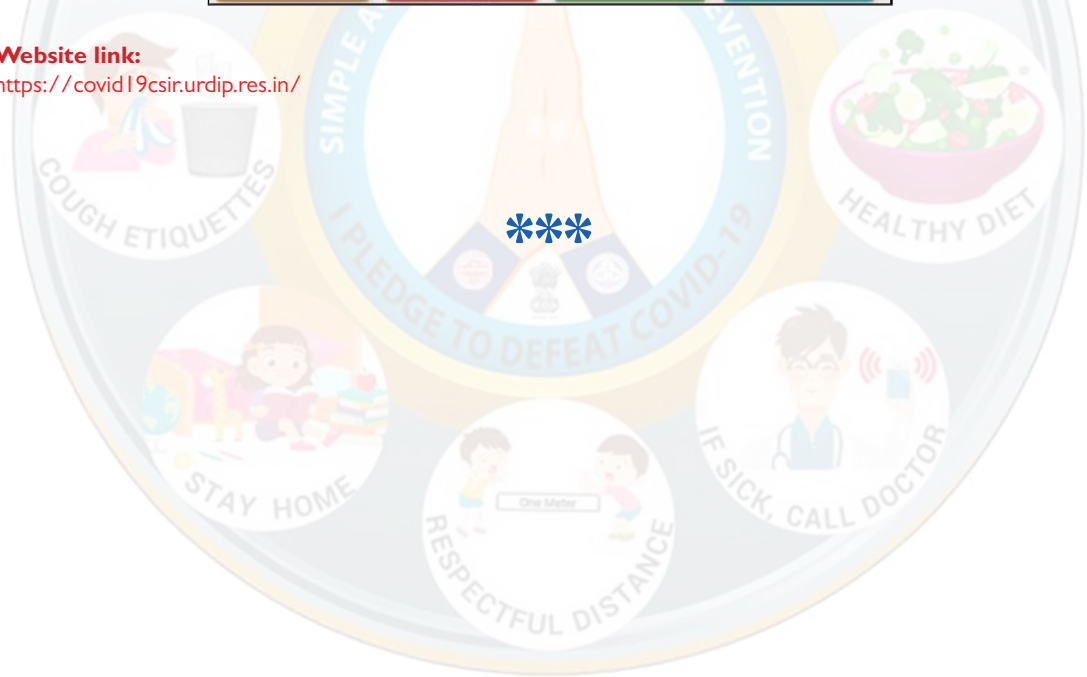
Website link:
<https://www.niscair.res.in/includes/images/announcements/CSIR-COVID-efforts.pdf>

CSIR-URDIP developed Portal on COVID-19

CSIR has developed a portal “CSIR India Fight COVID-19” which focused R&D to develop, integrate, scale-up, and deploy necessary technological interventions for combating Coronavirus pandemic in the country. Considering the multifarious problems created by the pandemic which require interventions in several areas and multi-pronged strategy, CSIR has set up five technology verticals for addressing the emerging situation. These verticals are need based and span multiple research labs and disciplines and draw upon the strength of scientists, students and harness it for the fight against COVID-19. In addition, CSIR is also working on promoting rural employment and providing ready-to-eat food to migrants and other outreach programmes.



Website link:
<https://covid19csir.urdip.res.in/>



SCIENCE & TECHNOLOGY OUTREACH EFFORTS ON COVID-19

BY

MINISTRY OF HEALTH AND FAMILY WELFARE (MoHFW)

IJMR published three special editions on COVID-19

Indian Journal of Medical Research (IJMR), a publication of ICMR, is a peer-reviewed online journal with monthly print-on-demand compilation of issues. The COVID-19 pandemic has created opportunities to build an improved response mechanism for future pandemics. Concerted, well-funded, comprehensive, planned, and all-encompassing activities should facilitate building sustained institutional capacity to provide a swift and effective nationwide response to disease outbreaks. This could be done through access to appropriate technologies and improved logistics for efficient supply chains. These will also promote developing multi-sectoral stakeholder consortia at national and state levels to coordinate actions and launch a comprehensive whole-of-the-society response to emerging infections. Overall and long-term targets should be set to encourage and ensure convergence of all stakeholders for human health, animal health and environment to collaborate in implementing the One Health approach and protecting human life, reduce misery, and avoid damage to the national economy. These are doable actions. The national will and determination are vital to mitigate pandemics' severe impact, such as COVID-19 in India. India's COVID-19 Containment Strategy has been aligned with WHO's Strategic Preparedness and Response Plan for COVID-19. During the on-going pandemic, India could successfully and rapidly scale-up several vital interventions.



Website link:

<https://www.ijmr.org.in/showBackIssue.asp?issn=0971-5916;year=2020;volume=151;issue=2;month=February%20&%20March>

<https://www.ijmr.org.in/showBackIssue.asp?issn=0971-5916;year=2020;volume=151;issue=5;month=May>

<https://www.ijmr.org.in/showBackIssue.asp?issn=0971-5916;year=2020;volume=152;issue=1;month=July%20&%20August>

COVID INDIA SEVA launched to provide solutions to COVID-19-related queries

Union Minister for Health & Family Welfare, Science & Technology, and Earth Sciences, Dr Harsh Vardhan launched an interactive platform, COVID INDIA SEVA, on 21 April 2020. The initiative was aimed at providing real-time solutions to COVID-19-related queries. People can post their questions to the COVID INDIA SEVA twitter handle for getting swift replies from the team of trained experts. This initiative is aimed at enabling transparent e-governance delivery at large scale, especially in crises, like the COVID-19 pandemic.



Dr Harsh Vardhan, in a tweet, said that through this platform, trained experts would be able to share authoritative public health information swiftly at scale, helping to build a direct channel for communication with citizens. Commenting on the launch of the social handle, he said that Twitter has proved to be an essential service for both the government and citizens to interact and exchange information, especially in times of need.

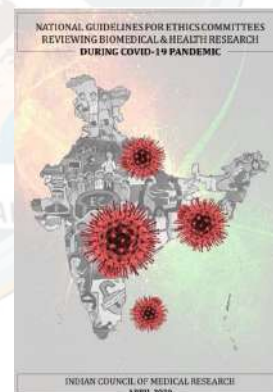
The responses by the experts will be available for everyone and users will not be required to share any personal details or health records on this account.

Website link:

<https://twitter.com/drharshvardhan/status/1252529868899708930?s=20>

National guidelines for ethics committees reviewing biomedical & health research during COVID-19 pandemic

ICMR has released National Guidelines for Ethics Committees Constituted for Reviewing Biomedical and Health Research during COVID-19 Pandemic. The instructions were developed by its bioethics unit NCDIR, Bengaluru, under COVID-19 National Ethics Committees (CoNEC). The document highlights the critical and facilitatory role that the ethics committees need to play in supporting the ethical conduct of research in India.



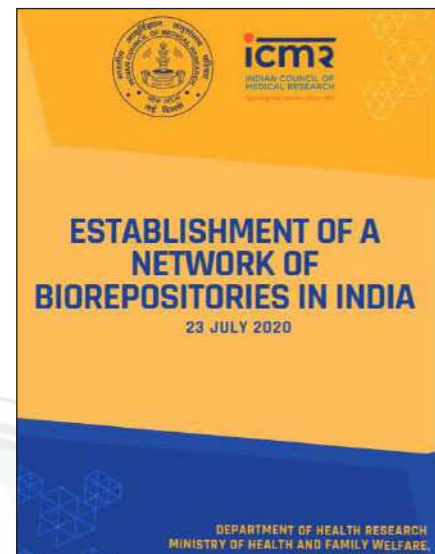
Website link:

https://www.icmr.gov.in/pdf/covid/techdoc/EC_Guidance_COVID19_06052020.pdf

Guidelines released for operational mechanisms for establishing COVID-19 Biorepositories

In the backdrop of the COVID-19 pandemic, while it was of paramount importance to provide early diagnosis and treatment to all infected individuals, it was also critical to promote research and development for more considerable public health benefit. To develop and validate new

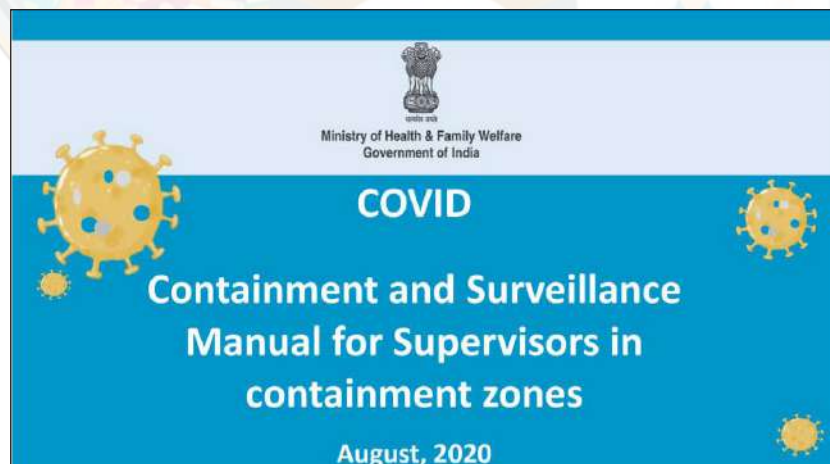
diagnostics, therapeutics, or vaccines, access to different kinds of clinical samples from infected patients was an essential requirement. NITI Aayog issued guidelines for sharing of biospecimens and data for research related to COVID-19. This document, released by ICMR on 23rd July 2020, laid down the brief processes and operational mechanisms for establishing COVID-19 biorepositories in the country. Till that time, there was no structured mechanism for collecting and storing these valuable clinical samples. In view of that, it was essential to create designated biorepositories for collecting, storing, and maintaining clinical samples (Oropharyngeal/Nasopharyngeal swabs, Bronchoalveolar lavage, Sputum, Blood, Urine and Stool) of COVID-19 patients. Such samples were used to develop validated diagnostics, therapeutics, vaccines, etc. Additionally, the samples acted as a valuable resource for research and development-related activities to understand the early predictors of disease severity, immune pathogenesis of the disease, etc.



Website link:
<https://www.icmr.gov.in/cbiorn.html>

Containment and surveillance manual for supervisors in containment zones released by MoHFW

Ministry of Health and Family Welfare (MoHFW) released a containment and surveillance manual for supervisors in containment zones. A supervisor is an intermediary between the field-level surveillance teams and the medical officer. The supervisor has a technical and managerial role and is responsible for overseeing the containment plan's execution within their jurisdiction area. The supervisor is selected from locally available resources. This could be Lady Health Visitors (LHV), booth level officials, AYUSH students, teachers, sanitary inspectors, male health workers, etc. trained as supervisors for containment operations. The document contained managerial and technical roles of supervisors along with necessary COVID-19 information.



Website link:
<https://www.mohfw.gov.in/pdf/ContainmentandSurveillanceManualforSupervisorsincontainmentzones.pdf>

MoHFW released Manual for Surveillance Teams for containment zones

Ministry of Health and Family Welfare (MoHFW) released a manual for Surveillance Teams in containment zones. It consisted of information in the form of four chapters for Surveillance Teams who visit home to identify suspect case and contacts in containment zones, which is given below:

- Role of Surveillance Team in Containment Zone;
- Community Surveillance (House-to-House search for suspect cases) and contact tracing;
- Preventive and Control Measures for Families & Communities; and
- Personal Safety.

This manual is a complete guide for Supervisors in containment zones to create awareness in communities for COVID Response and stop the spread.



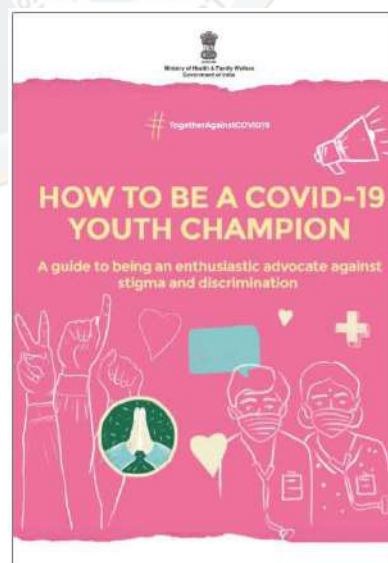
Website link:

<https://www.mohfw.gov.in/pdf/ManualforSurveillanceTeamsforcontainmentzones.pdf>

Ministry of Health encouraged youth to advocate against stigma and discrimination during COVID-19

In the context of healthcare, stigma is when any person/ community sees someone negatively because of his/her illness. When their condition labels a person, they are no longer seen as individuals but as part of a stereotyped group. Negative attitudes and beliefs toward this group create prejudice which leads to negative actions and discrimination. Discrimination is when a person/ community negatively treats someone because of his/ her illness.

In the context of a disease outbreak, this means people are labelled, stereotyped, discriminated against, and treated separately because of a perceived link with a disease. Such negative treatment can affect those with the disease, as well as their caregivers, family, friends, community groups.



The COVID-19 outbreak also provoked social stigma and discriminatory behaviours against anyone perceived to have been in contact with the virus such as doctors, nurses, frontline workers, sanitation workers etc. MoHFW encouraged youth to advocate against stigma and discrimination during COVID-19 in the form of a guide. This document was designed to help young people develop as youth advocates and raise their voice against stigma and discrimination during the COVID-19 pandemic.

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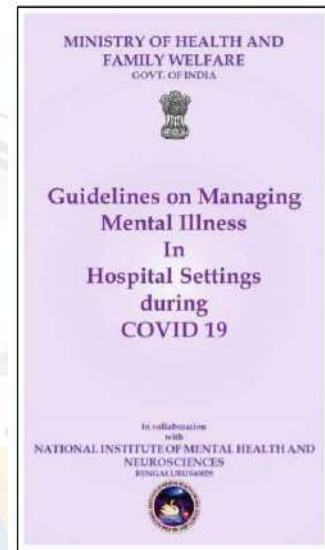
https://www.mohfw.gov.in/pdf/EncouragingYouthtoadvocateagainstS&DduringCOVID19EnglishToolkit_final.pdf

MoHFW issued guidelines on managing mental illness in hospital settings during COVID-19

Ministry of Health and Family Welfare (MoHFW) issued guidelines on managing mental illness in hospital settings during COVID-19. Experts from the National Institute of Mental Health and Neurosciences (NIMHANS), Bengaluru, prepared this guideline. Like physical disorders, managing psychiatric disorders (both inside the mental health establishments and in the community) requires multiple adjustments and following the various COVID-19-related protocols. The Guidelines detailed everything; right from the moment the patient enters the mental health establishment until the time he/she is there, due processes should be followed.

Website link:

<https://www.mohfw.gov.in/pdf/GuidelinesforDeliveryofMentalHealthcareServicesduringtheCOVID19.pdf>

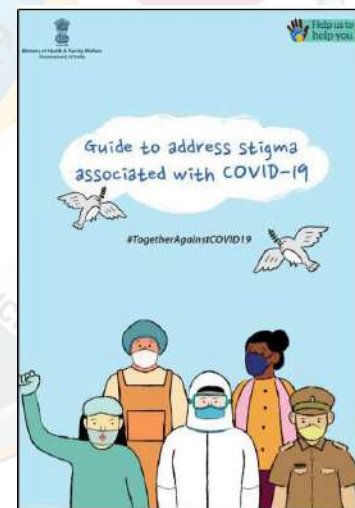


MoHFW released a guide to address stigma associated with COVID-19

COVID-19 pandemic is a public health emergency that caused a stressful and a difficult time for everyone. During this crisis, rumours and misinformation created more stress and often hampered the recovery process. To combat this misinformation, the Ministry of Health and Family Welfare (MoHFW) issued a guide to address stigma associated with COVID-19. This guide for preventing and addressing the social stigma associated with COVID-19 is intended to support governments, media and local organisations.

Website link:

<https://www.mohfw.gov.in/pdf/GuidetoaddressstigmaassociatedwithCOVID19.pdf>



An illustrative guide on COVID-appropriate behaviours issued by MoHFW

The COVID-19 pandemic led to unprecedented and unanticipated challenges requiring collective action and support from all. While all necessary measures to fight the spread of Novel Coronavirus were being effectively led by the Government, there was a need to reinforce the

importance of preventive measures and practices in a sustained manner to deal with the disease over the long run.

To address the challenge, the Ministry of Health and Family Welfare (MoHFW) released an illustrative guide on COVID-appropriate behaviours critical to winning this fight against COVID-19. This guidebook outlines a comprehensive list of 15 preventive behavioural practices critical to winning the fight against the deadly virus. This fight can be won only when everyone knows their roles and the goal.

Website Link:

<https://www.mohfw.gov.in/pdf/illustrativeguidelineupdate.pdf>



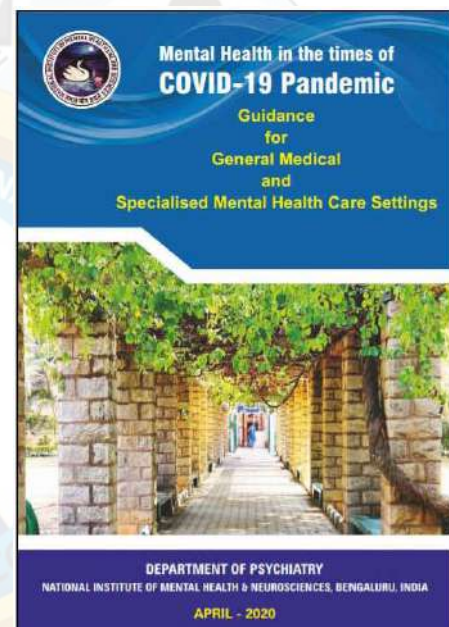
NIMHANS emphasised mental health in the times of COVID-19 pandemic

The Department of Psychiatry at the National Institute of Mental Health & Neurosciences (NIMHANS) collectively developed a guideline for effective mental health management in general medical and specialized mental healthcare settings. This publication comprehensively covered mental health concerns of the general public as well as those with psychiatric illness. Beyond mental healthcare, it also addresses safety issues of psychiatrists and other mental healthcare providers. While being aware that mental health concerns may keep changing at different phases of the pandemic, this guideline will nevertheless continue to be relevant, though they may require modifications from time to time.

Contact Info: psychiatry@nimhans.ac.in

Website Link:

<https://nimhans.ac.in/wp-content/uploads/2020/04/MentalHealthIssuesCOVID-19NIMHANS.pdf>



Indian Red Cross Society released 'eBloodServices' mobile app for easy availability of blood

Ministry of Health & Family Welfare launched the 'eBloodServices' Mobile App on 25th June 2020, developed by The Indian Red Cross Society (ICRS), through a video conferencing.

This application was developed by the E-Raktkosh team of Centre for Development of Advanced Computing (CDAC) under the Digital India scheme launched by Prime Minister Shri Narendra Modi in 2015. The Blood Donation App is a prime example of how the Digital India Scheme serves to access blood services. Through this App, four units of blood can be requisitioned at a time, and the blood bank will wait for as long as 12 hours for the person to collect it. This App makes it easy for those in need



to request blood units at IRCS NHQ. At a time when the country was facing such a pandemic, the Mobile App assisted all those who direly required blood.

Once the request is placed through the App, the requisite units become visible to IRCS, NHQ blood bank in its E-Raktkosh dashboard, which allows assured delivery within the specified time. This feature makes it easy for a blood seeker to obtain blood. It has the added advantage of complete transparency and single-window access to the service.

Website link:

<https://indianredcross.org/ircs/eBloodServices>

Onboarding of COVID-19 warriors from States & Union Territories to Integrated Government Online Training courses on DIKSHA Platform

Integrated Government Online Training (iGOT) launched a programme to train all the COVID-19 warriors of India. The learning portal has national coverage, free access to all, 24 X 7 content available from any location and any device and has relevant content developed by the Government of India which is updated regularly as the situation unfolds.

The iGOT COVID version is being hosted on the Ministry of Human Resource Development's DIKSHA platform.

Contact info: support@i-got.freshdesk.com



Website link:

<https://igot.gov.in/igot/>

Government of India released advisories to address mental health issues among pregnant women amidst COVID-19

Government of India is taking all necessary steps to ensure that we are prepared well to face the challenge and threat posed by the COVID-19 pandemic. The essential factor in preventing the spread of this virus locally is to empower the citizens with the right information and taking precautions as per the advisories being issued by the Ministry of Health & Family Welfare.

In its series of advisories, on 12th July 2020, the Government of India released infographics, both in Hindi & English, containing advisories to address mental health issues among pregnant women amidst COVID-19.

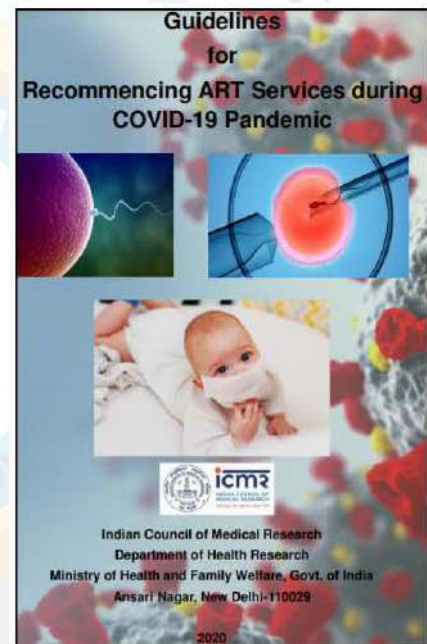


Website link:

<https://transformingindia.mygov.in/covid-19/?type=en§or=#scrolltothis>

ICMR issued guidelines for recommencing Assisted Reproductive Technology (ART) services during COVID-19 Pandemic

As we all are battling the COVID-19 pandemic together, our return to normal daily activities will also need our healthcare system to restart the Assisted Reproductive Technology (ART) services. There are many repercussions regarding recommencing the ART procedure during COVID-19 pandemic as it is still unclear what impact COVID-19 has on a pregnant woman or her foetus. Patients might worry about the risks of getting infected with COVID-19 and whether it is safe to embark on pregnancy through ART services right now. The impact of COVID-19 is still not clear. These ART procedures tax the patients financially and emotionally. Therefore, it is necessary for all the ART clinics to undertake ART procedures to ensure high-quality patient care and make strategies that will minimize individual exposure risk. At present, a total of 1866 clinics and banks have been identified under the National Registry of ART clinics and banks in India. This calls for strict vigilance of ART services in the country and it is imperative that meticulous steps are taken to promote safe practices so that the risks related to SARS-CoV-2/COVID-19 are minimized, both for the patients and the ART clinic staff.



To overcome this situation, ICMR released guidelines for recommencing ART services during COVID-19 Pandemic. These guidelines have been prepared with the intent of guiding all the ART clinics across the country to resume their services in a stepwise manner keeping in mind the risks of COVID-19 infection to be balanced against the benefits of the patients who need infertility treatment. However, these recommendations must be followed in keeping with the local and national guidelines at the prevailing time and these are subject to change in the face of ever-evolving scientific and economic situations.

Website link:

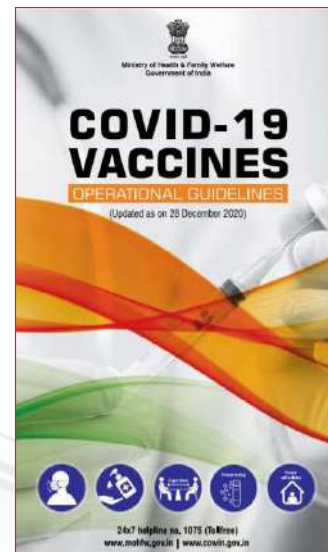
https://www.icmr.gov.in/pdf/covid/techdoc/Guidelines_ART_during_COVID19_revised.pdf

MoHFW released operational guidelines for COVID-19 vaccines

Ministry of Health, Family and Welfare (MoHFW) issued operational guidelines on COVID-19 vaccine. As per this guidelines, the COVID-19 vaccine was to be offered first to healthcare workers, frontline workers and population above 50 years of age, followed by population below 50 years of age with associated comorbidities based on the evolving pandemic situation, and finally to the remaining population based on the disease epidemiology and vaccine availability. The priority group of above 50 years may be further subdivided into those above 60 years of age and those between 50 to 60 years of age for the phasing of rollout based on pandemic situation and vaccine availability.

Website link:

<https://www.mohfw.gov.in/pdf/COVID19VaccineOGI11Chapter16.pdf>

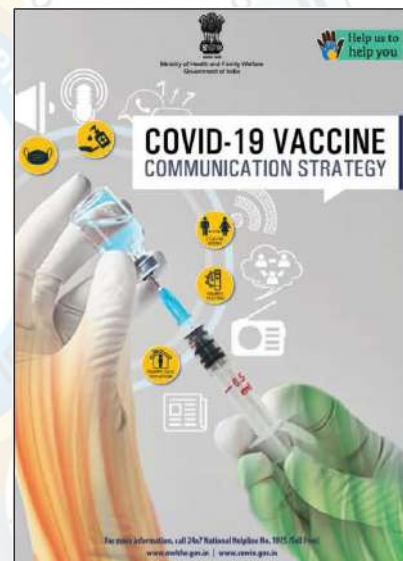


MoHFW released COVID-19 vaccine communication strategy to sensitise masses about vaccines

The Ministry of Health and Family Welfare (MoHFW) released COVID-19 Vaccine Communication Strategy that supports the COVID-19 vaccines rollout in India. The strategy will serve to guide national-, state- and district-level communication activities, so that the information on the COVID-19 vaccines and vaccination process reaches all people, across all states in the country. The strategy is for building trust among all people by employing transparency in communication and also managing any miss/disinformation and rumours around it. The objectives of the COVID-19 Vaccine Communication Strategy are to provide correct, consistent and timely information on the new COVID-19 vaccine(s) (availability, safety, and timelines) and vaccination processes.

