India’s fight against COVID-19 pandemic in crucial stage

In the January 2021 edition of ICMR’s E-Samvaad, we had mentioned in detail how India responded and achieved success against COVID-19 pandemic. How science and government driven approach spearheaded by strong leadership, based on the 5T strategy of testing, tracking, tracing, treatment and technology coupled with one of the largest vaccination roll out has made India handsomely battle ready against the ongoing coronavirus pandemic. However, our initial achievement cannot be misconstrued to mean that the battle is over.

Through the 5T approach we have been able to restrict the pandemic to larger cities. However, the latest national seroprevalence survey suggests that only around one in five Indians had been infected by the SARS-CoV-2 coronavirus until December 2020. The message is that a large proportion of the population remains vulnerable. Speculations of herd immunity should be avoided and focus must remain on preventive measures. Moreover, mutant strains are an increasing cause of concern. Despite our low numbers, we have to be cautiously optimistic and continue to take steps to contain the spread of coronavirus.

SARS-CoV-2 is a novel virus which is mutating regularly. Spike in cases will happen, but we are in a situation, where we can respond effectively. We have enhanced COVID-19 testing infrastructure which can exponentially increase testing across the country. We have better treatment options, vaccines that have shown best efficacy results. COVAXIN has shown efficacy of 81% which has not only brought respite for the people but also reiterated AtmaNirbhar India’s expertise as vaccine capital of the world. With this pandemic, we have realized our potential is tremendous. We have come out of our silos, and worked together, within scientists, within labs, institutions, organizations, and ministries. Vaccination drive is going on as planned. By July- August 2021, Government of India aims to give the two doses of COVID-19 vaccines to almost 30 Crores people. These steps along with participation of general public

We have to remember that the pandemic is not over yet and it is advised to even those who have been vaccinated to observe COVID-19 appropriate behavior and not become complacent with regards to masks, social distancing and hand hygiene.

Going forward, it is important to maintain the momentum of public awareness and active participation in containing the spread of coronavirus. We will have to keep following health and safety protocols including that of physical distancing.

Our Achievements

Indigenous COVID-19 vaccine ‘COVAXIN’ shows 81% efficacy in phase–III Clinical Trial.

ICMR along with SII has commenced phase – II/III Clinical Trials of COVID-19 vaccine ‘COOVAX’.
Indigenous vaccine ‘COVAXIN’ developed by ICMR & Bharat Biotech shows 81% efficacy in Phase – III Clinical Trial

- Results show that the vaccine is well-tolerated and efficacious against SARS-CoV-2 variants.
- Phase-III trial was conducted on a total of 25,800 individuals across 21 sites.
- Vaccine ability to neutralize UK variant strain of SARS-CoV-2 has also been established.

Indigenous vaccine developed by Indian Council of Medical Research (ICMR) in partnership with Bharat Biotech International Limited (BBIL), has shown an interim vaccine efficacy of 81% in phase–III. The phase-III trial, initiated in mid-November 2020, was conducted on a total of 25,800 individuals across 21 sites.

‘COVAXIN’ is an inactivated vaccine derived from a strain of SARS-CoV-2 virus, which was isolated at the ICMR-National Institute of Virology (NIV), Pune. COVAXIN is the first COVID-19 vaccine that has been developed completely in India and is one of the two vaccines, which have got emergency usage approval from regulator. After approval, India embarked on world’s largest COVID-19 vaccination drive on 16th January 2021.

Vaccine has generated safety and immunogenicity data in various animal species such as mice, rats, rabbits, Syrian hamster, and also conducted challenge studies on non-human primates (Rhesus macaques) and hamsters. Earlier, Phase I/II clinical trials have demonstrated that the vaccine is safe and provides a robust immune response. Phase-I/II trials conducted in 755 participants demonstrated high safety profile of the candidate vaccine with sero conversion rates of 98.3% and 81.1% on day 56 and 104 respectively.

On this achievement, Dr. Balram Bhargava, Director General, ICMR said, “The bench-to-bedside journey of indigenous COVID-19 vaccine in less than 8 months’ time showcases the immense strength of Atmanirbhar Bharat [self-reliant India] to fight the odds and stand tall in the global public health community. It is also a testament to India’s emergence as a global vaccine superpower”

Dr. Samiran Panda, Head (ECD), ICMR and