Website link:

<https://www.mohfw.gov.in/pdf/Covid19CommunicationStrategy2020.pdf>



Co-WIN app for smooth COVID-19 immunisation

As the largest COVID-19 vaccination drive goes on, the vaccination monitoring and evaluation is going to be a huge task. To ensure smooth running of the vaccination programme, a dedicated web portal called Co-WIN (COVID-19 Vaccine Intelligence Network) has been launched recently. Co-WIN serves as an extension of the existing electronic Vaccine Intelligence Network (eVIN) module for it to be a comprehensive cloud-based IT solution for planning, implementation, monitoring, and evaluation of COVID-19 vaccination in India.

The Co-WIN system is an end-to-end solution that has utilities for the entire public health system from national up to the vaccinator level. The system allows for the creation of users (admins, supervisors, vaccinators), registration of beneficiaries (bulk upload and individual registration), facilities/planning unit and session sites followed by planning and scheduling sessions and implementation of the vaccination process. As of now it has no self-registration option.

Co-WIN system on a real-time basis tracks not only the beneficiaries but also the vaccines at national, State and District level. This will allow the system to monitor the utilization, wastage, coverage of COVID-19 vaccination at the National, State, District and Sub-District level. The Co-WIN system has components like the website www.cowin.gov.in that will be used by the National-, State- and District-Level administrators. The key features of the website are creation of State- and District-level admins, creation of facility/planning unit databases, creation of vaccinator, and supervisor databases, manage material relevant to COVID-19 vaccination and its allocation, creation of session sites, bulk upload of beneficiary data for registration, self-registration by the general population, session management for linking session sites, vaccinators, supervisors, and beneficiaries, rights for viewing sessions and beneficiary allocated to these sessions for Block Admin and Facility, medical officer In charge, and monitoring and reporting.

The Co-WIN app would provide help in the registration of individual beneficiaries by facility/planning unit-level users. It would also help for authentication/verification of beneficiaries and recording the successful vaccination at time of conducting the session. The App would be available soon on Google Play Store or for Apple users.



Website link:
<https://www.cowin.gov.in/home>

ICMR published monthly newsletter 'e-Samvaad' for providing information on latest efforts to tackle COVID-19

During the unprecedented times of COVID-19 pandemic, ICMR extensively contributed towards the fight. It spearheaded a plethora of activities including setting up of pan-India testing infrastructure, evidence generation and policy support. Along with the pandemic, ICMR was fighting another battle – the infodemic of misinformation. To tackle these challenges posed to the society, ICMR brought out a monthly newsletter, e-Samvaad. This newsletter provided the latest updates and a glimpse of the ardent efforts made by the ICMR and its Institutes spread across the country. ICMR released 8 editions of the newsletter both in Hindi and English from June 2020.





Website link:
<https://www.icmr.gov.in/media.html>

Government launched Mission COVID Suraksha to accelerate Indian COVID-19 Vaccine Development

The Government of India announced the third stimulus package of Rs. 900 Crore for the Mission COVID Suraksha - The Indian COVID-19 Vaccine Development Mission. This grant will be provided to the Department of Biotechnology (DBT) for Research & Development of Indian COVID-19 vaccines.

The COVID-19 Vaccine development Mission with end-to-end focus from preclinical development through clinical development and manufacturing and regulatory facilitation for deployment would consolidate all available and funded resources towards an accelerated product development. This will help accelerate development of approximately 5-6 vaccine candidates and ensure that these are brought closer to licensure and introduction in market for consideration of regulatory authorities for introduction in public health systems to combat further spread of COVID-19 infection.

The important objectives of the fund will be accelerating pre-clinical and clinical development; licensure of COVID-19 vaccine candidates that are currently in clinical stages or ready to enter clinical stage of development; establishing clinical trial sites; and strengthening the existing immunoassay laboratories, central laboratories and suitable facilities for animal studies, production facilities and other testing facilities to support COVID-19 vaccine development. The other important objective will be supporting development of common harmonized protocols; trainings; data management systems; regulatory submissions; and internal and external quality management systems and accreditations. Capabilities for process development, cell line development and manufacturing of GMP batches for animal toxicology studies and clinical



**Department of Biotechnology (DBT) and
Biotechnology Industry Research Assistance Council (BIRAC)**



**Announce
MISSION COVID SURAKSHA
Request for Expression of Interest (REOI)**

**REOI-2: Enhancement of Capacity to support
COVID-19 vaccine development**

Call opens on : 01 December 2020
Call closes on : 20 December 2020; 5:00 pm

For additional Information and queries please contact: **Dr Artee: inv03@birac.nic.in**

trials will also be supported under the Mission. A key element will be development of suitable Government launches Mission COVID Suraksha to accelerate Indian COVID-19 Vaccine Development Target Product Profile so that vaccines being introduced through the Mission have preferred characteristics applicable for India.

Led by Department of Biotechnology and implemented by a dedicated Mission Implementation Unit at Biotechnology Industry Research Assistance Council (BIRAC), the existing activities under National Bio Pharma Mission (NBM) and Ind-CEPI Mission will provide complementary strengths to this Mission.

Website link:

https://birac.nic.in/desc_new.php?id=795

MoHFW launched interactive game and IEC content to promote COVID-Appropriate Behaviours

Dr Harsh Vardhan, Union Minister for Health & Family Welfare, Science & Technology and Earth Science launched an interactive first-of-its-kind game on COVID-19, The Corona Fighters (www.thecoronafighters.in), and two new videos urging adherence to key COVID-Appropriate Behaviours, in the presence of Sh. Ashwini Kumar Choubey, Minister of State for Health & Family Welfare.

Expressing his pleasure at the launch of the uniquely designed game, Dr Harsh Vardhan said that the game “presents a new and extremely creative way to teach people the right tools and behaviours to fight the COVID-19 pandemic.” He stated that the game was designed to “influence the players’ actions in the real world, reminding them to take the right precautions and escape infection.” He further added that this along with two promotional videos “is a simply designed and enjoyable medium to get a serious message across to the wider public.”

Congratulating the makers of the game and promotional videos, Shri Ashwini K. Choubey said, “Communication is the key in today’s world. It has played a great part in the fight against COVID during the lockdown when the trajectory of the disease and its containment strategy could be effectively communicated to the last man.” The IEC videos and game launched today will influence children, and through them the elders in the community, and spread the message and importance of COVID-appropriate behaviour,” he added.



Website link:

<https://www.pib.gov.in/PressReleasePage.aspx?PRID=1647406>



SCIENCE & TECHNOLOGY OUTREACH EFFORTS ON COVID-19

BY

MINISTRY OF AYURVEDA, YOGA & NATUROPATHY, UNANI, SIDDHA AND HOMOEOPATHY (MoAYUSH)

National repository created for AYUSH COVID-19 clinical and other R&D initiatives

AYUSH Research Portal aims to disseminate the knowledge of AYUSH systems and the current research updates purely meant for academic purpose. In this portal, users can search AYUSH terminology, research articles, journals etc. One can also search for information on Ayurveda, yoga, naturopathy, Unani, Siddha, Homeopathy etc. and information about the clinical research, pre-clinical research, drug research, and fundamental research. This initiative aims to collate the current research and clinical activities and updates related to the COVID-19 pandemic.

AYUSH RESEARCH PORTAL

Research Data of AYUSH Systems at Global Level

Home Search Login About Us Contact Us Feedback/Suggestions

Ministry of AYUSH, Government of India
Ayurveda, Yoga & Naturopathy, Unani, Siddha, Homoeopathy and Sowa Rigpa

"National Clinical Management Protocol based on Ayurveda and Yoga for the management of Covid-19"
released jointly by Union Health Minister and AYUSH Minister

The National Clinical Management Protocol based on Ayurveda and Yoga for management of COVID-19

National Clinical Management Protocol based on Ayurveda and Yoga for the management of Covid-19,

Frequently asked Questions.

Website link:

<http://ayushportal.nic.in/Covid.aspx>

AYUSH Sanjivani App launched for inter-disciplinary studies involving Ayush interventions for COVID-19

The 'AYUSH Sanjivani' mobile app has been launched to generate data on acceptance and usage of AYUSH advocacies and measures among the population and its impact on the prevention of COVID-19. It is developed by Ministry of AYUSH and MEITY and intends to reach out to a target of 50 lakh people.

Website link:

https://play.google.com/store/apps/details?id=com.negd.ayushfeedback&hl=en_



Government reached the public through Ayush Sanjivani Pledge

Government of India has taken the initiative to reach out to the general public through Ayush Sanjivani Pledge. Since immunity played a crucial role in the transmission and acquiring of the COVID-19 infection, the Pledge initiative aimed to sensitise the general public towards adopting safe and time-tested practices for immunity enhancement and disease prevention. The participants got the Certificate of Commitment after taking the pledge.

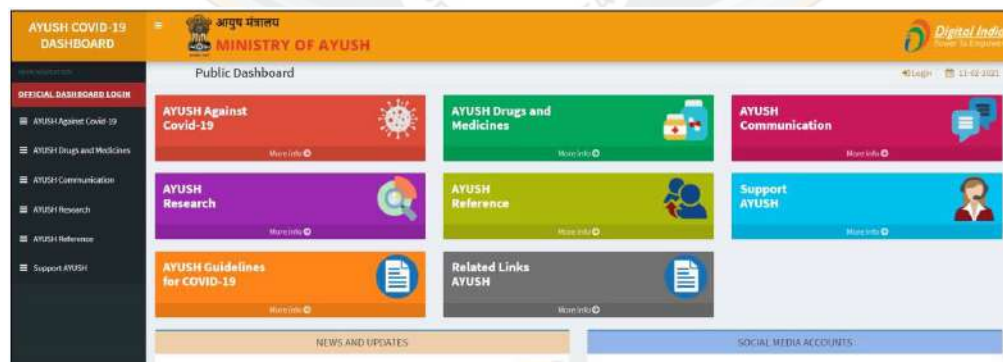


Website link:

<https://pledge.mygov.in/ayushsanjivani/>

COVID-19 dashboard developed by Ministry of AYUSH

Ministry of AYUSH developed a dedicated dashboard to provide real-time information on all COVID-19-related activities.



Website link:

<https://health.ncog.gov.in/ayush-covid-dashbaord/>

Ministry of AYUSH brought out monthly newsletter – Ayush for Immunity Campaign Bulletin

The Ayush for Immunity campaign was launched to increase awareness about Ayush practices that improve health and immunity.

Ministry of AYUSH presented newsletters of the AYUSH for Immunity Bulletin. The increased interest seen globally in healthcare solutions rooted in traditional medicine and specifically in AYUSH (conventional and non-conventional systems of healthcare recognised by the Government of India) disciplines is indeed a positive development. The pandemic led to an increased realisation of the need to be proactive about health. Significantly, interest has surged among people to understand practices that enhance immunity and disease resistance. Strengthening the body's natural defence system (immunity) is important to fight any disease, particularly in the pandemic. Ministry of AYUSH brought out ten editions from August to November of Immunity Campaign Bulletin.

Promoting and propagating preventive measures which strengthen our immunity are of tremendous advantage to the people in these times. The Ayush disciplines recommend many simple practices using commonly available gifts of nature, which can go a long way in maintaining a healthy and happy living. The importance of awareness about oneself and the harmony each individual can achieve by uplifting and maintaining their immunity is emphasised across these disciplines.

In the times that we are passing through efforts for maintaining good health and enhancing immunity have become essential. The Ayush for Immunity campaign hopes to facilitate this by providing a steady stream of information on solutions and relevant practices in this context.



Website link:

<https://main.ayush.gov.in/ayush-for-immunity-bulletin>

MyGOV initiated video blogging contest – Ayush se Jeevani Shakti – to spread awareness related to boosting immunity

Government of India takes an initiative through MyGov platform to create awareness for boosting immunity to be healthier and add to individuals' armour as an equipment to tolerate any flu-like infection borne by the microbiome.



Website link:

<https://www.mygov.in/task/%E0%A4%86%E0%A4%AF%E0%A5%81%E0%A4%B7-%E0%A4%B8%E0%A5%87-%E0%A4%9C%E0%A5%80%E0%A4%B5%E0%A4%A8%E0%A5%80-%E0%A4%B6%E0%A4%95%E0%A5%8D%E0%A4%A4%E0%A4%BF-video-blogging-contest/>

A public awareness campaign initiated for use of Ayush-based solutions for strengthening immunity

Healthcare practices advocated by Ayush systems (namely Ayurveda, Yoga, Naturopathy, Unani, Siddha, Sowa-Rigpa and Homoeopathy) are known to promote general wellness. In fact, they exert a positive impact both on the mind and the body. These practices aim to go beyond the symptoms of the diseases and work on the overall strengths and weakness of an individual. They are normally free of side-effects, and their rewards are long-lasting.

COVID-19 has brought in new challenges before the healthcare system. For a long time, the surest and safest way to service the pandemic was to avoid falling sick. As a result, immunity of a person became the key factor in prevention and treatment of COVID-19.

The power of AYUSH systems in strengthening the natural immune system of the human body is well known. They provide solutions using readily available herbs, condiments etc., many of which are also widely used in our day-to-day cooking. The fact that the AYUSH medicines and therapies have negligible side-effects is also a reason for their wide acceptability.

Use of decoctions or medicines consumed to prevent disease like flu or viral infections are quite well known. During the current pandemic also, the Ayush medicines and therapies have been extensively used, especially for prevention of the disease. Documented and undocumented reports about Ayush-based solutions helping both in prevention of and recovery from COVID-19 are increasingly seen in the public domain. Correct information about such solutions needs to be made available to the people across the country in easy formats, so that they can adopt them in their daily lives.

An effort has been made to compile some easy-to-adopt Ayush-based immunity building measures/solutions.



Website link:

https://static.mygov.in/rest/s3fs-public/mygov_159801941255063671.pdf

https://www.mygov.in/group-issue/use-ayush-based-solutions-strengthening-immunity/?target=inapp&type=group_issue&nid=296661

National Clinical Management Protocol based on Ayurveda and Yoga for management of COVID-19 released

The “National Clinical Management Protocol based on Ayurveda and Yoga for the management of COVID-19” released by the Ministry of AYUSH on 7th October 2020 was a milestone in the rapidly evolving scenario of COVID-19 responses in the country.

The COVID-19 pandemic created a global health crisis posing an unprecedented public health emergency. This situation turned much more severe due to possible devastating situations because of several social and economic factors. Effective management to address this infection integrated traditional interventions along with standard care.

Ayurveda and Yoga can certainly play a pivotal role to augment preventive measures provided in the guidelines by Ministry of Health and Family Welfare (MoHFW). The current understanding of COVID-19 indicates that good immune status is vital to prevention and to safeguard from disease progression. In this context Ministry of Ayush issued National Clinical Management Protocol based on Ayurveda and Yoga for management of COVID-19 in the form of a document. This consensus document was developed by expert members from All India Institute of

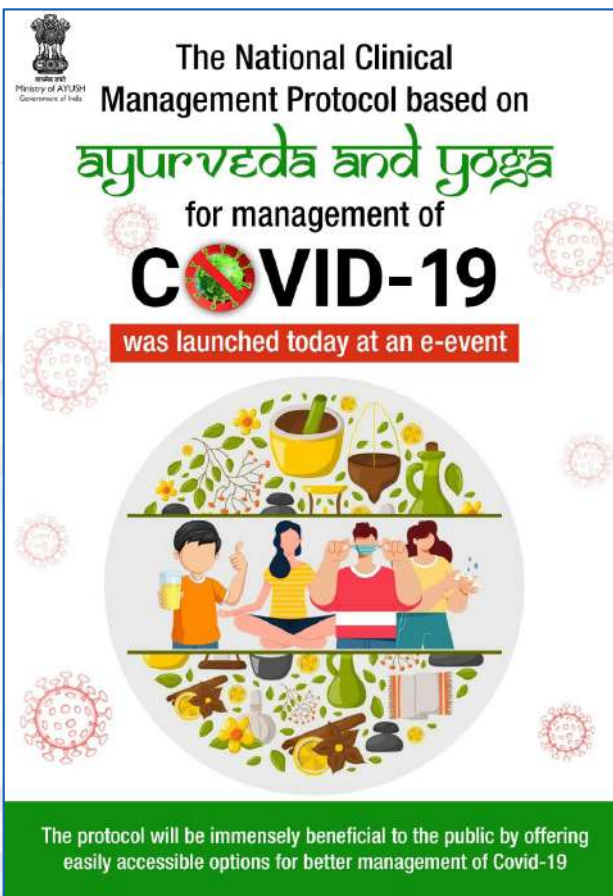
Ayurveda (AIIA), Delhi; Institute for Post Graduate Training and Research in Ayurved (IPGTRA), Jamnagar; National Institute of Ayurveda (NIA), Jaipur; Central Council for Research in Ayurveda (CCRAS); Central Council for Research in Yoga and Naturopathy (CCRYN); and other national research organizations. This protocol is for management of mild COVID-19 cases. Moderate to severe COVID-19 individuals may have informed choice of treatment options. All severe cases will be referred. This protocol and its annexure are approved by the Chairman, Interdisciplinary Committee for inclusion of Ayurveda and Yoga in the management of mild COVID-19 cases and approved by the empowered committee of the Interdisciplinary AYUSH Research and Development Taskforce on COVID-19, both constituted by the Ministry of AYUSH.

Website link:

<https://main.ayush.gov.in/event/national-clinical-management-protocol-based-ayurveda-and-yoga-management-covid-19>

The Ayush Sanjivani Quiz analysed the impact of immunity boosting advisories

The Ayush Sanjivani mobile app is a notable effort in the field of public health research in India. It aims to study the impact of AYUSH-based practices in improving the health of the general public.



The AYUSH Ministry advisories on immunity boosting came at the difficult time of the COVID-19 pandemic and are believed to have helped millions of people to ward off health problems in these difficult days. The Ayush Sanjivani has posed a set of questions that aim to assess the impact of the said advisories in preventing COVID-19.

Participation in this quiz helped to understand the AYUSH systems of healthcare in general and the Ayush Sanjivani app.

Website link:

<https://quiz.mygov.in/quiz/the-ayush-sanjivani-quiz/>



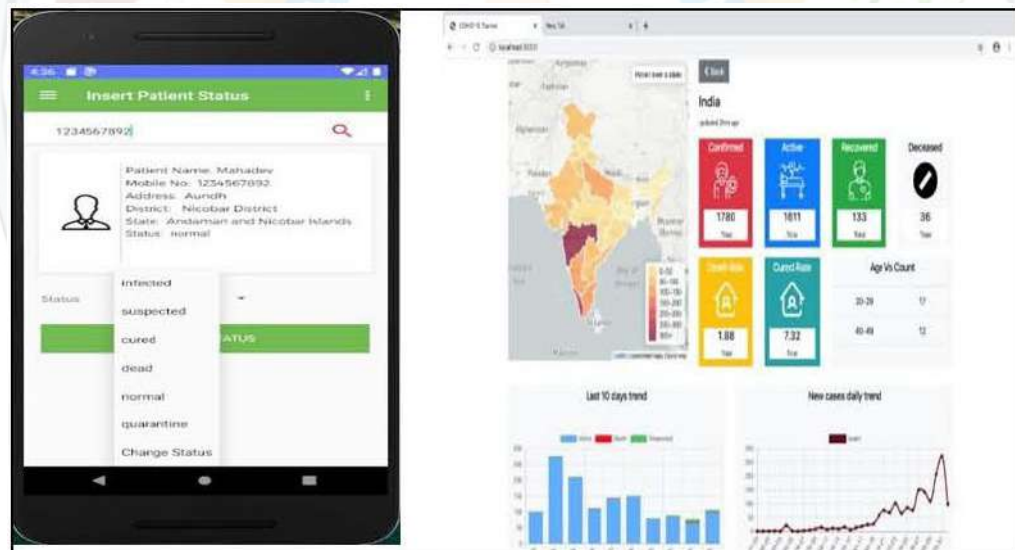
SCIENCE & TECHNOLOGY OUTREACH EFFORTS ON COVID-19

BY

MINISTRY OF ELECTRONICS AND INFORMATION TECHNOLOGY (MeitY)

NAADI Platform launched along with 2 Mobile apps

C-DAC has developed a platform called NAADI: National Analytical Platform for Dealing with Intelligent Tracing, Tracking and Containment of COVID-19 for infected persons and quarantined people. This platform has been developed along with the mobile applications for health experts, law enforcement agencies, and the general public. This offers Comprehensive Multi-Level, Multi-modal and Multi-lingual Tracing, Tracking and Containment of COVID-19 Quarantined/Under Observation/Infected Individuals. The platform includes nCov-Satark App for health agencies for violation detection based on location-based tracking (GPS) as well as Call Data Records (CDR) and Internet Protocol Data Records (IPDR). It also includes I12++ India App for citizens for triggering medical emergency and response assistance. The initiative is supported by Ministry of Electronics and Information Technology (MeitY).



Website link:
<https://www.cdac.in/>

MeitY announced Innovation Challenge for Development of Video Conferencing Solution during pandemic

COVID-19 has thrown unprecedented challenges for the world and industries alike. Amidst business disruptions and remote working scenarios, it is important for all including governments, industry and individuals to contribute with all its might to overcome the present and emerge stronger as humanity. The Government is working towards ensuring that we overcome the challenge and come out stronger as a country and thereby also support the humanity at large to prevail.

The Ministry of Electronics & Information Technology announced an Innovation Challenge for Development of Video Conferencing Solution under the Digital India Initiative. The Innovation Challenge was open for participation from industry, start-ups and individual experts. The end product was an Indian software product at par with international quality and that work in low and high network scenarios. The initiative was an attempt to promote Indian software products as envisaged under the National Policy on Software Products.



Website link:
<https://www.meitystartuphub.in/>

Hack the Crisis – INDIA Online Hackathon – launched by MeitY to reach out to young researchers & scientists

Ministry of Electronics and Information Technology (MeitY), in association with FICCI FLO Pune, Robotex International announced in April 2020 'Hack the Crisis – India Online hackathon' with special focus on containment of coronavirus (COVID-19) with the intent to develop solutions to deal with its aftermath.

Website link:
https://www.meity.gov.in/writereaddata/files/MEITY%20DOC_5.5.20_v4.pdf



MeitY announced Call for Proposal to conduct ICT Grand Challenge to build suitable WFH products or solutions

The Ministry of Electronics & Information Technology (MeitY) announced to develop innovative software product to address Work From Home (WFH) challenges by organizing the first ICT Grand Challenge through implementing agency in the specified areas. The objective of ICTGC was to generate innovative technology and solutions in the form of software products using emerging technology so as to address the COVID and related social economic challenges and have potential for mass market leading to greater access of the products in a cost-effective manner. More scheme details of ICT Grand Challenge under National Policy on Software Products (NPSP) are available in the detailed document.

Website link:
<https://ispr.gov.in/ictgc/Detailed%20Document%20of%20ICT%20Grand%20Challenge.pdf>



Joint statement from founding members of GPAI on leveraging AI towards COVID-19 mitigation

India, Australia, Canada, France, Germany, Italy, Japan, Mexico, New Zealand, the Republic of Korea, Singapore, Slovenia, the United Kingdom, the United States of America, and the European Union have come together to create the Global Partnership on Artificial Intelligence (GPAI or Gee-Pay). GPAI aims to support the responsible and human-centric development and use of AI in a manner consistent with human rights, fundamental freedoms, and their shared democratic values, as elaborated in the OECD Recommendation on AI. To this end, GPAI also look forward to working with other interested countries and partners.

GPAI is an international and multi-stakeholder initiative to guide the responsible development and use of AI, grounded in human rights, inclusion, diversity, innovation, and economic growth. In order to achieve this goal, the initiative will look to bridge the gap between theory and practice on AI by supporting cutting-edge research and applied activities on AI-related priorities.

In collaboration with partners and international organizations, GPAI will bring together leading experts from industry, civil society, governments, and academia to collaborate across four Working Group themes: 1) Responsible AI; 2) Data Governance; 3) The Future of Work; and 4) Innovation & Commercialization. Critically, in the short-term, GPAI's experts will also investigate how AI can be leveraged to better respond to and recover from COVID-19.

GPAI will be supported by a Secretariat, to be hosted by the OECD in Paris, as well as by two Centres of Expertise – one each in Montréal and Paris. The relationship with the OECD will bring strong synergies between GPAI's scientific and technical work and the international AI policy leadership provided by the OECD, strengthening the evidence base for policy aimed at responsible AI. The Centres will provide administrative and research support for the practical projects undertaken or assessed by Working Group experts from various sectors and disciplines.



Website link:

https://www.meity.gov.in/writereaddata/files/Joint_Statement_on_Launch_GPAI.pdf

Centre of Excellence in IPR launched scheme to provide support to COVID-19-related applications

Centre of excellence (CoE) in Intellectual Property Rights (IPR) has launched a scheme to support the IPR claims of the requests received related to innovative technologies in information and communication technology domain concerning to the combating of COVID-19 challenge.

These Centres have been established towards developing a conducive infrastructure for creation of IPR ecosystem at the Department of Electronics & Information Technology (DeitY), New Delhi and



CDAC-Pune is providing a gamut of value-added IPR-related services to academic institutions, scientific societies of DeitY, SMEs, start-ups and independent inventors.

Website link:

http://ict-ipr.in/index.php?option=com_content&view=article&id=91

MeitY supported SAMHAR-COVID19 initiative to reach out to researchers and scientists

C-DAC has launched SAMHAR-COVID19 in partnership with National Supercomputing Mission (NSM) Consortia Members, start-ups and industries, to build a Rapid Supercomputing System and Research Community for India to fight COVID-19. It is proposed to create a Consortium of researchers as virtual 'Rapid Researchers Task Force (RRTF), SAMHAR-COVID19.' The initiative is partnered and co-supported by Ministry of Electronics and Information Technology (MeitY).



Website link:

<https://www.cdac.in/>

MeitY launched Digital India Atmanirbhar Bharat Innovate Challenge

Ministry of Electronics and Information Technology (MeitY) in partnership with Atal Innovation Mission, Niti Aayog launched Digital India Atmanirbhar Bharat Innovate Challenge to identify the best Indian Apps that are already being used by citizens and have the potential to scale and become world-class Apps in their respective categories. This Innovation Challenge with various cash awards and incentives of featuring Apps on Leader Boards seeks to create an ecosystem where Indian entrepreneurs and start-ups are incentivised to ideate, incubate, build, nurture, and sustain tech solutions that can serve not only citizens within India but also the world.

The Aatmanirbhar Bharat App Innovation Challenge has been launched in eight broad categories, along with several sub categories and problem tests. These problem tests include some of the challenges thronged by the COVID-19 pandemic also.



Website link:

<https://innovate.mygov.in/app-challenge/#tab1>

MeitY developed an online registration framework portal for medical OPD services

Online Registration System (ORS) is a framework to link various hospitals across the country for Aadhaar-based online registration and appointment system, where counter-based OPD registration and appointment system through Hospital Management Information System (HMIS) has been digitalized. The application has been hosted on the cloud services of National Informatics Centre (NIC). The Portal facilitates online appointments with various departments of different hospitals using eKYC data of Aadhaar number, if the patient's mobile number is registered with UIDAI. And in case the mobile number is not registered with UIDAI it uses the patient's name. New patient will get appointment as well as Unique Health Identification (UHID) number. If the Aadhaar number is already linked with the UHID number, then the appointment number will be given and UHID will remain same.

One of the features that ORS provides is that of booking a medical appointment online, get an OPD appointment, lab reports, and blood availability in any government hospital of any state registered in ORS.



Website link:
<https://ors.gov.in/index.html>

NIC developed two mobile apps - RATI and RT-PCR Test of India

National Informatics Centre (NIC) has developed RT-PCR and Rapid Antibody Test of India (RATI) Mobile Apps on Android and iOS platforms and a web portal to ensure quality and accurate data of patients at location for surveillance and immediate transfer of sample details to ICMR for use by authorized laboratories.

RT-PCR Test of India App: The App is used by collection centre technicians to enter details of the samples being collected for COVID-19 RT-PCR test. It helps in preparing SRF form which is sent along with the sample to the laboratory.

RATI (Rapid Antibody Test of India) App: This App captures test results data of Rapid Antibody Tests. The App is used by collection centres conducting the Rapid Antibody Test for COVID-19, on behalf of ICMR.

Web Portal: The web portal at <https://covid19cc.nic.in> ensures authorizations of sample collectors and testers across country with viewing rights to Government officials at State and District level.



Website link:

https://www.meity.gov.in/writereaddata/files/major_achievements_month_of_may_2020.pdf

MeitY reached out to start-ups by launching for SASACT 2020

Scheme for Accelerating Startups around Post COVID Technology Opportunities (SASACT) initiative is part of Ministry of Electronics and Information Technology’s (MeitY’s) slew of measures to respond to today’s changing environment in reiterating the need and importance of quick and reliable technology solutions in accordance with local needs. SASACT envisages supporting electronics hardware/ICT-based tech start-ups for developing or re-purposing technologies, tools, systems, and solutions to respond to the post-COVID-19 scenario with action areas identified as smart/digital manufacturing including 3D printing, Digital health/Medtech, Edutech, Fintech, Work From Home (WFH) and other solutions deemed fit for post-COVID-19 world. Rs. 9.6 Crore is provisioned for supporting eligible start-ups to augment and deploy into the market select technology products in a span of 11 months from 1st October 2020. The scheme does not envisage support to ideation-stage start-ups. Start-ups (Scaling Stage) who have already tested their prototypes (hardware/software innovations) with or without any user agency and are seeking further validations before becoming market-ready with a demonstrable demand are therefore encouraged to apply.



Website link:

<https://app.thebizplanner.com/public/application/inc/5f507f4ea5345dcbd07e8770>

MeitY launched grand challenge for developing COVID vaccine intelligence network

As the world moved closer to COVID-19 vaccine availability, governments and healthcare organizations needed developing flexible technology solutions/platforms across the entire gamut of vaccine inventory management, administration, appointment scheduling, notifications, outcome monitoring, and other necessary support for a frictionless distribution of billions of doses of vaccines around the country.

The Electronic Vaccine Intelligence Network (eVIN) system, which provides real-time information on vaccine stocks and storage temperatures across all cold chain points in the country, is being enhanced to address the needs for distribution and tracking of COVID-19 vaccine.

The CoWIN system is a subset of COVID India Portal which provides end-to-end management of COVID-19. Governments and healthcare organizations now need to devise cost-effective mechanisms using emerging technologies including AI and ML to manage COVID-19, to check for better monitoring of vaccinated patients and public in general.

To harness the talent and innovative ideas of new start-ups/new technology specialists, Grand Challenge is organised in phase-wise manner. On this line of thought, Phase I of this challenge envisages to strengthen the CoWIN Network. This initiative may be further extended to Phase II to find solutions with respect to different aspects of COVID-19 in the future.



Website link:

<https://app.thebizplanner.com/public/application/inc/5fc1e1535a3c7671a744dba0>



SCIENCE & TECHNOLOGY OUTREACH EFFORTS ON COVID-19

BY

DEFENCE RESEARCH AND DEVELOPMENT ORGANISATION (DRDO)

DRDO Newsletters enlisted initiatives by its laboratories and establishments extending helping hand in the fight against COVID-19

DRDO has been at the forefront of the fight against COVID-19 since its detection in India. The premier R&D organisation has innovated and configured many products required immediately to regulate the pandemic from its existing arsenal of technologies and knowledge.

A number of the products developed by DRDO to reinforce operations and regulate the spread of the infection are covered in their five newsletters. While DRDO labs are engaged in providing technological solutions and have developed various mitigation products, many of its labs are involved in offering help to the local administration in combat against COVID-19.



Website link:
<https://www.drdo.gov.in/newsletter>

DRDO developed a dedicated section on its website for COVID-19 assistance

Scientific research contributes to the innovation and development of technology through the new knowledge which serves as a direct source of ideas for new technological possibilities. Information in Website has been compiled to provide a comprehensive viewpoint on the overall effort of DRDO in the field of innovation and technologies. DRDO Laboratories are working under life sciences cluster and many other labs with the possibility of producing spin-off

technologies geared to support national mission to combat COVID-19. The technologies and products have been developed to support the national warriors fighting the most important war at this point of time.



Website link:
<https://www.drdo.gov.in/covid-19-assistance>

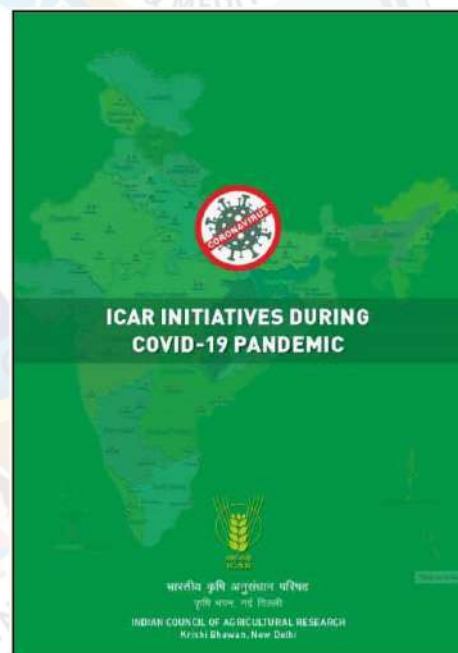


SCIENCE & TECHNOLOGY OUTREACH EFFORTS ON COVID-19
BY
INDIAN COUNCIL OF
AGRICULTURAL RESEARCH (ICAR)

Activities undertaken by ICAR Research Institutes to mitigate farmers' problems during COVID-19 pandemic

The ICAR had tackled the challenges posed by COVID-19 pandemic to farmers and farming sector across the country in tune with the policy directions and guidelines issued by the Government of India to all or any of the States and Union Territories. It alerted the farmers and stakeholders across the country on the precautions, safety measures, and need for social distancing while completing the time-bound field operations like harvesting, postharvest processing, storage and marketing of grains, fruits, vegetables, eggs, meat, and fish. It also issued an agro-advisory at the national level, which has been translated into 15 regional languages, widely circulated, and has received prime coverage in print, electronic and social media across the country.

ICAR has prepared state-wise agro advisories for farmers of the 29 states counting on prevailing crop stage and safety measures to be followed in various farm operations associated with standing crops and crops that are becoming ready for harvest. The advisories are going to be used for dissemination after translation in local languages through various print and electronic media and digital platforms by all stakeholders. This e-book captures the ICAR initiatives for supporting farmers and farming sector across the country in our endeavour to fight this pandemic by dovetailing safety measures with the time-bound agricultural operations to make sure health and wellbeing of our farming community and ensure food security through stability in production systems.



Website link:

<https://icar.gov.in/sites/default/files/eBook-COVID-19-ICAR-Initiatives.pdf>

ICAR brought forth with an e-book on innovative agri-solutions during COVID-19

COVID-19 pandemic challenged many assumption of the life throughout the planet. The economies of major countries came to a grinding halt. The challenge became still tougher because the lockdown resulted in shortage of farm labour on one hand and disruption of selling channels on the other. Items like poultry, dairy, fruit, and vegetables started perishing and this resulted into destruction of tons of food which otherwise would have been consumed. ICAR Agricultural

Extension Network took the challenge and became proactive in devising and suggesting practical solutions to the affected farmers. There has been a really sizable amount of such innovative examples throughout the country which needed to be documented for subsequent emulation by the farmers and extension personnel. The urgency of delivering contents of this compilation to the beneficiaries at the earliest possible necessitated keeping the shape of this publication as an electronic one. The compilation of an electronic book on 'Innovative agri-solutions during COVID-19' is a crucial collection of unique samples of innovative actions and options suggested to the farmers.



Website link:

https://www.icar.org.in/sites/default/files/Innovative_Agri-Solutions_COVID-19-2020-I106.pdf



SCIENCE & TECHNOLOGY OUTREACH EFFORTS ON COVID-19

BY

OTHER DEPARTMENTS

Ministry of Education launched MANODARPAN initiative to provide psychosocial support and mental health promotion for students, parents & faculty during COVID-19 pandemic and beyond

An effective, robust and stimulating psychosocial environment is fundamental to learning and progress to attain one's objectives in life. With the emerging needs and concerns of students coming from diverse backgrounds, different needs and aspirations, a holistic and comprehensive guidance system in the form of counselling services for mental health and wellbeing of university/college students is imperative. The aim was to ensure students live their lives effectively and productively and become resilient over time with the help of life skills, even in the face of challenges, hard times, and roadblocks.

Daily exposure to news about COVID-19 (Coronavirus) may result in a range of responses, particularly for students who have either been personally affected by the virus or are getting emotionally affected through their loved ones. Reactions can be emotional, somatic, and/or behavioural and can impact mental and physical health of the youth country-wide.

'Manodarpan' is an initiative of the Ministry of Human Resource Development (MHRD) to provide Psychosocial Support for university/college students, parents, and the faculty to deal with the current circumstances and sudden changes in life as a result of this pandemic.

Ministry of Education
Government of India

Home Advisory Tips to Follow Podcasts/Videos/FAQ's Do's & Don'ts Contact हिन्दी

MANODARPAN - Psychosocial Support for Mental Health & Well Being of Students during the COVID Outbreak and beyond

An initiative by Ministry of Education, Government of India
as part of Alma Nirbhar Bharat Abhiyan

Advisory for School Students:

https://www.education.gov.in/covid-19/assets/img/pdf/advisory_for_school_students_0105.pdf

Advisory for College & University Students:

https://www.education.gov.in/covid-19/assets/img/pdf/advisory_for_university_students_0105.pdf

Contact Info: manodarpan-mhrd@gov.in

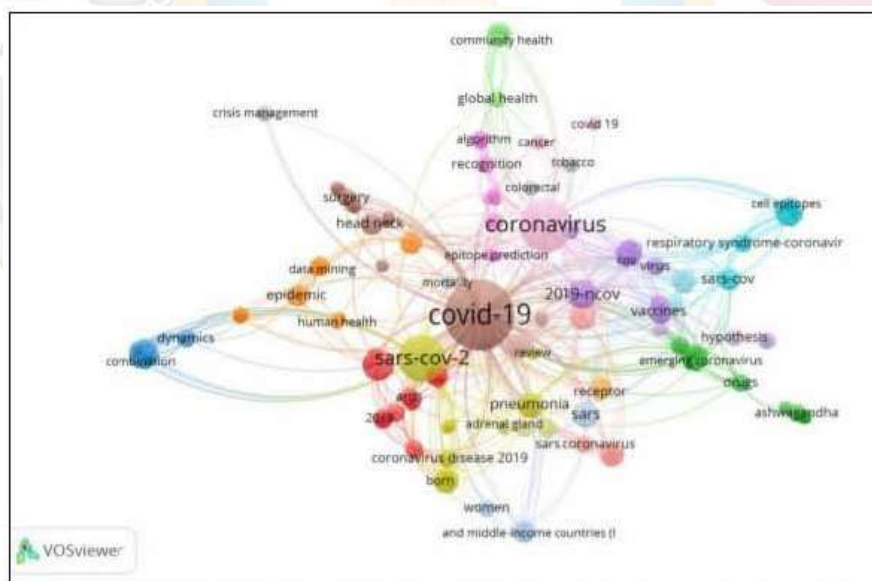
Website link:

<https://www.education.gov.in/covid-19/>

Quantitative analysis of COVID-19 research in India by Directorate of Education of Delhi Government

Directorate of Education, Government of National Capital Territory (NCT) of Delhi did a quantitative analysis of COVID-19 research in India. The study has been published in June 2020 edition of Indian Journal of Biochemistry & Biophysics, Vol. 57.

In this paper, the author attempted to identify the coverage of publication on SARS-CoV-2 (COVID-19) in different academic databases. Analysis of Indian publications in the academic database, Dimension, has been carried out to identify the authors, institutions, keywords, and journals. Dimension indexes from 742 Indian publications with 196 citations as on 11 May 2020. All India Institute of Medical Sciences (AIIMS) is the most productive organization with 65 publications. Preprint servers such as MedRxiv and BiorXiv are the leading databases where Indian authors have made available their research output.



Keyword network of COVID-19 Publications (Source: WOS)

Contact Info: Manohar Pathak, manoharpathak@gmail.com

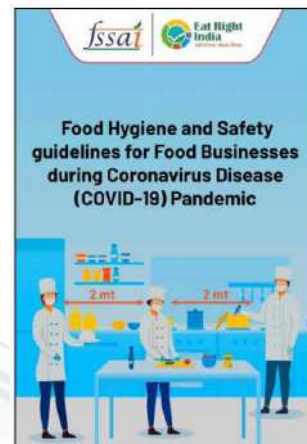
Website link:

<http://nopr.niscair.res.in/handle/123456789/54461>

FSSAI issued food hygiene and safety guidelines for businesses during COVID-19 pandemic outbreak

Coronavirus Disease 2019 (COVID-19) caused by SARS-CoV-2 has clinical and epidemiological characteristics that are still being documented and has impacted the food industry adversely. The disease spread rapidly and the number of cases rose in most of the countries and in India as well. The potential for food-borne transmission was a concern with every new emerging infection.

Food Safety and Standards Authority of India (FSSAI), the apex regulatory body for food safety in India, issued the guidelines for business to achieve maximum food safety during this critical time. This document provided guidance to food businesses, including for their personnel involved in handling of food and other employees to prevent spread of COVID-19 in the work environment and any incidental contamination of food/food packages.

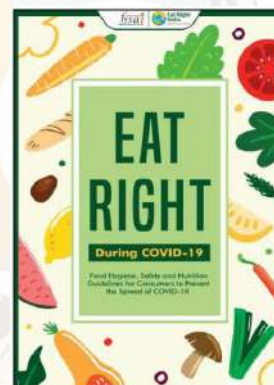


Website link:

https://fssai.gov.in/upload/uploadfiles/files/Guidance_Note_Food_Hygiene_Safety_07_06_2020_Revised_10_06_2020.pdf

FSSAI issued food hygiene, safety and nutrition guidelines for consumers to prevent the spread of COVID-19

Food Safety and Standards Authority of India (FSSAI), the apex regulatory body for food safety in India, issued guidelines on food hygiene, safety and nutrition for consumers to prevent the spread of COVID-19. The pandemic posed a threat to our health and wellbeing in recent times. The document highlighted the best practices to be followed in the new normal of COVID-19 during food handling. It included nutritional tips, and standard operating procedures for food establishments, and community kitchens. It also provided clarifications on myths related to food hygiene and safety.



Website link:

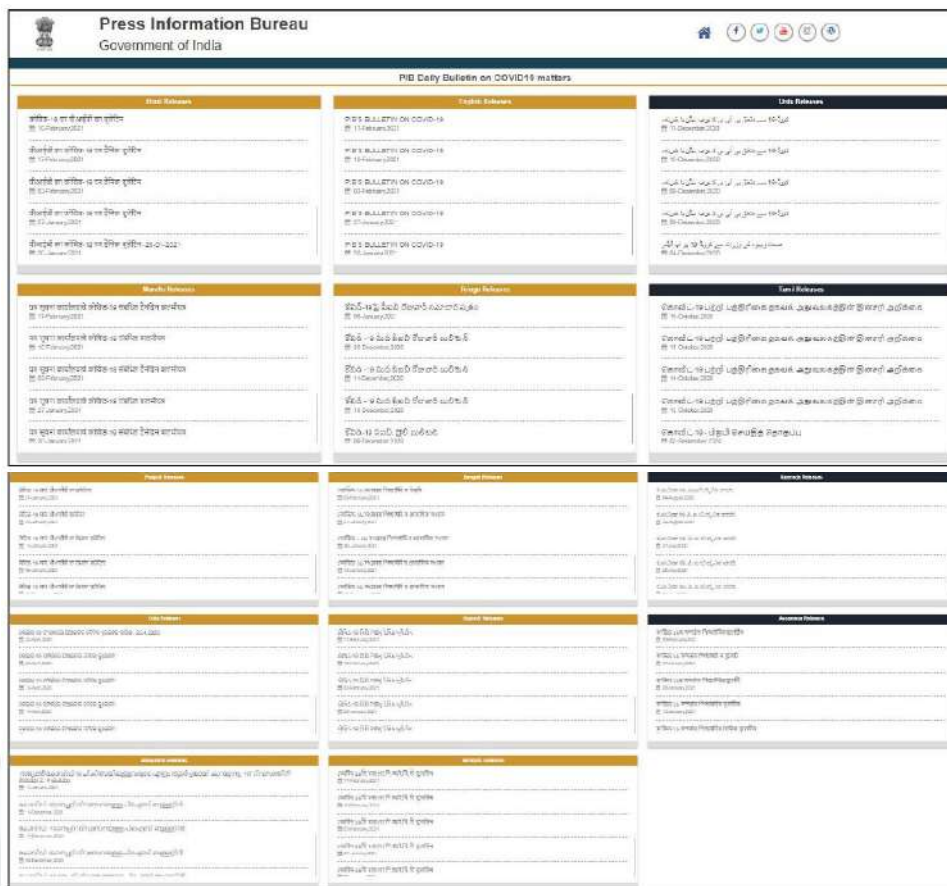
https://fssai.gov.in/upload/uploadfiles/files/Guidance_Document_Eat_Right_07_06_2020.pdf

Press Information Bureau released daily bulletin on COVID-19

Press Information Bureau (PIB), Government of India released a daily bulletin on COVID-19, starting from early days of COVID-19 outbreak. The bulletin contains press releases concerning COVID-19, issued in last 24 hours, inputs from PIB field offices and fact checks undertaken by PIB.

These bulletins were published in 14 languages, namely Hindi, English, Urdu, Marathi, Telugu, Tamil, Punjabi, Bangla, Kannada, Oriya, Gujarati, Assamese, Malayalam and Manipuri.





Website link:
<https://pib.gov.in/indexd.aspx>

Government of India initiated presenting regular COVID-19 India factsheet

The Open Government Data (OGD) platform is aimed at supporting Open Data initiative of Government of India. The portal is used by various Ministries, Departments, and their organizations to publish datasets, documents, services, tools and applications collected by them for public use. It intended to increase transparency in the functioning of the Government and also opens avenues for many more innovative uses of Government Data to give different perspective.

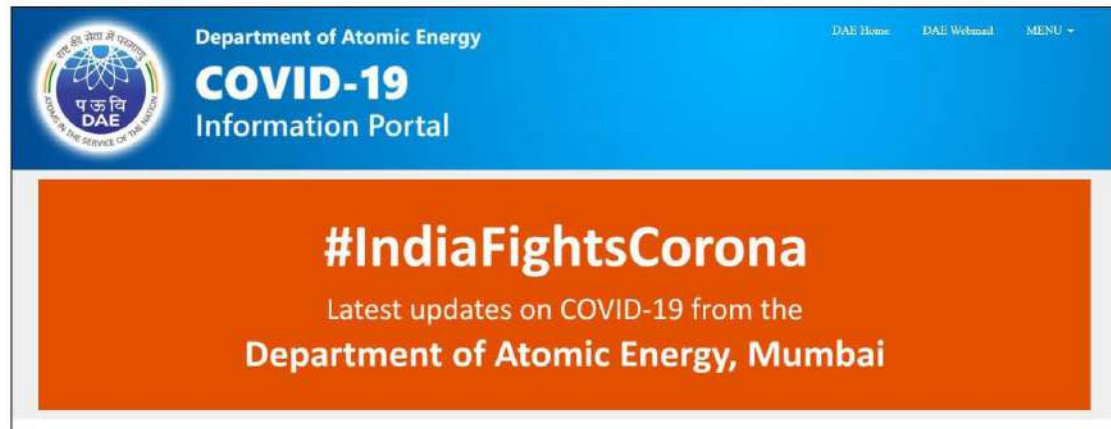
The COVID-19 pandemic raised important questions about opening, sharing and using data, and highlighted the challenges associated with data use. To address the on-going need for data-driven decision making, OGD platform provided relevant datasets for sharing and analysis in an effort to accelerate coronavirus research. It enabled researchers to upload, access and analyse COVID-19-related reference data and specialist datasets. OGD portal provides COVID-19 data only as a graphic image unsuitable for any analysis.



Website link:
<https://community.data.gov.in/>

Department of Atomic Energy developed COVID-19 Information Portal

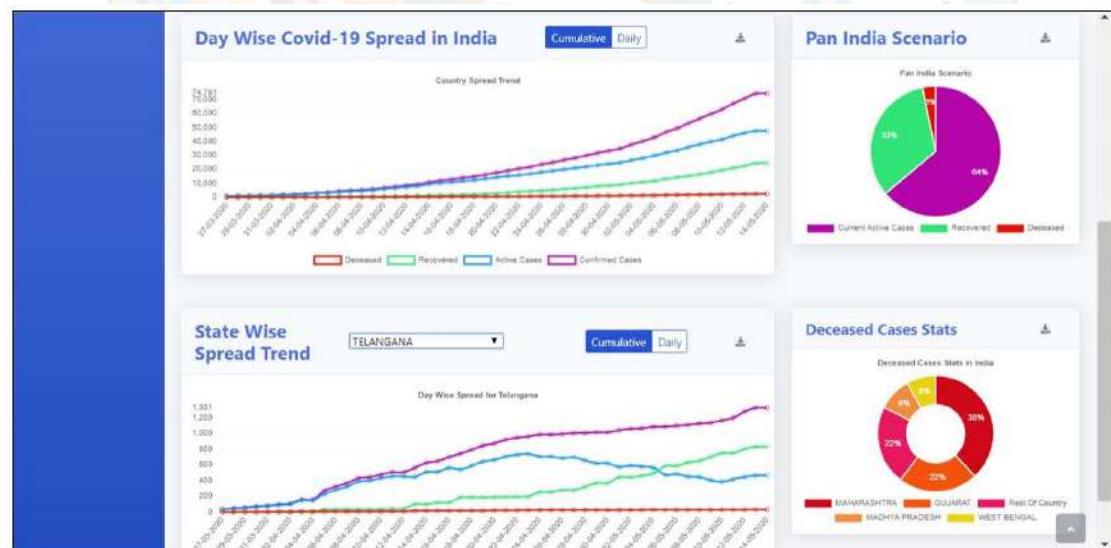
Department of Atomic energy (DAE) developed COVID-19 information portal and provided relevant and reliable information, news feeds and media articles highlighting that engineering and emerging technology initiatives are answers to fight COVID-19.

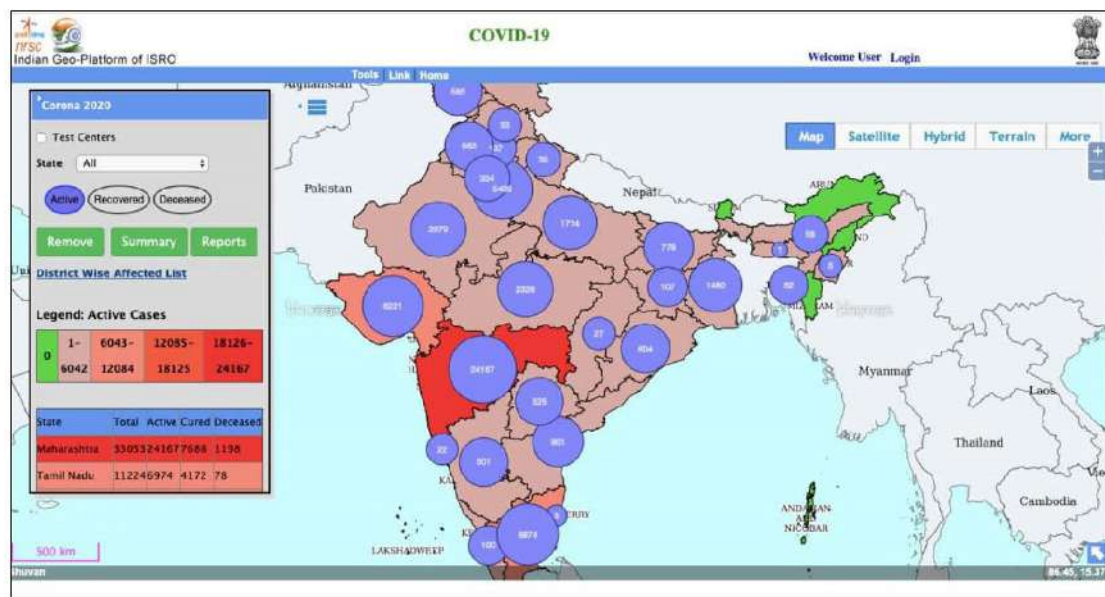


Website link:
<https://dae.gov.in/covid19/>

ISRO came up with geospatial technology-based solution to combat COVID-19

Department of Space/ISRO is supporting various State Governments by providing Geospatial tools and location-based solutions to fight against COVID-19, including national-level Coronavirus tracker. At the same time, ISRO also made an attempt to study various impacts due to lockdown in terms of status of atmospheric parameters and water. The Department could carry out varieties of studies with different States using geospatial technology under Bhuvan Geoportal, deployed at NRSC, Hyderabad. These tools and services have been gainfully utilised by some of the State Governments in the country.





Monitoring and managing COVID-19 in our country is quite complex as it has a population of more than 1.3 billion, in addition to a huge population of livestock and pets. NRSC, ISRO customised geoportal and developed 'Bhuvan-COVID-19' at national level to track the pandemic and update common public on current situation.

The geoportal provides many other interesting graphic presentations at national level as part of sensitising common people on the COVID-19 situation on a regular basis, based on the data presented by MoHFW portal. While the COVID-19 dashboard depicts dynamic information of the status of the pandemic at national level, many state-level applications were developed and deployed.

Website link:

<https://bhuvan-app3.nrsc.gov.in/corona/>

<https://www.isro.gov.in/covid19>

DPIIT released a compendium of Startup Solutions for COVID-19 Supported by COVID-19 Taskforce

The COVID-19 pandemic has posed unprecedented challenges for the start-up ecosystem of India. The Government of India has joined hands with various stakeholders to offer support to start-up and trying to combat the pandemic using innovative solutions created by entrepreneurs. Department for Promotion of Industry and Internal Trade (DPIIT) released compendium of Startup Solutions for COVID-19 Supported by COVID-19 Taskforce under the following categories:

- i. Crowd management
- ii. Geofencing
- iii. Logistics
- iv. Movement tracking
- v. Testing equipment
- vi. Fake news detection
- vii. Large area sanitization
- viii. Critical care equipment
- ix. AI technology for contactless entry
- x. Personal protective equipment



Website link:

https://www.startupindia.gov.in/content/sih/en/covid-19_resource_section.html

Startup India developed COVID-19 resource section

Startup India tried to combat the pandemic using innovative solutions created by entrepreneurs. They conducted webinars to offer strategic mentorship to start-ups, helping incubators go virtual. This section offers information and resources for start-ups, incubators, investors, and mentors to find their footing in these uncertain times.



Website link:

https://www.startupindia.gov.in/content/sih/en/covid-19_resource_section.html

Ministry of Youth Affairs & Sports released SOP for reopening of swimming pools in COVID-19 environment

Ministry of Youth Affairs & Sports has permitted use of swimming pools by all in fresh COVID-19 reopening guidelines. According to these new guidelines, swimmers must follow 6 feet distance, use face mask, except when in pool, self-monitor health and avoid use of pool if suffering from COVID-19 and others practices must be followed. The swimmers have also been asked to furnish "Obligatory self-declaration" and trainees will have to submit a mandatory COVID-19 negative report before being allowed inside the premises.

All personal training equipment belonging to an athlete shall be disinfected while the athlete is inducted into the training centre. Athletes and staff shall be screened before being allowed access to common field-of-play/training facilities. RT-PCR test shall be conducted for new/returning athletes. It also bars residential athletes from sharing soaps, towels and any other utility in common shower areas. Besides, spitting and clearing of nasal/respiratory secretions on the pool especially during swimming or at any place within the facility other than toilets shall be prohibited. The swimmers will also need to perform hand-hygiene before and after use of all training equipment. The usage of Aarogya Setu app has also been made mandatory.

Each training centre will have a COVID-19 Task Force to guide and monitor all trainees, coaches and staff within the centres. The Task Force shall be responsible for overall implementation of protocols suggested by the government in the SOP. It will also work closely with the coaches and support staff to define guidelines and protocols to conduct the training in the COVID-19 environment.



Website link:

<https://transformingindia.mygov.in/wp-content/uploads/2021/02/SOPs-for-Swimming-Pools-English.pdf>

GeM released COVID-19 status report for benefits of its consumers

Government e Marketplace (GeM) is an online platform for public procurement in India, an initiative of Ministry of Commerce and Industry, Government of India.

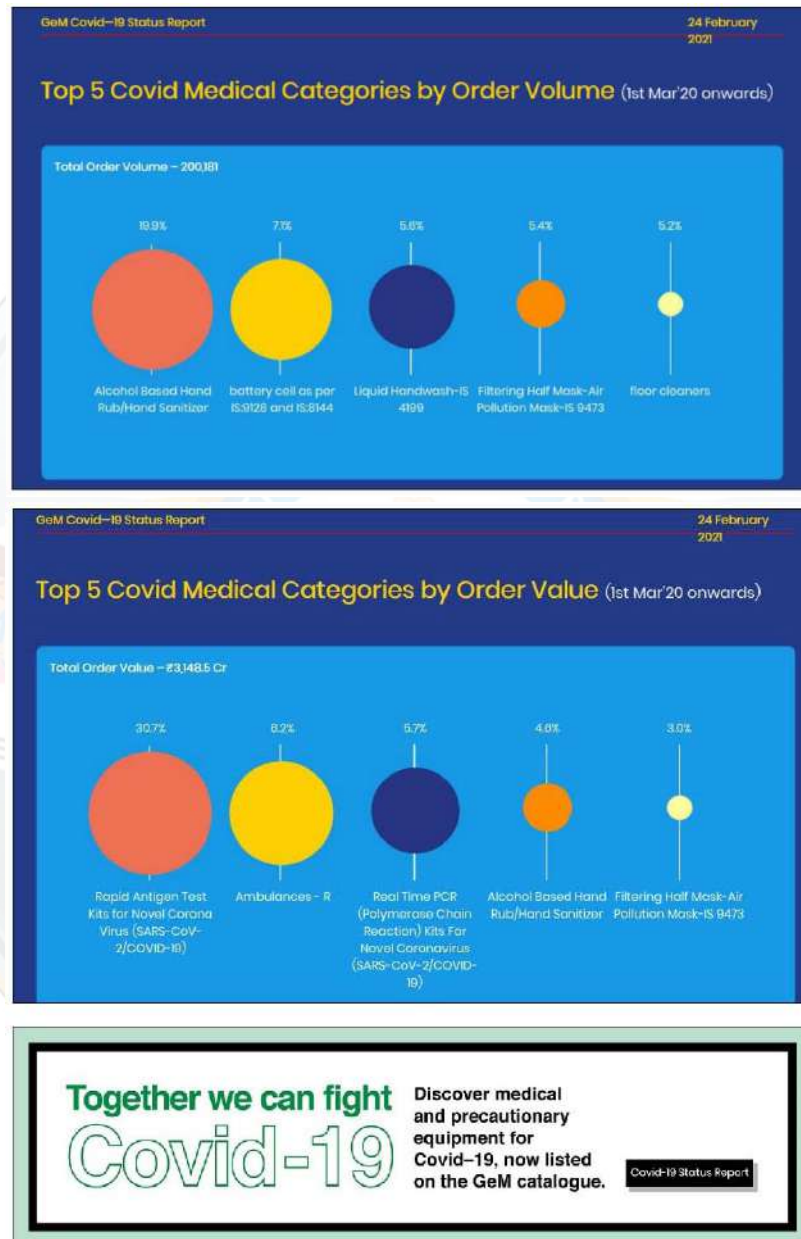
As the world fought with the outbreak of COVID-19 pandemic, India made all efforts to contain and fight the infection. GeM put all its efforts to bridge the gap between government organisations and sellers for easy procurement of products.

GeM worked along the guidelines of the Government of India and made it as easy as possible for the Government and the seller to procure and sell COVID-19-related products. A total of 295 categories including medical and auxiliary product are available and more categories are being fast tracked according to the need of the situation with no compromise in the quality.



Government organizations procured medical related products efficiently because of the new amendments. Since the pandemic broke out, GeM has on-boarded more than 28000 sellers in medical categories and close to 31500 sellers in auxiliary categories, having more than 1.6 lac products combined in medical and auxiliary categories.

GeM released a status report, entailing various details for procurement of COVID-related products and services.



Website link:

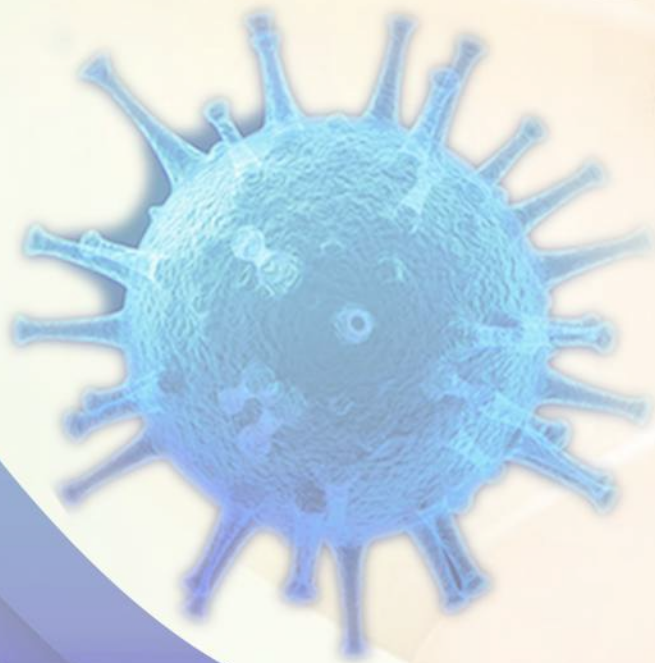
<https://gem.gov.in/covid19-reports>

<https://gem.gov.in/resources/jsons/GeM-covid-19-Report.pdf?time=1614137401>



SECTION II

Science & Technology Outreach Efforts on COVID-19 by Academia



SCIENCE & TECHNOLOGY OUTREACH EFFORTS ON COVID-19

BY

INDIAN INSTITUTE OF SCIENCE (IISc)

KERNEL – Special COVID-19 research newsletter – published from IISc

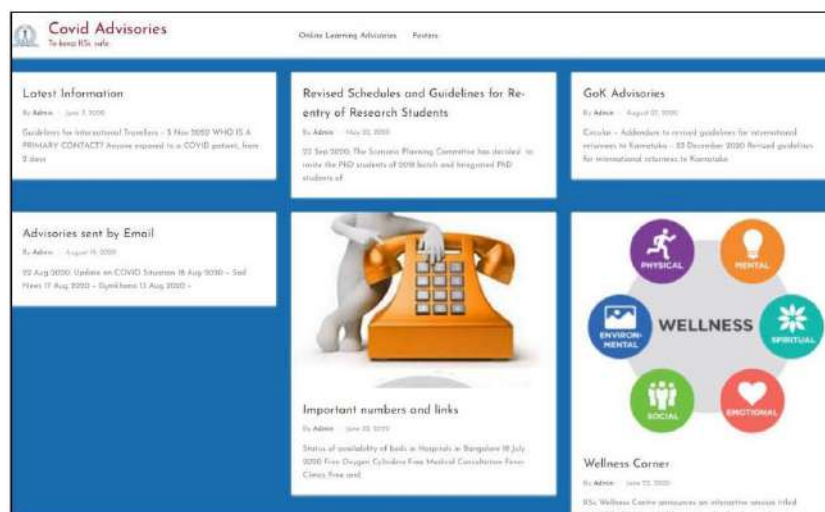
The Indian Institute of Science (IISc) is India's premier destination for science and engineering. Research at IISc spans six divisions and is distinctively interdisciplinary. Kernel was launched as an annual magazine to showcase the Institute's significant research contributions. Kernel- special COVID-19 newsletter was published as a monthly digest in its new avatar, providing snapshots of recent research and initiatives. The six newsletters were released to feature the efforts made by IISc to combat the COVID-19 pandemic in different languages (English, Hindi and Kannada).



Website link:
<https://www.iisc.ac.in/outreach/publications/iisc-kernel/>

COVID advisories released to keep IISc campus and surroundings safe

During the COVID-19 pandemic, workplaces got to follow guidelines to make it safe effectively. Indian Institute of Science (IISc) has developed the website, enabling the scholars, faculty and other members to know their current preparedness level. The website provided the latest information, revised schedule, actual numbers and links, wellness and students corners, videos and posters associated with COVID-19 awareness.

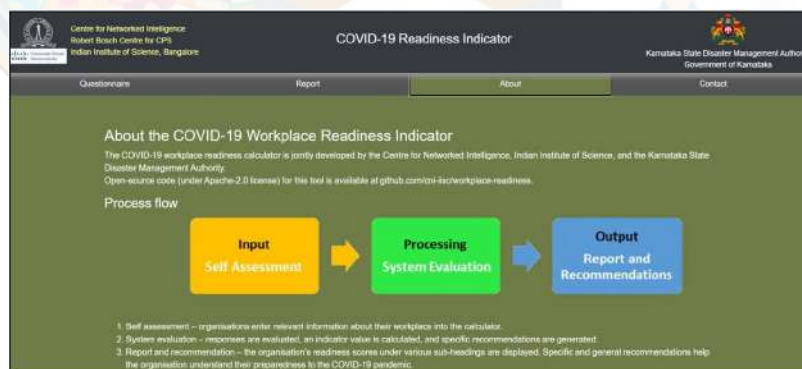


Website link:
<https://covidadvisories.iisc.ac.in/>

IISc developed online self-assessment tool for workplaces: COVID-19 readiness indicator tool

With COVID-19-related restrictions easing and lots of workplaces slowly resuming work, an online self-assessment tool known as the COVID-19 Workplace Readiness Indicator has been developed by a team of researchers led by Rajesh Sundaresan at the Department of Electrical Communication Engineering, in collaboration with the Karnataka State Disaster Management Authority (KSDMA). It was designed as part of research efforts at the new Centre for Networked Intelligence established at IISc with CSR support from Cisco.

The tool takes into account broad epidemic factors and social objectives. It suggests a simple readiness threshold that organisations need to meet or exceed to operate effectively while managing their pandemic response. An organisation can enter information about their workplace and current level of operation into the website, then calculate their readiness level using ten specific indices, each with a maximum score of 100, and provide a consolidated report. It also provides targeted suggestions if particular weaknesses are identified.



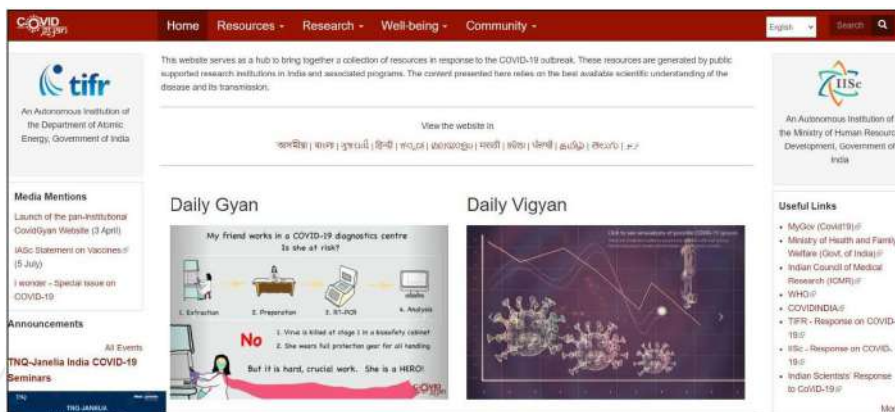
Website link:
<https://covid.readiness.in/>

COVID GYAN developed to reach out to the scientific fraternity

COVID Gyan is a website that serves as a hub to bring together a collection of resources in response to the COVID-19 outbreak. These resources are generated by public-supported

research institutions in India and associated programs. The content presented here relies on the best available scientific understanding of the disease and its transmission.

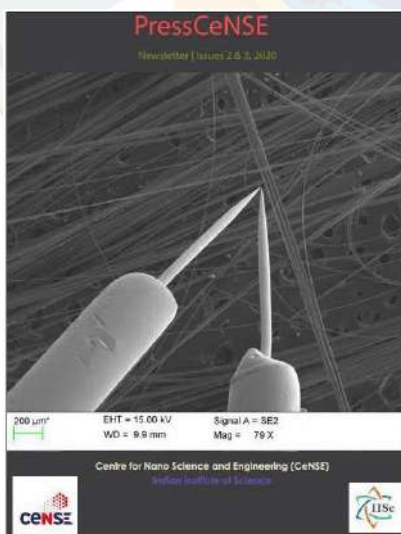
The chief contributor organisation to COVID Gyan are Tata Institute of Fundamental Research (TIFR), Mumbai; Indian Institute of Science (IISc), Bengaluru; Tata Memorial Centre (TMC), Mumbai; Institute for Stem Cell Science and Regenerative Medicine (inStem), Bengaluru; Vigyan Prasar (VP), New Delhi; India Bioscience, Bengaluru; and Webduniya, New Delhi.



Website link:
<https://covid-gyan.in/>

CeNSE Department of IISc released PressCeNSE newsletter

PressCeNSE is a quarterly newsletter of Centre for Nano Science and Engineering (CeNSE), Indian Institute of Science (IISc), highlighting academic and research activities of CeNSE and other notable achievements. In this issue, a special feature article was published on CeNSE response to COVID-19, elaborating a variety of COVID-specific technologies developed, despite the very challenging constraints during the lockdown.



Website link:
http://www.cense.iisc.ac.in/sites/default/files/PressCeNSE_10.pdf



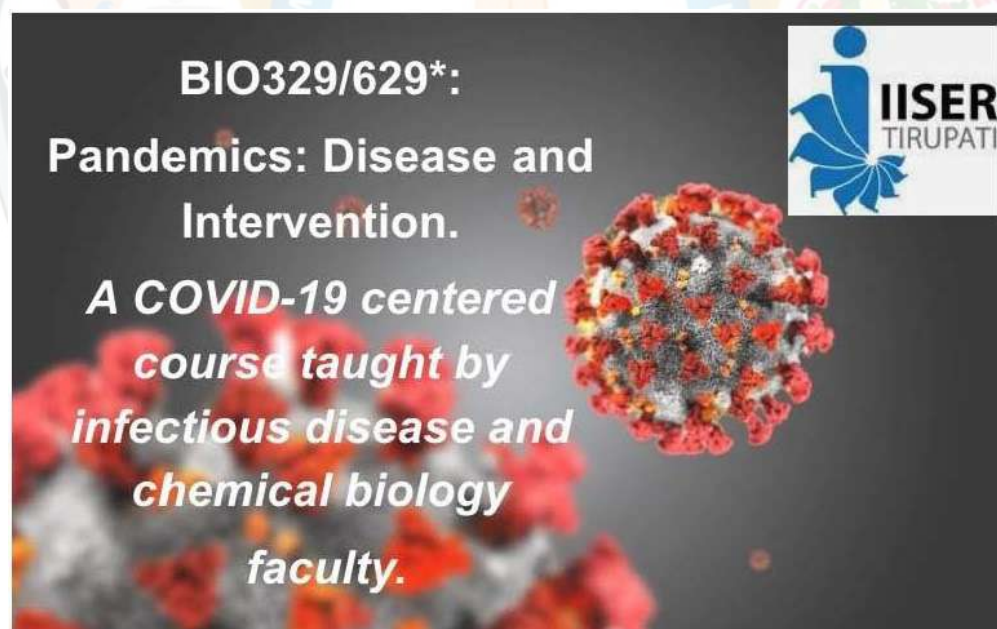
SCIENCE & TECHNOLOGY OUTREACH EFFORTS ON COVID-19

BY

INDIAN INSTITUTES OF SCIENCE EDUCATION AND RESEARCH (IISERs)

IISER Tirupati Introduced a new course, “BIO329/629: Pandemics: Disease & Intervention”

As the world grapples with COVID-19, there is an ever-increasing need for developing a scientifically rigorous awareness course on infectious diseases, especially those which potentially could turn into a COVID-19-like pandemic. With biological and related expert faculty, students will get a first-hand contemporary scientific literature discussed in the course. With a focus on COVID-19, but deriving a broad analysis of related ones from the history of pandemics, this course will systematically introduce the scientific topics of identification, research, biomarker discovery for detection and treatments with drugs and possible vaccination pathways in the context of a realistic pandemic and integrate these with regulatory aspects of prevention and control of spread.



BIO329/629*:
Pandemics: Disease and Intervention.
A COVID-19 centered course taught by infectious disease and chemical biology faculty.

IISER TIRUPATI

Website link:

http://www.iisertirupati.ac.in/events/Pandemics_Course_Bio_329_629.pdf

COVID-19 Taskforce developed by IISER Kolkata

COVID-19 Task Force at IISER Kolkata is monitoring the evolving impact of the COVID-19 virus and its possible impact on IISER Kolkata community. The taskforce, comprising members of faculty, administrators, students from IISER Kolkata, as well as health and safety and other

SCIENCE & TECHNOLOGY OUTREACH EFFORTS ON COVID-19

BY INDIAN INSTITUTES OF TECHNOLOGY (IITs)

IIT Delhi brought out quarterly newsletter enumerating initiatives taken towards combating COVID-19

The Newsletter released by Indian Institute of Technology Delhi (IITD) covers research and development activities of the institutions which are aimed at innovation and technology development through interaction with universities, governments and industries to meet the needs of the society as well as industries. The Institution released three editions of the Newsletter which is dedicated to the research and innovation initiatives taken towards the technological interventions in fighting against the COVID-19 pandemic.



Website link:

<https://home.iitd.ac.in/institute-newsletters.php>

Special issue of newsletter by IIT Bombay on Innovations to combat COVID-19

In response to the COVID-19 global pandemic emergencies, which has generated an outpouring of concern and financial support from IIT Bombay alumni community, the Institute has created several options for people to help address this public health crisis. It includes providing equipment, space, expertise and other resources to the healthcare facilities. It also supported the work of manufacturing the PPE (Personal Protective Equipment). Contributions also help in other aspects of fighting the pandemic like vaccine development, portable ventilators, AI solutions, and improved protective equipment. This Newsletter includes all the research initiatives undertaken by Society for Innovation & Entrepreneurship (SINE) and Industrial Research and Consultancy Centre (IRCC).



Website link:

https://drive.google.com/file/d/1uX6L0rd4QmEZ8eDzcca49yY2aLtx_vPJ/view

IIT Delhi reached out to rural public impacted by outbreak of COVID-19 pandemic

Rural Technology Action Group (RuTAG) at Indian Institute of Technology Delhi (IITD) brought forward an issue of their Newsletter targeting the rural population impacted by reverse migration due to the outbreak of COVID-19 pandemic. In the prevailing situation, the worst-affected section of the population has been the large multitude of migrant labourers and small entrepreneurs. It is becoming increasingly evident that decentralised industrialisation of the rural sector providing local employment stability to the rural population must be urgently taken up. This Newsletter is the outcome of 22 online sessions/conferences/workshops during lockdown period at various locations across India. It includes several rural technological innovations. Now, to reach out to the maximum number of target population, RuTAG division at IIT have started publishing their publications on rural technological innovations in local languages, like Malayalam, Tamil, Kannada, Hindi, Bangla and Punjabi.



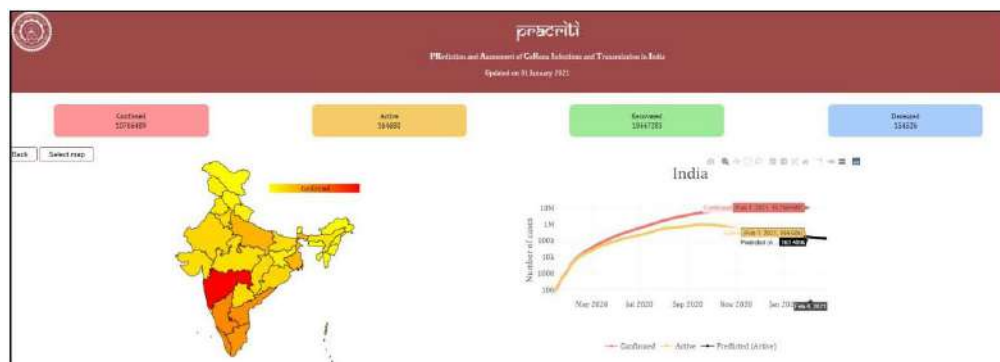
Website link:

<http://rutag.iitd.ac.in/rutag/sites/default/files/images/user38/RuTAG%20Newsletter%20July%202020.pdf>

IIT Delhi developed PRACRITI, a platform for monitoring COVID-19

PRACRITI is an acronym for PRediction and Assessment of CoRona Infections and Transmission in India. It is a web-based dashboard that gives details of state- and district-wise predictions of COVID-19 transmission in the country. The dashboard also takes into account 73 different lockdown scenarios and how the transmission will be affected if the

lockdown conditions are changed. This is important to develop the prevention and mitigation strategies for COVID-19. The predictions are updated on a weekly basis to account for any variations in India including changes in the government policies. The COVID-19 predictions are based on a recent mathematical model, namely, Adaptive, Interacting, Cluster-based, Susceptible, Exposed, Infected, Removed (AICSEIR) model. This is a modified form of the traditional SEIR (Susceptible, Exposed, Infectious, and Recovered) model and it caters for the interactions that occur between sub-populations such as districts or states. It represents a more realistic approach towards prediction of COVID-19 trajectory than the traditional SEIR models.



Website link:
<http://pracriti.iitd.ac.in/>

IIT Kanpur released special issue of R&D newsletter on research and innovation related to COVID-19

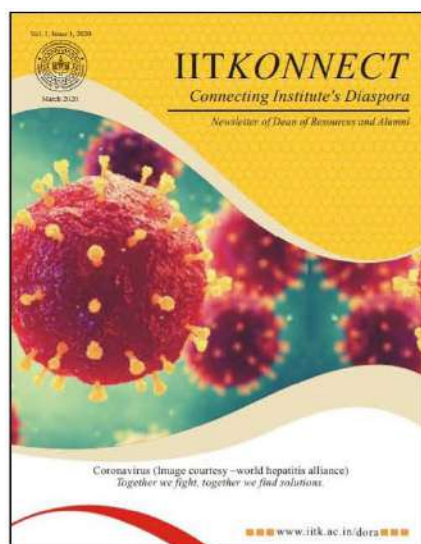
The R&D Newsletter released regularly by Indian Institute of Technology Kanpur (IITK) covers research and development activities of the institutions which are aimed at innovation and technology development through interaction with universities, governments and industries to meet the needs of the society as well as industries. The Institution's issue of R&D newsletter is dedicated to the research and innovation initiatives taken towards the technological interventions in fighting against the COVID-19 pandemic.

Website link:
<https://www.iitk.ac.in/dord/newsletter/May2020/May2020.pdf>



Dean of Resources and Alumni office of IIT Kanpur released quarterly newsletter during pandemic

IIT Konnect, formerly known as Grapevine, is a quarterly newsletter published by the Dean of Resources and Alumni office of IIT Kanpur. It connects and keeps its alumni and well-wishers informed of the institute's activities and achievements. As the world continues to battle against COVID-19 pandemic, many across the globe are racing against time to save humanity and have joined hands to come up with faster and affordable medical solutions to save human lives. IIT Kanpur's faculty, researchers, students, alumni and the entire community joined hands and applied their knowledge and skills and came forward to serve humankind.



Website link:
https://www.iitk.ac.in/dora/News_Letters/IIT%20KONNECT%20March%202020.pdf

IIT Hyderabad brings out newsletter – KIRIITH – dedicated to COVID-19

Though COVID-19 outbreak has shaken the world economically and emotionally, it has given a chance to come together and create a better ecosystem, unaffected by any such or even worse situation which can erupt in future. The second issue of the quarterly Newsletter of Indian Institute of Technology Hyderabad (IITH) was dedicated to COVID-19 which encapsulated the S&T efforts taken by the Institution towards combating the pandemic.

Contact Info: pro@iith.ac.in

Website Link:
<https://iith.ac.in/assets/files/newsletters/Kiriith-2nd-Issue.pdf>



IIT Kharagpur brought out COVID REVIEW Special Issue

COVID REVIEW Special Issue featured the work undertaken by various researchers and students at IIT Kharagpur related to COVID-19 healthcare and advisory.

Website link:
<https://kgpchronicle.iitkgp.ac.in/3d-flip-book/covid-review-iit-kgp-researcher-e-newsletter/>

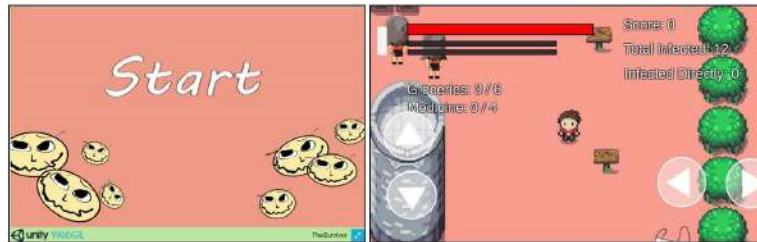


IIT Tirupati developed SurviveCOVID-19 game for COVID-19 awareness

Indian Institute of Technology (IIT) Tirupati has developed an educational game 'SurviveCovid-19' for both Android and Web platform for increasing awareness of health measures for COVID-19 pandemic. In order to make people understand the prevailing emergency situation and the

seriousness of it, a team at the Research in Intelligent Software & Human Analytics (RISHA) Lab of Department of Computer Science & Engineering, IIT Tirupati, thought of developing educational games for COVID-19 awareness. SurviveCovid-19 helps people understand the importance of masks, sanitizers and social distancing to keep themselves and others safe from this contagious virus when they walk around the theme of a city.

Contact Info: Dr Sridhar Chimalakonda; ch@iittp.ac.in



Website link:
<https://survivecovid-19.itch.io/game2020>

IIT Guwahati released VIJNAPATI, monthly newsletter during the pandemic

VIJNAPATI, the monthly Newsletter of Indian Institute of Technology (IIT) Guwahati has featured the work undertaken by various researchers and students dedicated to the research and innovation initiatives taken towards the technological interventions in fighting against the COVID-19 pandemic.



Website link:
<https://www.iitg.ac.in/report/newsletter.php>

IIT Bombay developed a dedicated website INSTI for COVID-19-related information

IIT Bombay developed a dedicated website to provide real-time information on COVID-19-related activities.



Website link:
<https://www.insightiitb.org/category/covid-19-in-insti/>

IIT Palakkad brought out special edition on COVID-19 initiatives: Heroes In The War Against COVID-19

When COVID-19 was starting to engulf our nation, IIT Palakkad has been testing out ways to help the community, policymakers, and fellow researchers. The initiatives included both actual device implementations to data-backed case study explorations/visualisations. A team of faculty and staff, both on campus and outside, has been set up for the same. The entire initiative was headed by Dr S Kanmani Subbu, appointed as Nodal Officer, coordinating the various activities and forming the interface with the collaborating industries for creating the products.

All the efforts (initiatives, projects, and case studies) taken by the Institute and an update on the latest developments were listed in an article titled 'Heroes In The War Against COVID-19'. These included Preparation and Distribution of Hand Sanitizer, Making reusable Respiratory Masks, Portable Emergency Ventilator, Foot-operated Hands-free Sanitizer Dispenser, Pulse Plethysmograph Instrument for Continuous Monitoring of blood pulse, heart rate and oxygen saturation of patients in ICUs, Affordable Rapid Testing Kits, Models and analysis making use of Machine Learning, Panchayat Level Vulnerability Map, Lung Ultrasound Imaging for Monitoring COVID-19 patients, Pool Testing Strategies, Crowd Sensing and Localisation and others.



Website link:

https://iitpkd.ac.in/sites/default/files/2020-05/TFS_SpecialEdition_on_Covid19Initiatives.pdf

IIT Bhilai enlisted initiatives for fighting out COVID-19

Ink is the IIT Bhilai's Newsletter, intended to be a bi-annual publication. The intention is to keep everyone updated in a timely manner with the news of all the exciting developments happening on the campus. It features news items on students, faculty as well as staff and others. The Newsletter gives snapshot of the science and technology in India with focus on the activities, achievements and events. The Newsletter brought forth in July 2020 an issue covering the scientific efforts initiated by IIT Bhilai after the outbreak of COVID-19 pandemic.

Website link:

https://iitbhilai.ac.in/index.php?pid=newsletter_jun_20



Telemedicine Portal developed by IIT Jodhpur

Visiting a health centre or hospital for any kind of ailments has become a new challenge due to the high risk of possible COVID-19 infection. Doctors are also naturally cautious and sensitive about examination of patients. However, such situations provide opportunity for technology to usher in new solutions. At IITJ, Kunal Tawatia, an undergraduate student of the Computer Science and Engineering Department, under the mentorship of Dr Sumit Kalra developed a teleconsultation platform. Through this platform anyone can consult doctors for your ailments.



Website link:
<https://telemedicine.iitj.ac.in/>

IIT Gandhinagar researchers develop an interactive COVID-19 dashboard to aid optimised testing and post-lockdown operations

Indian Institute of Technology Gandhinagar (IITGN) has developed an interactive “COVID-19 Dashboard” that provided different epidemiological scenario-specific information at a city-scale. It was aimed at helping various stakeholders in optimised testing efforts and post-lockdown operations to contain community infection.

The dashboard called “MIR AHD COVID-19 Dashboard” was a city-scale project which integrated the complex social and transportation patterns with state-of-the-art epidemic spread models, in addition to testing and quarantining rates and contact tracing rates. As cities were to prepare for opening after current lockdowns, the recovery strategies had to account for social distancing, congestion-free transits and unusual traffic patterns these cities would witness with



red and containment zones declared as a no-travel zone. This dashboard, first of its kind for Indian cities, assessed the local risk factors to give a city-scale projection of COVID-19 incidence while accounting for various social distancing scenarios. In addition to the epidemiological data, it also disseminated information about potential congestion zones and rerouting under different containment scenarios to the stakeholders.

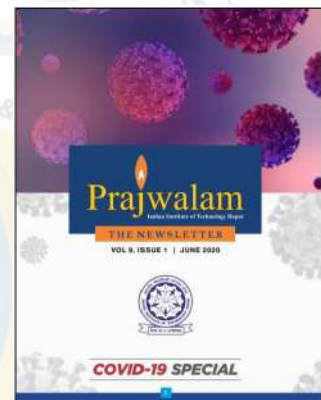
For the general public, this dashboard provided risk indices based on various socio-economic indicators; ward-level information on the number of cases; current statistics of COVID-19 situation for all the districts of Gujarat; maps of the red, green and orange zone; COVID-19 hospitals; location of government testing laboratories; and an interactive slider to choose their travel paths in case they wanted to avoid travelling through a particular zone.

Website link:

<https://news.iitgn.ac.in/2020/06/19/the-covid-19-dashboard-aiding-optimized-testing-and-post-lockdown-operations/>

IIT Ropar brought out quarterly newsletter Prajwalam as COVID-19 Special

IIT Ropar had taken the double-prong strategy of protecting the health and academic interests of its community on the one hand and contributing to the national and local needs through innovation, research and collaboration. The quarterly issue of their Newsletter Prajwalam on July 2020 presented some of the innovations that the faculty and students of IIT Ropar have come up with; while a lot many were being worked upon. It was also heartening to observe that many of these innovations were being commercialised or being transferred directly to healthcare authorities making IIT Ropar's mission of "Contributing to Society" and "Contributing to Nation" a reality.



Website link:

https://www.iitpr.ac.in/sites/default/files/Prajwalam%20Volume%209,%20Issue%201,%20June%202020_0.pdf

IIT Roorkee developed COVID-19 website to create awareness amongst the general public

To combat COVID-19, the Indian Institute of Technology (IIT) Roorkee had developed a website which includes various innovations and social initiatives like low-cost portable and closed-loop ventilator; 'Prana-Vayu', a unique surveillance system; CoronaOven for sanitisation; 'Powered Air



Purifying Respirator' (PAPR); Real-time PCR and virus detection kits; Herbal sanitizer; a portable COVID-19 screening booth for sample collection of the suspects and a sterilisation system for Roorkee Civil Hospital and Haridwar Municipal Corporation, respectively; a certification course on Deep Learning at Cloudxlab and a webinar on careers in AI and machine-learning; SPARK summer internship program in the online mode; online lessons for hearing impaired students; advisory for farmers; low-cost rapid testing software; software to detect COVID-19 in 3-5 seconds; a community kitchen in association with the municipality; etc.

Besides the various researchers and students, many start-ups and entrepreneurs from IIT Roorkee came ahead and successfully developed technologies and medical devices.

Website link:
<http://covid19.iitr.ac.in/>

IIT Roorkee released R&D newsletter on research and innovation related to COVID-19

Indian Institute of Technology Roorkee (IITR) recognises Sponsored Research (SR) and Industrial Consultancy (IC) as the essential attributes of research and development. SRIC released quarterly R&D Newsletter of IIT Roorkee for effective dissemination of current R&D activities amongst faculty members and also with the academia and industry outside. The issue of R&D newsletter highlighted research and innovation initiatives taken towards the technological interventions in fighting against the COVID-19 pandemic.

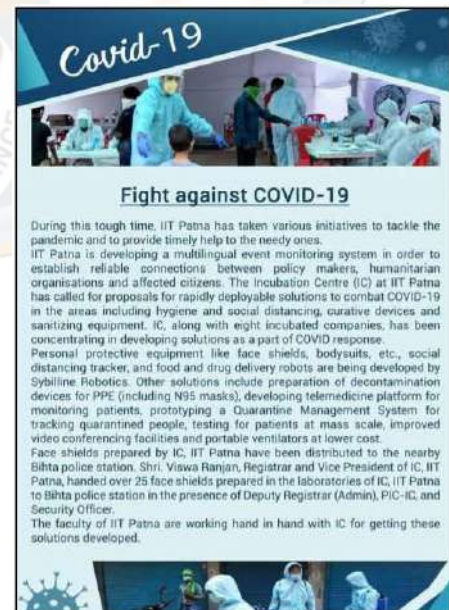
Website link:
<https://www.iitr.ac.in/sric/rnddoc/Newsletter%20Vol%2012.pdf>



IIT Patna published alumni newsletter ANUSMRITI enlisting initiatives and establishments extending helping hand in the fight against COVID-19

IIT Patna has taken various initiatives to tackle the pandemic and provide timely help to the needy ones. It developed a multilingual event monitoring system to establish reliable connections between policymakers, humanitarian organisations and affected citizens. The Incubation Centre (IC) at IIT Patna has called for proposals for rapidly deployable solutions to combat COVID-19 in the areas including hygiene and social distancing, curative devices and sanitising equipment. Along with eight incubated companies, the IC has been concentrating on developing solutions as a part of COVID response. The researchers and faculty of IIT Patna are working hand in hand with the IC for getting these solutions developed.

Website link:
https://www.iitp.ac.in/images/pdf/Anusmriti_Vol3_Iss1_R.pdf

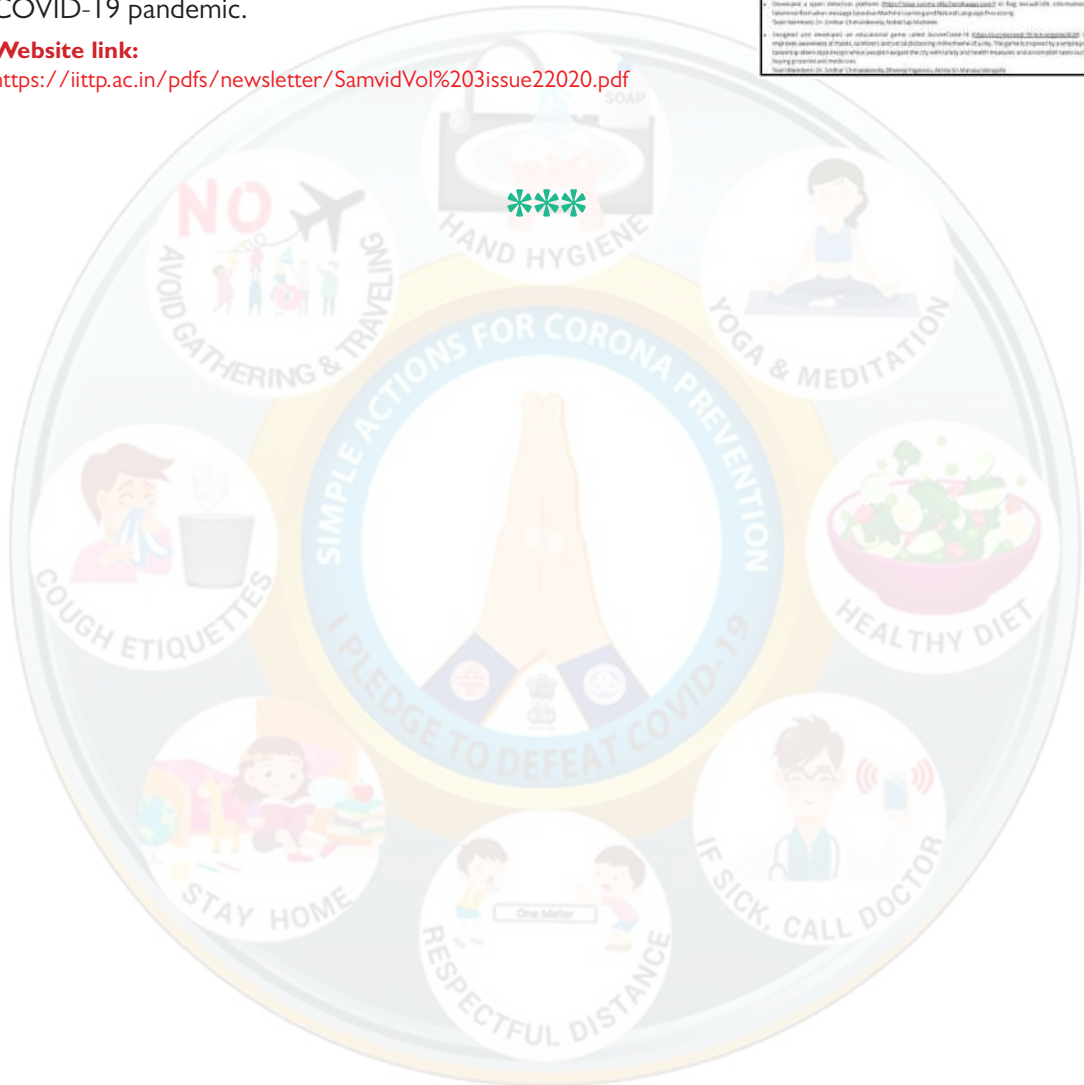


SAMVID – newsletter of the Indian Institute of Technology Tirupati – on COVID-19

IIT Tirupati released a biannual newsletter SAMVID – a window to the happenings at IIT Tirupati. The Newsletter covers research and development activities of the institutions aimed at innovation and technology development through interaction with universities, governments, and industries to meet society and industries' needs. The Institution's latest issue of R&D newsletter was dedicated to the research and innovation initiatives taken towards the technological interventions in fighting against the COVID-19 pandemic.

Website link:

<https://iittp.ac.in/pdfs/newsletter/SamvidVol%203issue22020.pdf>



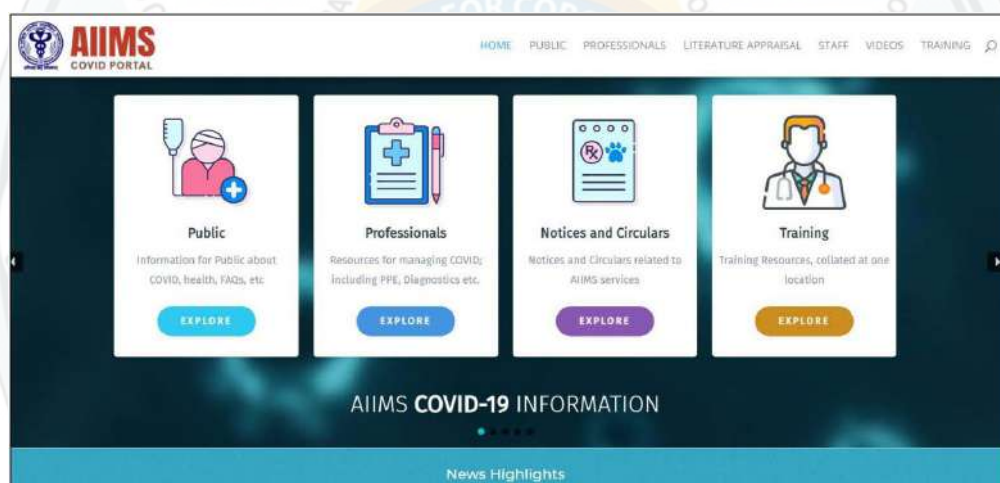
SCIENCE & TECHNOLOGY OUTREACH EFFORTS ON COVID-19

BY

ALL INDIA INSTITUTES OF MEDICAL SCIENCES (AIIMS)

AIIMS Delhi launched the COVID web portal

All India Institute of Medical Sciences (AIIMS), New Delhi has launched a web portal containing information on COVID-19. It aimed to contain the infodemic related to the eruption, transmission, diagnostics and treatment aspects of the COVID-19 pandemic. The information on the portal are categorised as per the target audiences, like professionals, staff, scientific communities and general public. The portal aims to update all the information with recent developments related to COVID-19 pandemic in the country and the institute.



Website link:
<https://covid.aiims.edu/>

AIIMS Delhi started tele-consultation guidance to State doctors on COVID-19 clinical management

Tele-consultation is a critical component of the clinical intervention protocol for COVID-19. To strengthen Government of India's efforts to reduce COVID-19 mortality, a specialist team of doctors from AIIMS, New Delhi provided guidance on effective clinical management of COVID-19 patients in the ICUs of different State hospitals through tele/video consultation. They handheld the States in clinical management of COVID-19 patients to reduce the case fatality rate. These tele-consultation sessions for providing timely and expert guidance to the doctors in the States were conducted twice every week, on Tuesdays and Fridays.



This tele-consultation exercise had been initiated with 10 hospitals and was to be extended to another 61 hospitals that have the bed capacity ranging from 500-1000 on twice-a-week basis. A calendar of these expert-led tele-consultation sessions were drawn up to cover the States till 31st July. Total of 17 such States were to be covered (Delhi, Gujarat, Telangana, Kerala, Andhra Pradesh, Karnataka, Bihar, West Bengal, Tamil Nadu, Haryana, Odisha, Rajasthan, Uttar Pradesh, Madhya Pradesh, Punjab, Jharkhand and Maharashtra). Up to two doctors handling ICU patients from each hospital along with the Director General of health Services (DGHS) of the concerned State were to participate in the VC interaction.

Website link:

<https://pib.gov.in/PressReleaseDetailm.aspx?PRID=1637175>

Booklet titled COVID-19: Be careful not fearful released

Amid the coronavirus scar in India, All India Institute of Medical Science (AIIMS), New Delhi issued a booklet to bust the myth surrounding the diseases. The booklet ‘COVID-19: Be careful, not fearful’ aims to dispel the myths surrounding the disease. The booklet provided information on the disease, how it is spread, who is at risk, and how to protect against it. It also answered question such as whether people should use masks and when and how to use hand sanitizers.



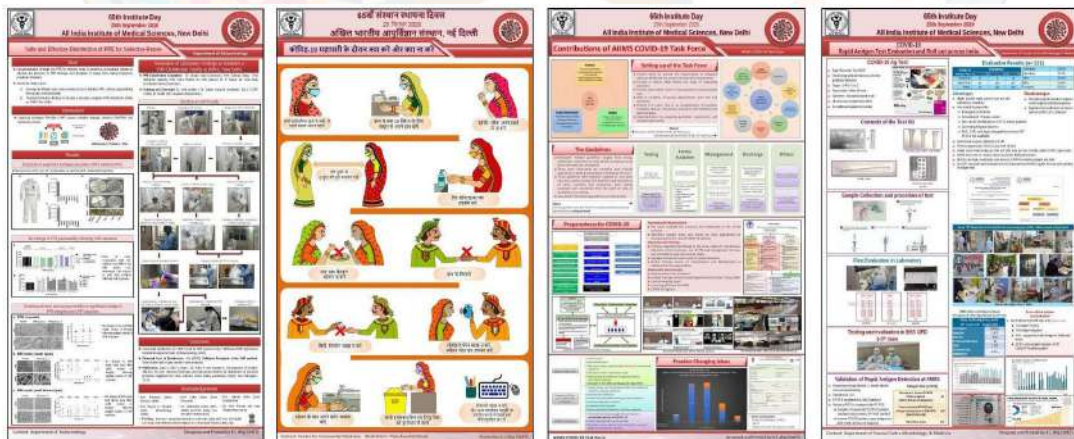
Website link:

<https://www.aiims.edu/en.html>

https://cutn.ac.in/wp-content/uploads/2020/03/COVID-19_Information_Booklet_23032020.pdf

AIIMS, New Delhi created awareness on COVID-19 through a series of infographics

COVID-19 pandemic is a public health emergency that is causing a stressful and a difficult time for everyone. During this crisis, rumours and misinformation create more stress and can hamper COVID-19 recovery. To combat this misinformation, AIIMS, New Delhi shared infographics to the general population and to win the fight against the deadly virus.



Website link:

https://www.aiims.edu/images/pdf/Departments_Centers/dietetics/Poster-%20Role%20of%20Dieticians-26-10-20.pdf

<https://www.aiims.edu/en/component/content/article/79-about-aiims/10983-institute-day-2020.html>

COVID-19 Publications of AIIMS to reach out to research scholars

AIIMS made some significant efforts to address R&D and innovation-related challenges of COVID-19 pandemic. The research's primary purpose is to gratify curiosity by disciplined activity, thereby creating new knowledge. To know more about the research activities on COVID-19 in AIIMS, following link can be consulted.

Website link:

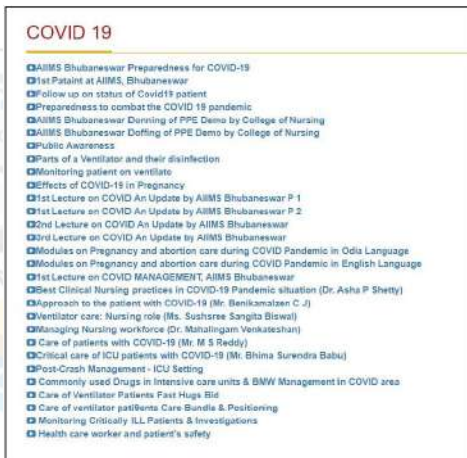
<https://www.aiims.edu/en/2014-12-15-05-50-28/209-bbdikshit-library/10785-aiims-publications-for-the-year-2020.html>

AIIMS, Bhubaneswar published short videos via various social media platforms

Since the occurrence of COVID-19, AIIMS, Bhubaneswar has been working tirelessly to connect with the people through awareness programme via documentaries, interviews, lectures, guidelines, clinical practices, monitoring critical patients and others.

Website link:

<https://aiimsbhubaneswar.nic.in/covid1.aspx>



COVID-appropriate behaviour initiative by AIIMS Jodhpur

The COVID-19 pandemic has led to unprecedented and unanticipated challenges requiring collective action and support from all. While the Government is effectively leading all necessary measures to fight the spread of Novel Coronavirus, there is a need to reinforce the importance of preventive measures and practices in a sustained manner to deal with the disease over the long run. To address the challenge, AIIMS, Jodhpur released a report titled COVID Appropriate Behavior Activities / Initiatives.



Website link:

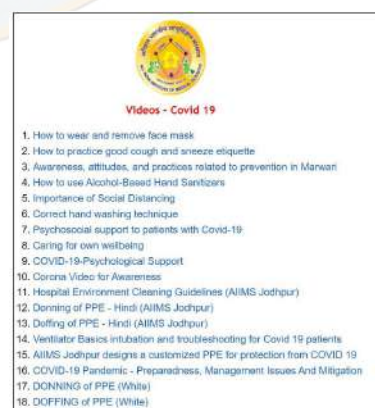
http://www.aiimsjodhpur.edu.in/covid19/PDF/COVID%20Appropriate%20Behavior%20Activities_Report_V3.pdf

COVID-19 awareness videos by AIIMS Jodhpur

The best way to prevent and slow down transmission COVID-19 is being well informed about the virus, the disease it causes, and how it spreads. The awareness-raising messages of AIIMS, Jodhpur, aimed to provide basic knowledge of personal protective measures and messages on coping and overcoming stress during disease outbreaks like COVID-19.

Website link:

<http://www.aiimsjodhpur.edu.in/covid19/>



AIIMS Patna released guidelines to control and prevent infection of COVID-19

According to WHO, there are two main transmission routes of the COVID-19 virus: respiratory and contact. Standard precautions and transmission-based precautions must be followed at all times in the hospital setting to prevent infection spread. Standard precautions include basic infection control precautions that must be applied to all patients, regardless of diagnosis or infectious state. AIIMS, Patna has released guidelines to control and prevent infection for COVID-19.

Website link:

http://www.aiimspatna.org/advertisement/IPC_CORONA_5520.pdf



Illustrated handbook on post-COVID-19 pulmonary rehabilitation

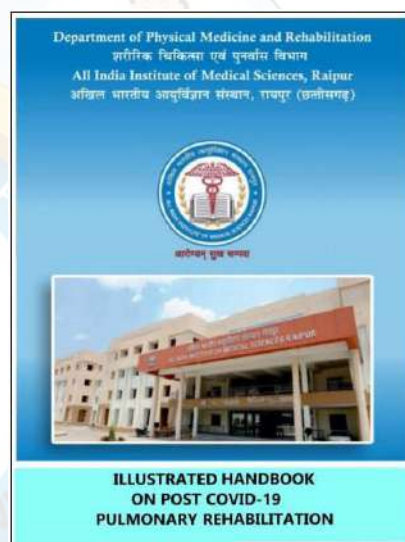
The year 2020 brought a pandemic of unprecedented proportion into our doorsteps and created many 'new normals'. The deadly virus wreaked havoc on our economy and our health. We are even unsure about its long-term implications, especially on our pulmonary system. Managing post-covid pulmonary fibrosis, especially in those patients who managed to recover after mechanical or non-invasive ventilation, was an arduous process.

This handbook deals with such patients and their management through a novel graphics comics approach. Some topics that have been dealt with here include:

- Dyspnoea and positions for relief;
- Few helpful breathing retraining techniques;
- A useful self airway secretion management strategy;
- Types and methods of inspiratory muscle strengthening;
- Home-based reconditioning; etc.

Website link:

<https://www.aiimsraipur.edu.in/upload/corona/5fdd8a8000bddEnglish%20PMR%20Raipur-min.pdf>



AIIMS Rishikesh released guidelines for home quarantine

Detection of a travel-related/unrelated suspect case of novel Coronavirus Disease (COVID-19) is to be followed by rapid isolation of such cases in designated health facilities and line listing of all contacts of such cases. AIIMS, Rishikesh released guidelines for home quarantine.

Website link:

<https://aiimsrishikesh.edu.in/aiims/document/mar2020/AIIMS%20Rishikesh%20%20COVID-19%20Home%20Quarantine%20Guideline.pdf>



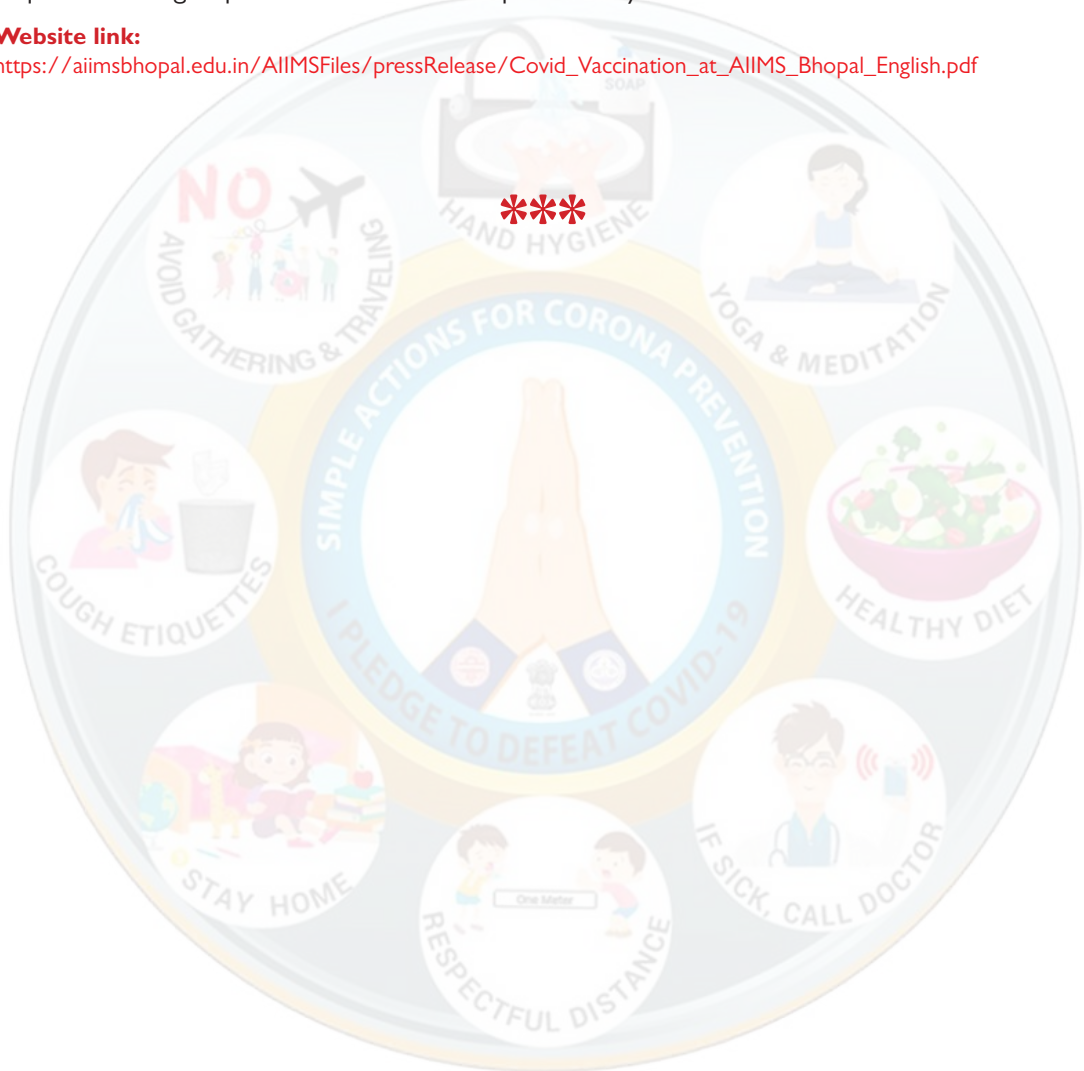
AIIMS Bhopal initiated COVID-19 vaccination drive

The Nation's efforts and commitment towards the fight against COVID-19 have entered a crucial phase with the vaccination drive that started from 16 January 2021. In the process, AIIMS Bhopal has undertaken the vaccination of all healthcare workers as per the Government of India's provisions and as rolled out by the District Administration.

COVID-19 vaccination planning and preparation is in full swing at AIIMS, Bhopal under the guidance and directives of Prof. Sarman Singh, Director, AIIMS, Bhopal. Multiple teams have been formed that are making all efforts for the success of the drive. A vaccination team of six members under a designated faculty has been developed. These teams have been given the requisite training as per the online modules provided by the Government of India.

Website link:

https://aiimsbhopal.edu.in/AIIMSFiles/pressRelease/Covid_Vaccination_at_AIIMS_Bhopal_English.pdf



SCIENCE & TECHNOLOGY OUTREACH EFFORTS ON COVID-19
BY
NATIONAL ACADEMIES

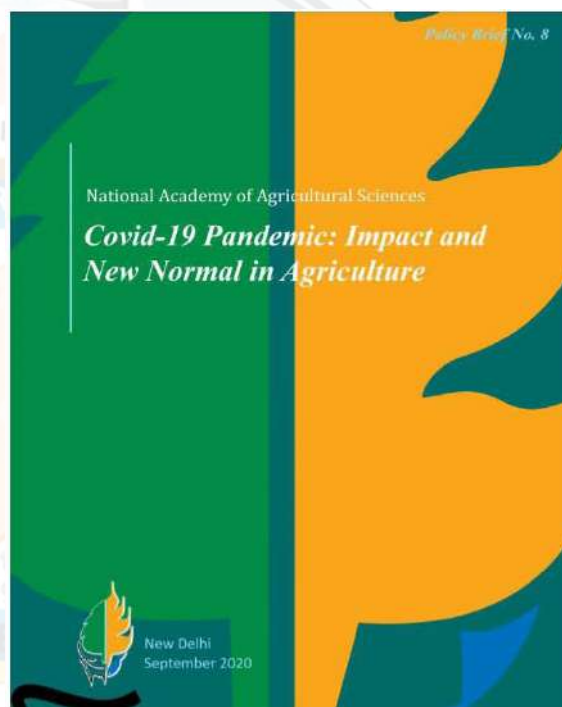
NAAS released white paper on the impact and implications of COVID-19 pandemic on agriculture

The COVID-19 pandemic has devastated the socio-economic condition of the world. To contain the pandemic, Governments imposed lockdowns throughout the world that disrupted functioning of the economic systems, labour markets, and supply chains. Lockdown affected the livelihoods of millions of workers. However, agriculture and rural development activities were not affected much by the lockdown compared to other economic activities.

The lockdown did not have any negative impact on agricultural production but it exposed the weaknesses of labour markets and agri-food supply chains that may hold the promise of evolving into new vistas for farming and farmers ex-post the pandemic. Proactively, the Government of India announced the much-awaited market reforms, accompanied by significant investments in supply chain infrastructure and rural industrialization to take agriculture to newer heights.

The Government of India announced an economic package to tackle the social and economic fallouts of the prolonged lockdown. The package was aimed at revitalizing economic growth, enhancing employment and income opportunities for poor and strengthening supply chain infrastructure and social safety-nets. The Government has taken several measures to improve the supply chain infrastructure and ensure food and income security to the migrant workers.

The post-pandemic agriculture will be more knowledge, information, and skill intensive. Producers will require more, accurate, and timely information on several aspects of agriculture — on seeds, plant nutrients, soil and water health, insect pests and diseases, consumer preferences, wellness crops, food safety, storage, markets, prices, weather, climate-resilient technologies and practices, and animal health, nutrition and breeding. Therefore, agriculture will leap-frog to a new era, compelling public extension systems to shift towards digitized approaches for quick diffusion of information and innovations. E-commerce that directly connects producers to consumers may emerge as a new normal in the post pandemic period. Agri-based e-commerce



platforms in India saw a significant growth in the daily food orders during the lockdown period, and many of these have struggled to meet the online demand.

Website link:

<http://naasindia.org/Policy%20Briefs/PB8-Covid-19.pdf>

NAMS published COVID-19 special edition annals

The National Academy of Medical Sciences (NAMS) is a unique institution which fosters and utilizes academic excellence as its resource to meet medical and social goals. Its journal, the *Annals of the National Academy of Medical Sciences* (ANAMS), is multi-disciplinary and Open Access in nature. NAMS published two COVID-19 special editions which includes investigations, reviews, case reports, letters, short communications and more.

Contact info: nams_aca@yahoo.com

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Topic		
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Current Status of Diagnostic Technology in Novel Coronavirus Disease (2019-nCoV)		Krishna, Sankarjaya, Mathurashankar, Deep Malviya, Madhubala
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Controversies and Challenges in COVID-19		Shreejith Parvath, Anand Kishan Talwar
Association of COVID-19 with Coronavirus Disease 2019: A Review		ANANDIA, Pradyumn Singh, Suresh Kumar, Tara Dey, Manjuna Lakshmi, Subhrajit Ghosh, M. K. Singh, Saranya Mishra, Prakash Chandra
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Role of Ethical Considerations in COVID-19 Research		Rajesh Kumar, Subhrajit Ghosh, Subhrajit Ghosh, Subhrajit Ghosh
Prevalence of COVID-19: The Silent Spreaders are Not so Silent Anymore		Rajesh Kumar, Subhrajit Ghosh
Personnel Protection in the Outbreak of COVID-19 Cases		Jyoti, Pradyumn, Kumar, et, Pradyumn, Kumar, Jyoti
Treatment Modalities in the Intensive Care Unit for Coronavirus Disease 2019		Rajesh Kumar, Anand Kishan Singh
Medical Health Issues in Coronavirus Disease 2019: Evolving a Strategy		Madhav, P, Anand Kishan, Subhrajit Ghosh, Chandra
Pathogenesis and Clinical Disease 2019		Shruti, Jyoti, Pradyumn, Nay
COVID-19: Prevalence and the Global Health of Health Care Workers: A Review		Pradyumn, Kumar, Subhrajit Ghosh, Pradyumn, Kumar, Subhrajit Ghosh
COVID-19 and Neurological Manifestations		Aravind, Mishra, Manoj K
COVID-19 and Pregnancy: A Review		Pradyumn, Kumar, Subhrajit Ghosh, Pradyumn, Kumar, Subhrajit Ghosh

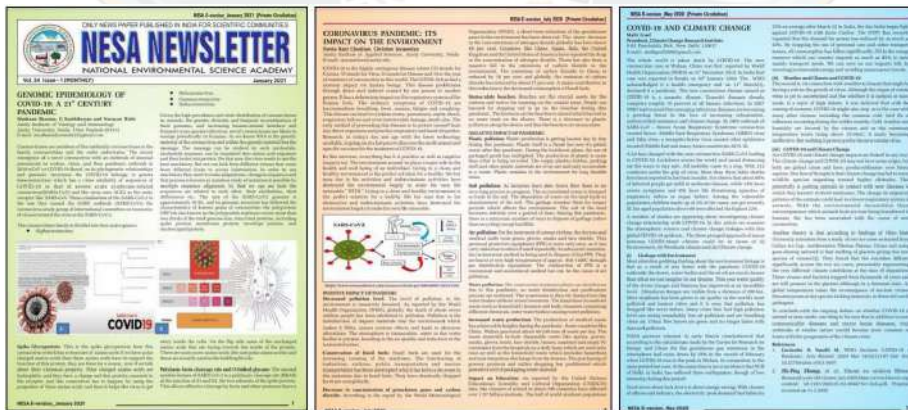
Website link:

<https://www.nams-india.in/ANNALS/annals.php>

NESA published monthly newsletter on COVID-19

National Environmental Science Academy (NESA) publishes monthly newsletter to increase awareness about environmental sciences and allied areas among youngsters, researchers, and scientists. It published newsletters which included articles related to corona, pollution and plant improvement by authors from diverse fields to recount the status on various activities.

Contact info: nesapublications@gmail.com, nesapub@yahoo.co.in



Website link:

<http://nesa-india.org/newsletter/>



NAVS published quarterly newsletter on COVID-19

National Academy of Veterinary Sciences (NAVS) aims to consolidate and promote the views of scientific community on all policy matters related to veterinary science and animal husbandry in the welfare of India, to encourage better training and utilization of veterinary talent and enterprise in the country, to strive for advancement of livestock sector in the national economy, to promote animal welfare, to protect environment, and to safeguard the interests of the profession and to gain greater recognition and acclaim for it. It published quarterly newsletter on COVID-19 to aware public in the form of an 'Information Bulletin' which focused on the activities, achievements and events of NAVS.

Contact Info: navsdelhi@gmail.com



Website link:
<http://www.navsindia.org/newsletters.html>



SCIENCE & TECHNOLOGY OUTREACH EFFORTS ON COVID-19

BY

NATIONAL INSTITUTES OF TECHNOLOGY (NITs)

Dr B R Ambedkar National Institute of Technology Jalandhar released newsletter dedicated to COVID-19 initiatives

Dr B R Ambedkar National Institute of Technology, Jalandhar (NITJ) had released its monthly Newsletter from April to June, 2020 specially focused on COVID-19. In its Newsletter, NITJ emphasizes on few initiatives which was taken by NITJ like dispensing of free food, contribution to PM Care fund, devising and operation of shoe sanitization facility at the main entrance gate, development and distribution of low-cost indigenous hand sanitizers, low-cost facemasks, full-body PPE and development of service robot prototype, and chemical-free sanitization set-up. Additionally, TEQIP-III projects to the tune of Rs. 17 lakh had been sanctioned on the theme to combat the COVID-19 menace.

Website Link:

https://www.nitj.ac.in/nitj_files/links/Newsletter-AprilJune-2020_83515.pdf



Mission Fateh launched by NITJ to fight against COVID-19

In order to create awareness about the COVID-19, a month-long awareness drive had been initiated by Dr B R Ambedkar National Institute of Technology, Jalandhar (NITJ) with the support of Punjab Government. Under this drive, the state government created awareness about eleven factors emphasizing that the threat of the virus has not diminished. Mission Fateh symbolizes the resolve of the people of Punjab to halt the spread of the Novel Coronavirus through discipline, cooperation and compassion: Discipline in observing all precautions, cooperation with the state government by faithfully abiding by the lockdown restrictions, and compassion towards the poor by helping them and giving them aid. It is the true reflection of the spirit of people of Punjab that can overcome all odds to emerge victorious.



Website Link:

https://www.nitj.ac.in/nitj_files/News/MissionFateh-FightingCovid19_20063068883.pdf

National Institute of Technology (NIT) Durgapur newsletter on COVID-19

National Institute of Technology (NIT), Durgapur had issued its newsletter, which was a special issue on COVID-19. In this the Institute compiled details of its on-going and completed projects, list of publications, published news and blogs, students' endeavours during the lockdown, invited talks, Eminent Alumni Lectures, and webinars organized on COVID-19.

Website Link:

https://nitdgp.ac.in/uploads/userfiles/images/COVID_Special_Newsletter.pdf



COVID-19-related technological interventions released by SVNIT Surat

During the challenging times of COVID-19, the Director of the Sardar Vallabhbhai National Institute of Technology (SVNIT), Surat Dr Shailesh R Gandhi encouraged the students/research scholars of the institute to come forward and contribute to fighting against COVID-19. Students and faculty responded to this call and contributed in various ways. The brief descriptions of each intervention were included in this publication.

Website Link:

<https://www.svnit.ac.in/Data/achievements/2020/COVID%202019.pdf>



COVID-19 Bulletin by National Institute of Technology (NIT), Durgapur for public awareness

National Institute of Technology (NIT), Durgapur released its COVID-19 bulletin, which was created for public awareness about the coronavirus disease, its symptoms, treatment and prevention.

Website Link:

https://admin.nitdgp.ac.in/files/newsfeed/2020/08/18/COVID-19_Bulletin.pdf

Reverberation – a newsletter of Maulana Azad National Institute of Technology (MANIT) Bhopal – on COVID-19

Maulana Azad National Institute of Technology (MANIT), Bhopal released its quarterly newsletter, Reverberation, in July 2020. It included the major academic achievements, research work, MANIT's response to fight COVID-19 crises, etc. of the institutes.

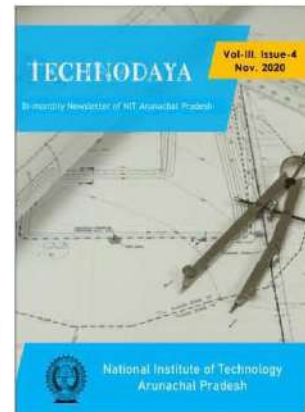
Website Link:

http://www.manit.ac.in/sites/default/files/Year_2020/Newsletter/MANIT_Newsletter_July_2020.pdf



TECHNODAYA – a bimonthly newsletter of National Institute of Technology Arunachal Pradesh

National Institute of Technology (NIT), Arunachal Pradesh had released their (Bi-monthly) newsletter as Vol-III (Issue-2, Issue-3, and Issue-4) in July, September, and November 2020. This newsletter contained information about COVID-19-related interventions of NIT Arunachal Pradesh, its research on COVID-19, and webinars conducted during the pandemic.



Website Link:

https://www.nitap.ac.in/category_list_details?cate=TECHNODAYA

Sardar Vallabhbhai National Institute of Technology (SVNIT), Surat published its newsletter on COVID-19

Sardar Vallabhbhai National Institute of Technology (SVNIT), Surat had released the Second Issue of its newsletter emphasized on COVID-19. The newsletter contained details of the research projects and the other related activities carried out during COVID-19. Among various activities, a number of innovative works related to COVID-19 had also been carried out. These included developing face shields with 3-D printers, sterilizer box for articles like mobile phones, etc., remotely operated trolley for serving medicines and other essential items in COVID patients' wards, etc. This content was very useful for the faculty members and the students in other Institutes to interact with any collaborative work.



Website Link:

<https://www.svnit.ac.in/Data/Notice/2020/October/R&C%20Newsletter%20Vol.%20II.pdf>

National Institute of Technology (NIT) Raipur released newsletters – Mirror – containing COVID-related information

National Institute of Technology (NIT), Raipur had released its Newsletter, Volume 3 in four issues (Issue-1, Issue-2, Issue-3, and Issue-4) in April, July, October 2020, and January 2021. The faculty and students of NIT Raipur came forward and contributed their expertise in developing various innovative products to track, control, and prevent COVID-19. The newsletter contained the details of preventive measures taken at NIT Raipur to fight COVID-19, COVID-19-related initiatives, academic activities during lockdown, students' achievements, international workshop on combating COVID-19, webinar on computer-aided drug discovery against COVID-19, etc.



Website Link:
<http://www.nitr.ac.in/newsletter.php>

National Institute of Technology Hamirpur published its newsletter

National Institute of Technology (NIT), Hamirpur had issued its newsletter (Volume 10, Issue 1, 2020), which was a partial issue on COVID-19. The newsletter contained the details of initiatives that had been taken by NIT Hamirpur to fight the COVID-19 outbreak, Activities related to COVID-19, external sponsored research and development projects sanctioned on COVID-19, journal papers published, and book chapter published on COVID-19 were included.



This issue of the Newsletter of NIT Hamirpur was an endeavour to share and showcase a glimpse of what they had done in the institute.

Website Link:
[https://nith.ac.in/newsletter/Institute%20Newsletter%20Volume%2010,%20Issue%201,%202020%20\(1\).pdf](https://nith.ac.in/newsletter/Institute%20Newsletter%20Volume%2010,%20Issue%201,%202020%20(1).pdf)



SCIENCE & TECHNOLOGY OUTREACH EFFORTS ON COVID-19

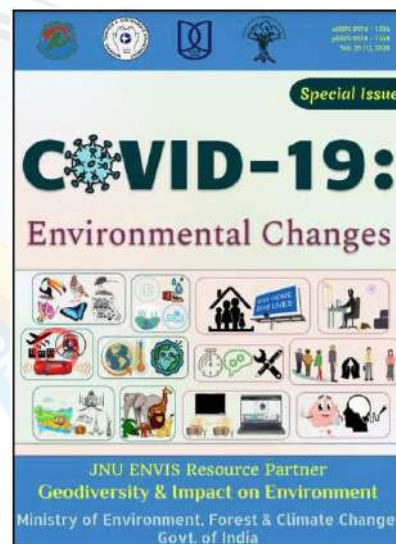
BY CENTRAL UNIVERSITIES

A Special Issue of newsletter on 'COVID-19: Environmental Changes' published by JNU ENVIS Resource Partner

The special issue of the newsletter 'COVID-19: Environmental Changes' by Jawaharlal Nehru University (JNU), ENVIS Resource Partner was published that highlighted air pollution and health scenarios before and after COVID-19 lockdown covering from global-to-local scales. It also highlighted that the reduced anthropogenic activities have provided a favourable environment for the butterfly population in NCR Delhi. A report described the origin of the novel coronavirus SARS-CoV-2.

Website link:

<http://jnuenvis.nic.in/newsletters/COVID-19.pdf>



The Central University of Punjab developed COVID-19 Information Portal

The sudden outbreak of Novel Coronavirus (SARS-CoV-2) has put the global scientific community to a challenge not faced before. Within a few months, a lot has been said, discussed and published on the subject. The Central University of Punjab developed a portal to compile the vast and scattered up-to-date, relevant information on a single platform to facilitate the researchers, students, and common man.



Website link:

<https://www.cupcovid19.info/>

COVID-19 publications of Central University of Punjab to reach out to research scholars

The Central University of Punjab made some significant efforts to address R&D and innovation-related challenges of COVID-19 pandemic.

Related publications of Central University of Punjab are listed here:

- Identification of FDA-approved drugs and nucleoside analogues as potential SARS-CoV-2 AIpp domain inhibitor: An in silico study;
- Identification of potential natural inhibitors of SARS-CoV2 main protease by molecular docking and simulation studies;
- COVID-19 pandemic: An outlook on its impact on air quality and its association with environmental variables in major cities of Punjab and Chandigarh, India, Environmental Forensics;
- Pre-to-post lockdown impact on air quality and the role of environmental factors in spreading the COVID-19 cases - a study from a worst-hit state of India;
- Is the transmission of novel coronavirus disease (COVID-19) weather dependent?
- Tempering Macrophage Plasticity for Controlling SARS-CoV-2 Infection for Managing COVID-19 Disease;
- Perspective immune adjuvant for controlling SARS-CoV-2 infection for managing COVID-19 disease;
- Potential of electricstimulation for the management of COVID-19;
- Is highly expressed ACE 2 in pregnant women “a curse” in times of COVID-19 pandemic?
- Exploring the magic bullets to identify Achilles’ heel in SARS-CoV-2: Delving deeper into the sea of possible therapeutic options in Covid-19 disease: An update;
- Selection of Active Antiviral Compounds Against Covid-19 Disease Targeting Coronavirus Endoribonuclease Nendou/NSP15 Via Ligand based Virtual Screening and Molecular Docking;
- Drugs targeting various stages of the SARS-CoV-2 life cycle: Exploring promising drugs for the treatment of Covid-19;
- The Future of COVID-19 Treatment; and
- Promotion of Organic Farming amidst Covid 19.

Website link:

http://cup.edu.in/covid19_publications_cupb.php

Assam University developed COVID-19 support website to create awareness amongst general public

Assam University is a Central University which is actively engaged in efforts to prepare for and mitigate the impacts of COVID-19. The top priority is to support students’ health and well-being and the Assam University family as a whole. The website provides answers to frequently asked questions and information about health and other available University resources to counter the stress and other related issues during a hard time.



Website link:

<http://www.aus.ac.in/covid-19/>

To create awareness amongst general public, Central University of Gujarat adopted five villages

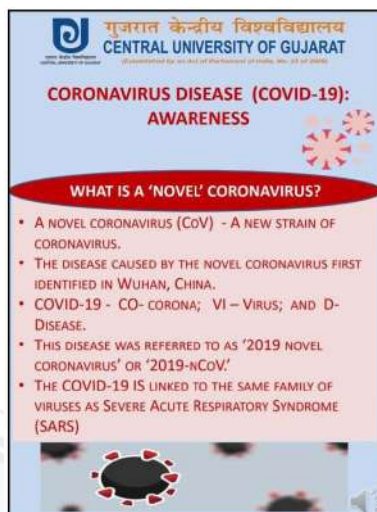
The Central University of Gujarat adopted five villages (Kaka Nu Tarapur, Titoda, Adraj Moti Pundrasan, and Lekhawara) near the Gandhinagar district under the Unnat Bharat Abhiyan (UBA). Members of the CUG team interacted with the villagers on various aspects of coronavirus issues. They explained to the villagers the safety and precautionary measures to contain the spread of coronavirus.

UBA-CUG coordinator circulated Coronavirus Disease (COVID-19) Awareness brochure that CUG prepared. The team members demonstrated the youth the art of preparing mask at home and advised them to have a WhatsApp group where everyone could share the information.

Website link:

https://www.cug.ac.in/covid/pdf/CUG_UBAaware_visit_to_villages.pdf

https://www.cug.ac.in/covid/pdf/CUG_Covid_Awareness.pdf



COVID-19 special issue report by Mahatma Gandhi Central University

Mahatma Gandhi Central University (MGCU) had released a special issue on the COVID-19 pandemic. This report contains details of the numerous activities, which the University has been involved in, as part of its response to COVID-19. The University created a repository of over 1008 PPTs, 40 video lectures of faculties from various departments, and 23 Facebook Live Lectures by eminent scholars and academicians across the country.



Website Link:

<http://www.mgcu.ac.in/pdf/MGCU-in-Covid-19.pdf>

Manipur University released e-magazine on COVID-19

Manipur University had launched the first volume of i-Vision, an e-Magazine of Manipur University on COVID-19. The magazine was to enrich the co-curricular syllabi of Manipur University. It has articles, essays, poetry, cartoons and slogans under the theme COVID-19. It was published By Manipur University Students' Union 2019-20.



Website Link:

<https://www.manipuruniv.ac.in/news/launching-of-i-vision-volume-i-may-2020-an-e-magazine-of-manipur-university-on-the-theme-covid-19>

Competitions on the themes of COVID-19 by Indra Gandhi National Tribal University to sensitise the youth pursuing higher education

NSS Cell of the Indra Gandhi National Tribal University had organised competitions on the themes around COVID-19 and fight to defeat it. The event was planned to inspire and develop creativity among students (UG/PG/Ph.D. category of the IGNTU) and create awareness of COVID-19 and their efforts to defeat the COVID-19 epidemic.

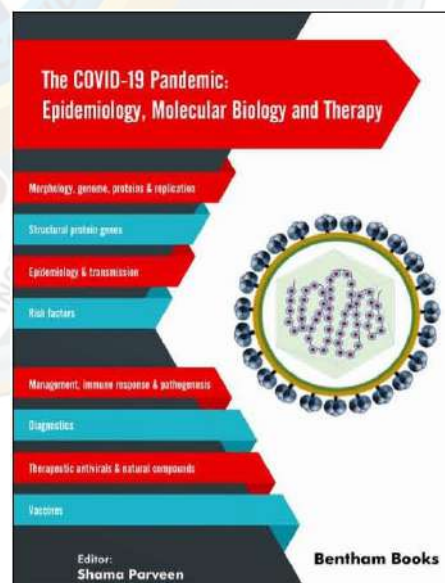
Website Link:

<http://www.igntu.ac.in/Event/NSS-Online-Event-covid19-April20.PDF>

The COVID-19 Pandemic: Epidemiology Molecular Biology and Therapy compiled by of Jamia Millia Islamia released

COVID-19 has equally affected almost every part of the globe with millions of cases and deaths. In these unprecedented times, which is gripping the whole world, the idea of writing a book on “The COVID-19 Pandemic: Epidemiology, Molecular Biology and Therapy” (<https://benthambooks.com/book/9789811481871/>) by the faculty member of Jamia Millia Islamia Dr Shama Parveen and the research team is a much timely effort to provide a comprehensive account about COVID-19 for the readers.

The book is divided into 11 chapters focusing on various aspects of the COVID-19 which includes topics such as pathogen (morphology, genome, proteins, structural protein genes, and replication), global epidemiology, transmission, risk factors, clinical manifestation, management, host immune response and pathogenesis. It also covers the diagnosis, therapeutic agents (antiviral and other drugs, natural compounds) and vaccines for COVID-19.



Website link:

https://www.jmi.ac.in/upload/publication/pr1_English_2021February5.pdf

Jamia Millia Islamia faculty edited book titled ‘Computational Intelligence Methods in COVID-19: Surveillance, Prevention, Prediction and Diagnosis’

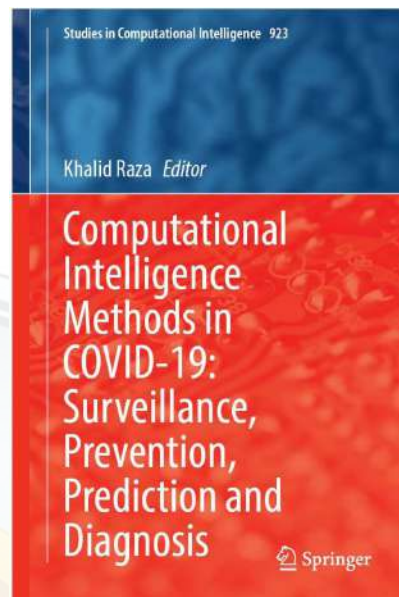
Dr Khalid Raza, one of the youngest faculty members of the Department of Computer Science, Jamia Millia Islamia (JMI), has edited a book on the on-going COVID-19 pandemic which is published in one of the reputed series of Springer, Singapore. The book entitled ‘Computational Intelligence Methods in COVID-19: Surveillance, Prevention, Prediction and Diagnosis’ has been published in the 923rd volume of Studies in Computational Intelligence Series (Hindex=62). All the chapters of the book are indexed in the Scopus database.

The book contains 22 chapters covering different aspects of COVID-19 that includes fundamentals of coronaviruses, epidemic forecast models, surveillance and tracking systems, IoT- and IoMT-based integrated systems for COVID-19, social network analysis systems for COVID-19, radiological images (CT, X-Ray)-based diagnosis system, and in silico drug design and drug repurposing methods against COVID-19 receptors.

The contributing authors of this volume are experts in their fields from JMI and other reputed institutions across the world. This volume is a valuable and comprehensive resource for computer and data scientists, epidemiologists, radiologists, doctors, clinicians, pharmaceutical professionals, along with graduate and research students of interdisciplinary and multidisciplinary sciences. The book is being sold by major online sellers including Amazon and Springer.

Website link:

<https://www.springer.com/gp/book/9789811585333>



SCIENCE & TECHNOLOGY OUTREACH EFFORTS ON COVID-19

BY

OTHER ACADEMIC INSTITUTIONS

NIPER, Hyderabad published its newsletter

National Institute of Pharmaceutical Education and Research (NIPER), Hyderabad had come with its yearly issue of the newsletter in which it outstretched the work done by them on various aspects of COVID-19 including outreach initiatives, like, virtual workshop on impact of COVID-19 on regulatory environment, entrepreneurship opportunities and challenges in COVID-19 times, eco-friendly biodegradable antiviral solutions for protection against COVID-19 etc. It also briefed about the innovation and events that have been carried out at the Institute.

Website Link:

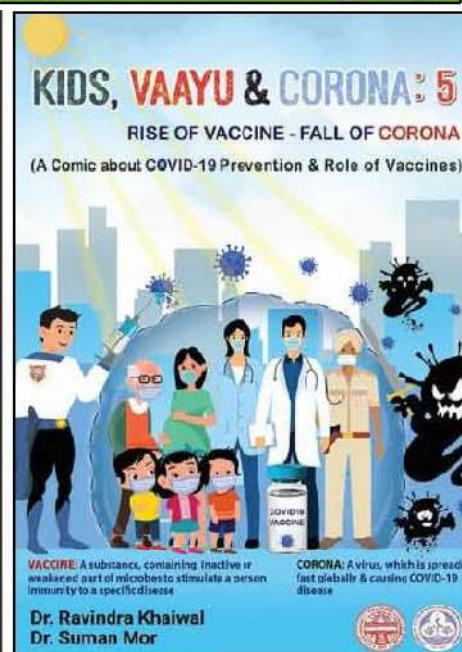
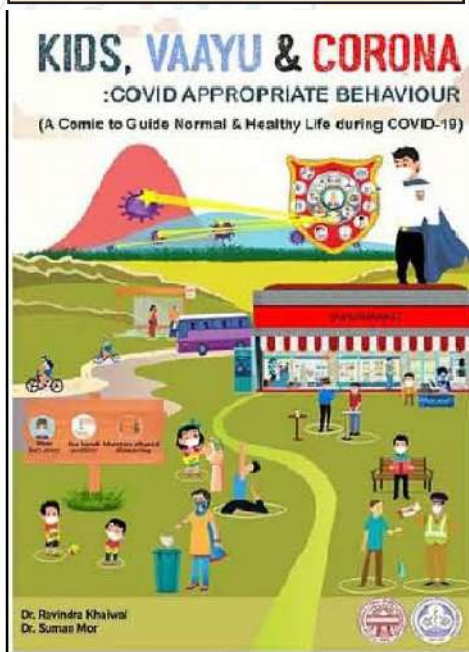
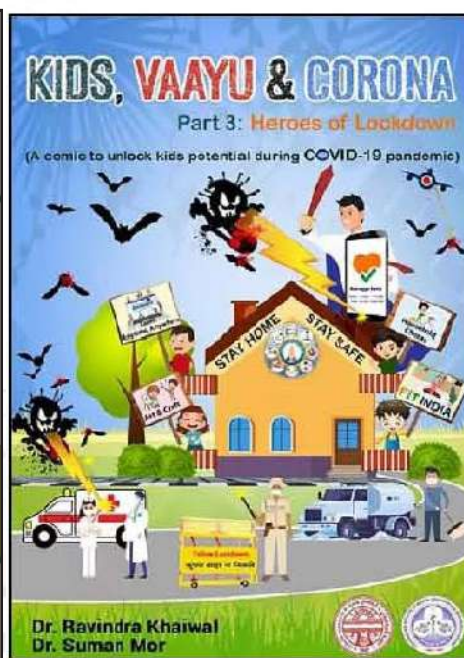
<http://www.niperhyd.ac.in/PDFFiles/Tarang.pdf>



Kids, Vaayu & Corona: PGIMER-Chandigarh & Panjab University produced educative comic series for COVID-19 awareness amongst kids

COVID-19 has become a nightmare for most of the people around the world. And while some of the adults are busy and could gather data from the common platforms like





newspaper, for kids it really becomes incomprehensive to understand the talks, advisories and other scientific information. To overcome the challenge, Postgraduate Institute of Medical Education and Research (PGIMER, Chandigarh) and Panjab University (PU) have created an educative comic series titled 'Kids, Vaayu & Corona,' for children to make them aware about the threats of Coronavirus and ways to remain safe by taking simple precautionary steps for prevention and control of spread of the infection.

The Series is based on dialogues between three kids and a superhero of the series, Vaayu, a global citizen, who works for better public health and environment. The first part of the series in simple words explains terms like virus, the spread of virus, symptoms of the Coronavirus, steps for hand washing, importance of social distancing and other common dos and don'ts. The second part deals with more technical terms like quarantine, isolation, pandemic, lockdown, community transmission, vaccine development, surgical masks, PPEs and help lines for contacting

in case of emergencies. The comic also removes fear from the minds of children by defining the mortality rate of the Coronavirus, etc.

Five editions of the book have been published so far right from the eruption of the pandemic, addressing the contemporary problems created by the crisis. All the editions have been published bilingual, that is, Hindi and English.

Contact Info: Khaiwal.ravindra@pgimer.edu.in, sumanmor@pu.ac.in

Website link:

<https://www.care4cleanair.com/awarnessmaterial>

Bharath and Fatima learn about COVID-19: A graphic novel to sensitize broader audience

‘Bharath and Fatima learn about COVID-19’ was a graphic novel authored by Arvind Ramanathan from Institute for Stem Cell Science and Regenerative Medicine (inStem) and Sonia Sen from Tata Institute for Genetics and Society (TIGS). To explore more, read a new page daily on www.covid-gyan.in.

Website link:

<https://covid-gyan.in/>



COVID-19 Dashboard developed by PGIMER-Chandigarh

Post Graduate Institute of Medical Education and Research (PGIMER)-Chandigarh created COVID-19 Dashboard which provided data every day on update of COVID-19 positive cases in specific territories. The dashboard is regularly updated and provides information on proven and suspected COVID-19 patients, their geography, gender and age-wise distribution as well as the occupancy in different departments within the hospital.

Postgraduate Institute of Medical Education & Research, Chandigarh स्नातकोत्तर चिकित्सा शिक्षा एवं अनुसंधान संस्थान, चण्डीगढ़					
COVID-19 DASHBOARD					
Currently Admitted:					
Proven Covid Positive Patients: (Total=67)					
AREA-WISE				GENDER-WISE	
NHE ICU	NHE Isolation	Nehru	Others	MALE	FEMALE
16	23	5	14	31	26
AGE-GROUP-WISE					
<1 Year	1-12 Years	13-39 Years	40-55 Years	60-75 Years	80 Years +
3	3	14	23	14	0
STATE-WISE					
Chandigarh					13
Jammu And Kashmir					2
Haryana					7
Himachal Pradesh					6
Uttar Pradesh					2
Punjab					28

Website link:

https://pgimer.edu.in/PGIMER_PORTAL/PGIMERPORTAL/GlobalPages/JSP/covidDashboardyy.jsp

PGIMER Chandigarh developed COVID-19 information booklet

A COVID-19 booklet had been developed by PGIMER Chandigarh to empower the citizens of India with the precise and accurate knowledge and right actions for the good health of their families, friends and dear ones.

Website link:

https://pgimer.edu.in/PGIMER_PORTAL/PGIMERPORTAL/covid19/PDF/COVID%20booklet.pdf



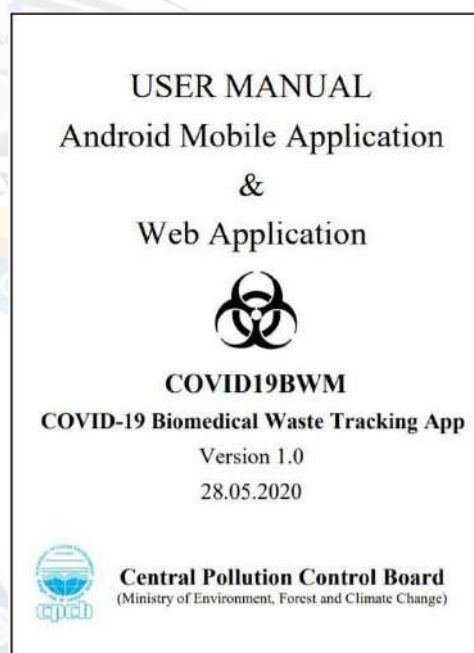
CPCB released user manual for COVID-19 BWM Tracking App

Central Pollution Control Board (CPCB) released user manual for Android Mobile and Web Application for COVID-19 BWM Tracking App. It is a software application for tracking of generation, collection and disposal of COVID-19 biomedical waste, generated at various Health Care facilities & Hospitals (HCF), Quarantine Centres, Isolation wards, Testing Labs, COVID-19 Sample Collection Centres and Urban Local Bodies involved in performing the duties of waste collection from home quarantine centres/homecare units. This application will enable information exchange between various stakeholders involved.

The user manual explains various sections of COVID-19 BWM tracking application for its users that is Waste Generator, Waste Handlers, Common Biomedical Waste Treatment Facilities (CBWTF), State Pollution Control Boards/Pollution Control Committees, and others. This manual also provides information on downloading and operating the application. The Tracking App is initially developed for android mobiles; however, iOS version is under progress. The Manual explains the process of collection of waste together with responsibilities of its stake holders.

Website link:

https://cpcb.nic.in/uploads/Projects/Bio-Medical-Waste/VI_COVID-19_BMW_Tracking_App.pdf



CPCB released pictorial guide on biomedical waste management including COVID-19 waste

Central Pollution Control Board (CPCB) released a pictorial guide on Biomedical Waste Management (BMWM) Rules, 2016 (amended in 2018 & 2019), which is a product of joint research by the Centre for Chronic Disease Control (CCDC), Centre for Environmental Health (CEH), Public Health Foundation of India (PHFI) and Health Care Without Harm (HCWH). The guide is a compilation of important strategies that are keys to appropriate management of biomedical waste in India. The pictorial guide provides a quick, user-friendly view of the important elements of biomedical waste handling, treatment, and disposal through its illustrative components. These are based on the specifications provided in the BMWM Rules, 2016 and its subsequent amendments. Importantly, the guide also includes the provisions for COVID-19 waste management as prescribed in the Central Pollution Control Board Guidelines 2020.

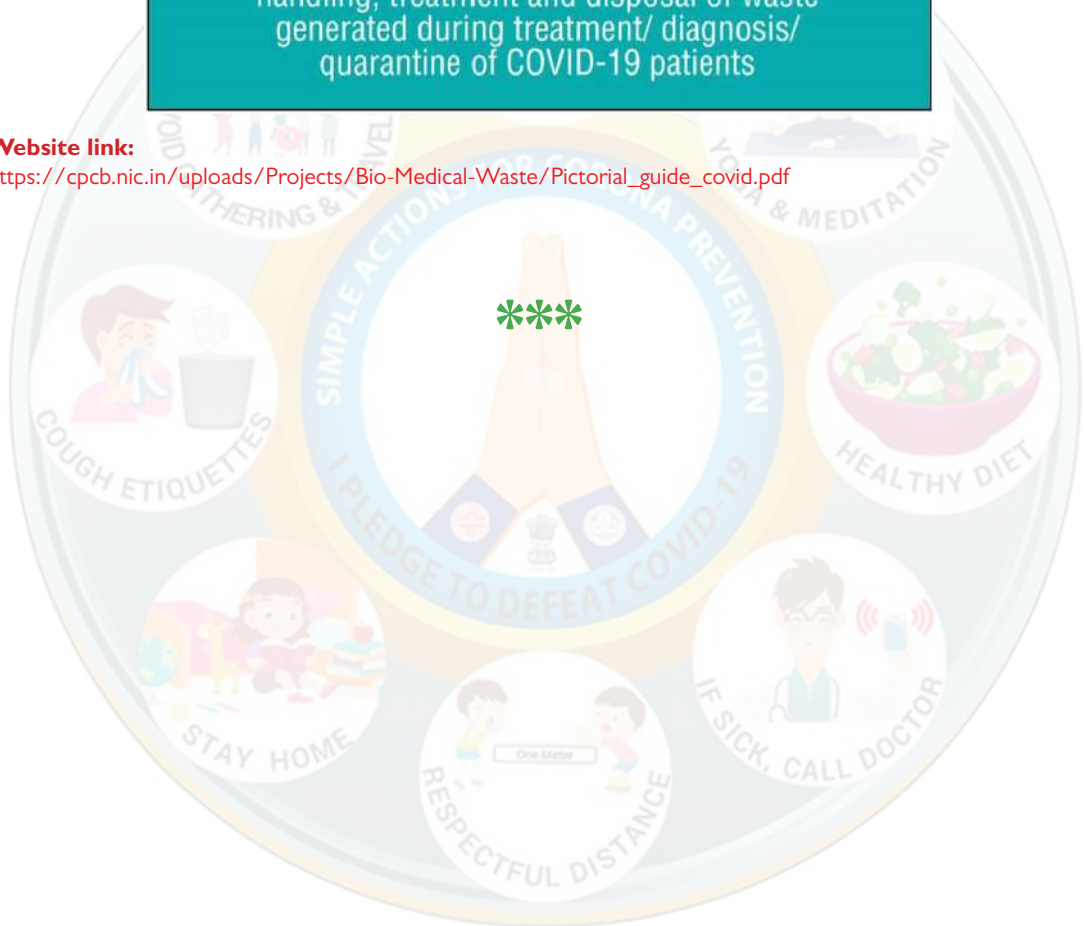


PICTORIAL GUIDE ON BIOMEDICAL WASTE MANAGEMENT RULES 2016 (AMENDED IN 2018 & 2019)

Including the CPCB guidelines for handling, treatment and disposal of waste generated during treatment/ diagnosis/ quarantine of COVID-19 patients

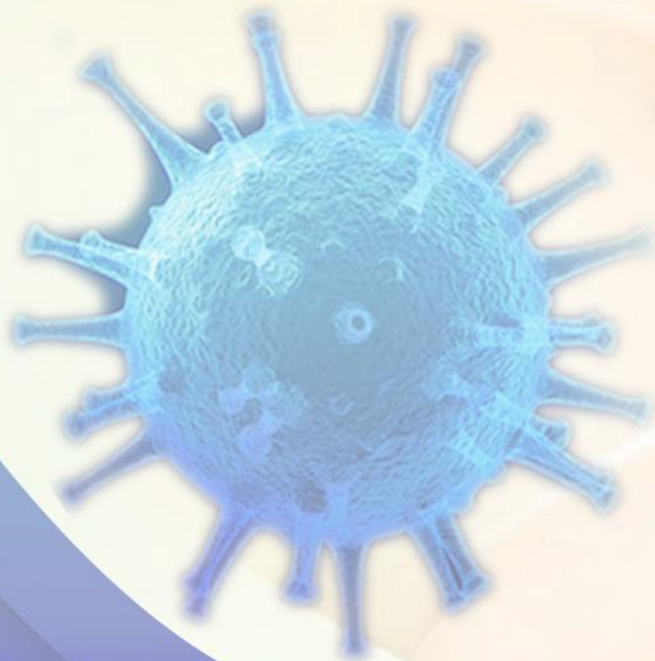
Website link:

https://cpcb.nic.in/uploads/Projects/Bio-Medical-Waste/Pictorial_guide_covid.pdf



SECTION III

Science & Technology Outreach Efforts on COVID-19 during Last Fortnight



SCIENCE & TECHNOLOGY OUTREACH EFFORTS ON COVID-19 DURING LAST FORTNIGHT

Indradhanush 3.0 launched to reach out to children and pregnant women who missed immunization schedule due to COVID-19

Dr Harsh Vardhan, Union Minister for Health and Family Welfare, launched Intensified Mission Indradhanush (IMI) 3.0, its portal, and released the operational guidelines and the awareness material/IEC package developed as part of the campaign.



Dr Harsh Vardhan expressed his joy at the elaborate preparations to immunize every mother and child. The Intensified Mission Indradhanush 3.0 will have two rounds starting from February 22 and March 22, 2021 and will be conducted in pre-identified 250 districts/urban areas across 29 States/UTs. The focus of the IMI 3.0 will be the children and pregnant women who have missed their vaccine doses during the COVID-19 pandemic. They will be identified and vaccinated during the two rounds of IMI 3.0. Each round will be for 15 days each. Beneficiaries from migration areas and hard-to-reach areas will be targeted as they may have missed their vaccine doses during COVID-19.

Dr Harsh Vardhan noted that IMI 3.0 would build on the gains of previous phases of the campaign and make lasting gains towards Universal Immunization. "Since its first phase, Mission Indradhanush has covered 690 districts and vaccinated 37.64 million children and 9.46 million pregnant women. The current eighth campaign will target achieving 90% Full Immunization Coverage (FIC) in all districts of the country and sustain the coverage through immunization system strengthening and foster India's march towards the Sustainable Development Goals," he said.

As per the Guidelines released for IMI 3.0, the districts have been classified to reflect 313 low risks, 152 as a medium risk, and 250 as high-risk districts.

Expanding on the role of the campaign in the context of the present COVID-19 crisis, he said, "The country has successfully been able to contain COVID-19, and the drive for two indigenous vaccines is being carried out in the country. With this, the importance of a vaccine has never been so strongly felt. Every year the Universal Immunization Programme caters to the vaccination needs of 2.65 crore children and 2.9 crore pregnant women against 12 Vaccine-Preventable Diseases. Despite these efforts by all the States and UTs, some children and pregnant women get missed out on this network. Mission Indradhanush is indeed a successful strategy to reach out to every dropped-out and left-out child and pregnant woman. There has been a remarkable improvement in the immunization coverage, which is also evident in the NFHS5 data as available for 22 States."

On the massive push to provide affordable health to the last citizen, the minister observed, "Implementing large campaigns like Intensified Mission Indradhanush (IMI) 3.0 even during the rollout of COVID-19 vaccine is a clear indication of India's health system getting stronger day by day. Intensified Mission Indradhanush 3.0 (IMI 3.0) aimed to reach the unreached population with all the available vaccines under Universal Immunisation Programme (UIP) and thereby accelerate the full immunization and complete immunization coverage of children and pregnant women."

The Minister expressed satisfaction that COVID Appropriate Behaviour (CAB) will be ensured during the immunization activities held as part of the IMI 3.0 campaign. States have been asked to follow the "Staggered Approach" to avoid crowding at the session sites and even plan Break-up sessions if the staggered approach is not effective to prevent crowding. The sessions are also planned so that not more than ten beneficiaries are present at the session site at one given point of time.

Website link:
<https://pib.gov.in/Pressreleaseshare.aspx?PRID=1699408>

Office of PSA organized roundtable on Strengthening Academia-Industry Collaboration for Post-Vaccination Research in India

Office of the Principal Scientific Adviser to the Government of India and Pune Knowledge Cluster organized the second roundtable of the INNOVATION AND SCIENCE @ BHARAT SERIES on 26 February 2021. The roundtable is an initiative of the Office of PSA. It was attended by CSR and R&D heads of pharmaceutical and biotechnology companies, medical device makers,



diagnostic lab networks, and other private sector companies involved in healthcare CSR. The event featured presentations by heads of India's science and technology clusters and other senior researchers who talked about COVID-19-related research that is currently underway. They also highlighted ways in which the industry can partner with Indian research institutes for COVID-19 research. These presentations were followed by a Q&A session between the researchers and roundtable participants who were interested in supporting the research studies.

The roundtable also featured a keynote address by Prof. K. VijayRaghavan, Principal Scientific Adviser to the Government of India, on how Indian industry and academia can collaborate to help achieve India's economic and social development goals.

Contact info: siuli.mitra@investindia.org.in

Website:

<https://www.psa.gov.in/web/challenge-event/roundtable-strengthening-academia-industry-collaboration-post-vaccination/2564>

Government of India presents regular factsheet on COVID-19 status and immunisation programme

India's coronavirus cases have crossed 1.17-crore mark and as on 23 February 2021, 08:00 AM, stands at 1,10,16,434 cases out of which 1,07,12,665 have recovered. The recovery rate stands at 97.2% while the case fatality rate stands at 1.42%, the lowest in the world. The number of people vaccinated till 10 February 2021 stands at 1,17,45,552.



Website Link:

<https://www.mygov.in/covid-19/>

Ministry of Health releases SOP on preventive measures to contain spread of COVID-19 in offices

In order to prevent the spread of infection and to respond in a timely and effective manner in suspect cases of COVID-19 in offices and other workplace settings areas, MoHFW has prepared the SOP. This document outlines the preventive and response measures to be observed to contain the spread of COVID-19 in office settings. The document is divided into the following sub-sections

- i. Generic preventive measures to be followed at all times;
- ii. Measures specific to offices;
- iii. Measures to be taken on occurrence of case(s); and
- iv. Disinfection procedures to be implemented in case of occurrence of suspect/confirmed case.

Website Link:

<https://www.mohfw.gov.in/pdf/SOPonpreventivemeasuresstocontainspreadofCOVID19inoffices.pdf>

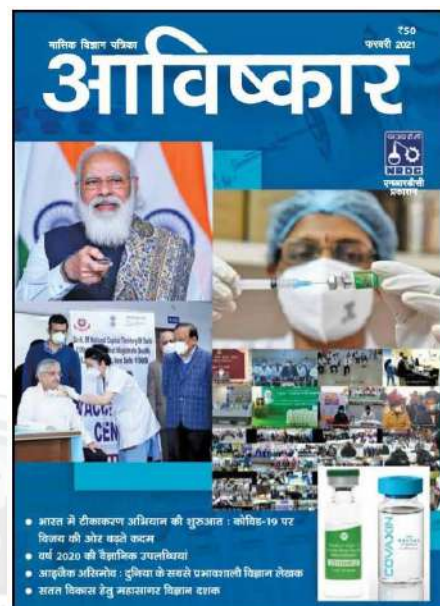
NRDC released Hindi science monthly magazine Awishkar on COVID-19 Vaccination

National Research Development Council (NRDC), an enterprise of Department of Scientific & Industrial Research (DSIR), released a special issue of its Hindi science monthly magazine Awishkar on COVID-19 vaccination. The main objectives of the magazine were to disseminate information and create awareness about new technologies, inventions, innovations, IPR issues, etc. amongst the masses and foster the spirit of inventiveness, innovativeness and entrepreneurship amongst the students, scientists, technicians, budding entrepreneurs, etc.

Awishkar focuses on topics of current public interest and national importance relating to science, technologies, inventions, innovations and intellectual property rights.

Website link:

<http://www.nrdcindia.com/assets/vendor/filemanager/userfiles/Awishkar/FEB2021.pdf>



Government initiates special category – Innovation for COVID-19 – for National Startup Awards 2021

The National Startup Awards 2021 seek to recognize and reward outstanding start-ups and ecosystem enablers that are contributing to economic dynamism by spurring innovation and injecting competition. Start-ups that are building innovative products/solutions, scalable enterprises, with high potential of employment generation or wealth creation, demonstrating measurable social impact are recognised by this award. The measure of success will not only be the financial gains for the investors but also the contribution to the social good.

One of the new categories introduced this year looks to recognise start-ups that have demonstrated excellence with innovative solutions in the prevention, diagnosis, therapeutic and monitoring of COVID-19.

Contact Info: dipp-startups@nic.in



Website link:

<https://www.startupindia.gov.in/awards>

MoHFW issued updated guidelines for international arrivals, effective 22 February

Ministry of Health and Family Welfare (MoHFW) in consultation with the Ministry of Civil Aviation has reviewed the situation with regard to point-of-entry actions that are required to minimize the risk of importation of mutant strains of SARS-CoV-2. MoHFW has issued a fresh document containing guidelines for International travellers coming to India, through a multi-pronged strategy of thermal screening and testing. This document addresses all the actions that need to be taken in two parts:

- Part (A) Standard Operating Procedures for all international travellers coming to India
- Part (B) Additional procedures for those coming from United Kingdom, Europe and Middle East.

The entry airports for flight services would be decided by the Ministry of Civil Aviation based on the Bilateral/Vande Bharat Mission (VBM) flights. This Standard Operating Procedure shall be valid w.e.f. 22nd February 2021 (23.59 Hrs IST) till further orders. Based on the risk assessment, this document shall be reviewed from time to time.

Guidelines for International Arrivals
w.e.f. 22nd February 2021

MINISTRY OF HEALTH AND FAMILY WELFARE
GOVERNMENT OF INDIA

myGov

For all travellers except those coming through flights originating from UK, Europe & Middle East

Planning for Travel (1/2)

- All travellers to submit self-declaration form online on Air Suvidha Portal (www.newdelhairport.in) before the scheduled travel
- Upload a negative RT-PCR report, conducted within 72 hrs prior to undertaking the journey & also submit a declaration with respect to authenticity of the report
- Give an undertaking on the Air Suvidha Portal or to Ministry of Civil Aviation through concerned airlines before the journey, to abide by the decision of concerned authority to undergo home quarantine/ self-monitoring of health for 14 days

Guidelines for International Arrivals
w.e.f. 22nd February 2021

MINISTRY OF HEALTH AND FAMILY WELFARE
GOVERNMENT OF INDIA

myGov

For all travellers except those coming through flights originating from UK, Europe & Middle East

Planning for Travel (2/2)

- Arrival in India without negative report to be allowed only for those traveling in the exigency of death in the family
- To seek such exemption travellers shall apply to the online portal (www.newdelhairport.in) at least 72 hrs before boarding
- The decision taken by the govt as communicated on the online portal will be final

Guidelines for International Arrivals
w.e.f. 22nd February 2021

MINISTRY OF HEALTH AND FAMILY WELFARE
GOVERNMENT OF INDIA

myGov

For all travellers except those coming through flights originating from UK, Europe & Middle East

Before Boarding

- Do's & Don'ts to be provided along with ticket to travellers by the airlines/agencies concerned
- Boarding to be allowed only to those passengers who have filled in the Self Declaration Form online & uploaded the negative RT-PCR test report
- Only asymptomatic travellers will be allowed to board the flight after thermal screening.
- All passengers to be advised to download Aarogya Setu app
- Suitable precautionary measures such as environmental sanitation & disinfection to be ensured at the airports
- During boarding all, physical distancing to be ensured

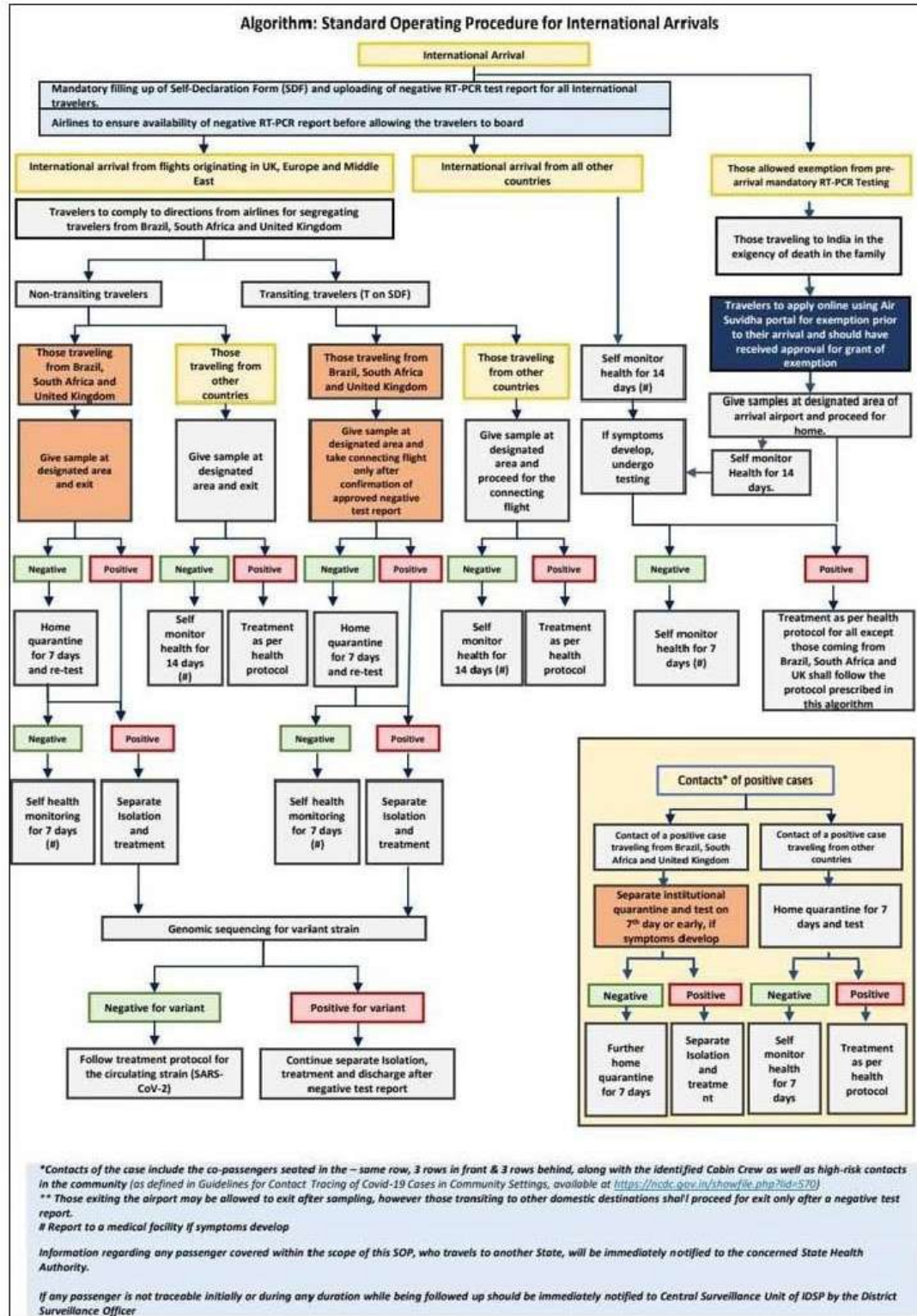
Website Link:

<https://www.mohfw.gov.in/pdf/Guidelinesforinternationalarrivals17022021.pdf>

Algorithm released by Standard Operating Procedure for International Arrivals by MoHFW

Ministry of Health and Family Welfare (MoHFW) had published a Standard Operating Procedure (SOP) for International Arrivals in the form of an Algorithm. The document is to aware the public of the different procedures that should be followed by International travellers who are

coming to India. Since this document is in the form of an algorithm it will become easy for people to understand the procedure.



Website Link:

<https://www.mohfw.gov.in/pdf/Algorithmforinternationalarrivals.pdf>

Press Information Bureau releases daily bulletin on COVID-19

Press Information Bureau (PIB), Government of India releases a daily bulletin on COVID-19. The bulletin contains press releases concerning COVID-19, issued in last 24 hours, inputs from PIB



- Active Cases decline in all States/UTs in the last month
- No death reported in 18 States/UTs in last 24 hours
- Recoveries continue to rise-Cumulative recoveries at 1.06 Cr
- Nearly 90 lakh COVID19 vaccine doses administered
- 2,76,377 Health Care Workers given second dose of vaccination so far

field offices and fact checks undertaken by PIB. The last release is dated 17th February 2021.

Website Link:

<https://pib.gov.in/PressReleasePage.aspx?PRID=1698766>

Multimedia exhibition van travelling to create awareness on vaccination for COVID-19 and Aatmanirbhar Bharat

A multimedia exhibition van to create awareness on COVID-19 vaccination and Aatmanirbhar Bharat was flagged off by the Principal Health Secretary, Government of Maharashtra Dr Pradeep Kumar Vyas at the premises of Films Division in Mumbai.

The van will travel to 3 routes in Mumbai, Bandra-Dharavi-Juhu-Andheri-Borivali; Goregaon-Chinchvali-Malad-Kandivali-Charkop-Borivali-Dahisar; Kurla-Chembur-Ghatkopar-Mankhurd-Turbhe- Bhandup-Vikroli.

Under this campaign, 16 specially fabricated vans with a message will travel across 36 districts of Maharashtra to spread awareness among people. The vans will also display messages through LED screens and these vans will be live tracked through GPS through integrated dashboard which can be accessed through scanning of QR Code.



Appreciating the initiative taken by ROB, Dr Vyas said, there is a lot of difference in the situation when the first COVID-19 case was reported in Maharashtra almost a year ago and the present day. Nothing much was known about the disease then. But now we have better knowledge about the disease and hence we know what message should be given out to people. He stated that when a communication campaign about COVID-19 was started by the Maharashtra Government in the month of September, it bore result and the situation more or less stabilized from the month of November in the state. He further noted that there has again been a spike of COVID-19 cases since the last 10 days in the state, and under such a situation, this initiative taken by ROB is the right thing to do.

He also said, vaccination and creating awareness about vaccination must go on side-by-side. This will lead to curbing of misinformation and rumours surrounding vaccines.

Speaking on the occasion, Ms Smita Vats Sharma, DG Films Division, said, the campaign for following COVID-appropriate behaviours has brought us to a stage of vaccination in this fight against COVID-19. The purpose of the travelling multimedia exhibition van will be to sensitize every individual about vaccination, not only by providing them information, but through a process of infotainment. These multimedia vans are a combination of interpersonal communication and use of digital technology. While ROB's performing artistes will bring to life the messages of Aatmanirbhar Bharat and Vaccination through cultural performances, general public may also scan the QR Codes being displayed on the vans to gather more information on these from the official websites and social media handles.

The cultural artistes of Song & Drama Division performed street play and dance at the event. They will convey messages through folk performances popular in respective districts/regions of Maharashtra. Communication has played a big role in containing the COVID-19 pandemic. In this effort, the campaign aims to take the Government's communication to people's doorsteps. Representatives of all partner organizations and other senior officials and staff of Films Division were present at the event.

The campaign has been designed and implemented by the Regional Outreach Bureau (ROB), Pune – a media unit of the Union Ministry of Information & Broadcasting, in collaboration with the World Health Organization, UNICEF and the IEC Division of the Government of Maharashtra's Health Department. The campaign was inaugurated by Union Minister for Information and Broadcasting Shri Prakash Javadekar on 7 February, 2021.



Website link:

<https://pib.gov.in/PressReleasePage.aspx?PRID=1698401>

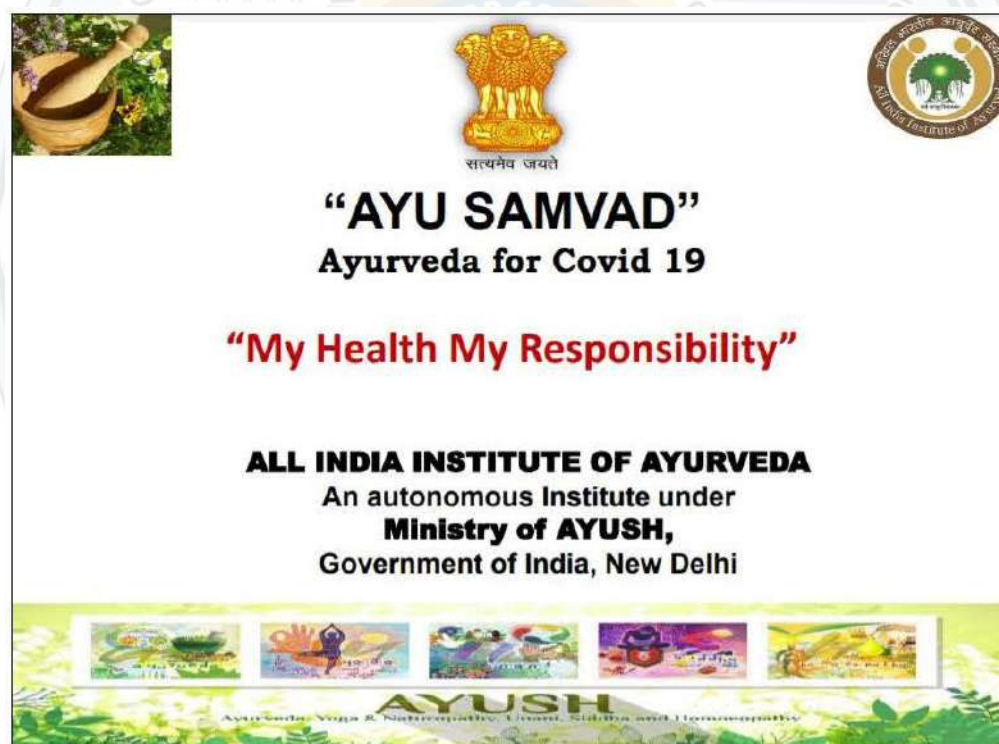
“Ayu Samvad”, the Public Awareness Lecture series of AYUSH Ministry, focussed on Management of COVID-19

The Ayu Samvad Lecture Series campaign will specifically focus on the role of Ayurveda in

the Preventive, Promotive, Curative and Rehabilitative Management of COVID-19. The All India Institute of Ayurveda (AIIA), an autonomous organization under the aegis of Ministry of AYUSH, is organizing this public awareness campaign programme on “Ayurveda and Covid 19 Pandemic” with the objective to create awareness among common people.

The Ayu Samvad Campaign started with the All India Institute of Ayurveda, New Delhi, organizing an online “Training of Trainers” programme during 18-21 January 2021 for all state Directors, Principals of Ayurveda Colleges, Medical Officers, PG & Ph.D. scholars and other stakeholders. The trained personnel from this programme would go on to organise lectures for Government Offices, Non-Government sector employees, schools, colleges, Panchayati Raj institutions, gram sabhas, industries, various housing societies, NGOs, Mahila udyogs, Asha workers and health staff etc. across the nation.

As already clarified by the AYUSH Ministry in an earlier communication, the Ayu Samvad campaign ensures the uniformity of information through structured training inputs delivered to approximately one crore target audience across India through five lakh lectures. This Campaign is expected to be beneficial in conveying the potential role of Ayurveda in the management against COVID-19 and also for Post-COVID Management. The AYUSH Wings of various States and UTs will also contribute to the Campaign through State AYUSH Directors and NAM team.



Website link:

<https://pib.gov.in/PressReleasePage.aspx?PRID=1697468>

17 COVID-19 Bio-repositories notified by Government of India

A total of 17 COVID-19 Bio-repositories have been notified by Government of India on May 2020. These are set up at laboratories of Department of Biotechnology (DBT), Council of Scientific & Industrial Research (CSIR) and Indian Council of Medical Research (ICMR). The list of Bio-repositories is given below.

A total of 90,361 samples (Serum, Nasopharyngeal swab, Plasma, Peripheral Blood Mononuclear

Cells etc.) have been archived so far across the 17 National COVID-19 bio-repositories; 11,650 samples have been archived in ICMR COVID-19 bio-repositories; 41,239 samples have been archived in DBT COVID-19 bio-repositories; and 37,472 samples have been archived in CSIR COVID-19 bio-repositories.

These samples are being used to develop validated diagnostics, therapeutics and vaccines etc. for COVID-19 prevention, control and treatment. Additionally, the samples are a valuable resource for research and development-related activities to understand the early predictors of disease severity, immunopathogenesis of the disease, etc.

List of COVID-19 Bio-repositories notified by Government of India:

COVID-19 Bio-repositories at DBT institutes:

1. DBT-NCR Biotech Cluster - Translational Health Science and Technology Institute & Regional Centre for Biotechnology, Faridabad
2. DBT - Institute of Life Sciences, Bhubaneswar
3. DBT - Institute for Stem Cell Science and Regenerative Medicine, Bangalore
4. DBT-funded Biorepository - Institute of Liver and Biliary Sciences, New Delhi
5. DBT - National Centre for Cell Science, Pune

COVID-19 Bio-repositories at ICMR institutes:

6. ICMR - National Institute of Virology (NIV), Pune
7. ICMR - NIV Field Unit, Bangalore
8. ICMR - NIV Field Unit, Allapuzha, Kerala
9. ICMR - National Institute of Cholera and Enteric Diseases, Kolkata
10. ICMR - National Institute of Occupational Health, Ahmedabad
11. ICMR - National Institute for Implementation Research on Non-Communicable Diseases, Jodhpur
12. ICMR - National Institute of Malaria Research, Delhi
13. ICMR - National Institute of Epidemiology, Chennai
14. ICMR - National Institute for Research in Reproductive Health, Mumbai

COVID-19 Bio-repositories at CSIR institutes:

15. CSIR - Institute of Genomics and Integrative Biology, N. Delhi
16. CSIR - Centre for Cellular & Molecular Biology, Hyderabad
17. CSIR - Institute of Microbial Technology, Chandigarh

Website link:

<https://pib.gov.in/allRel.aspx>





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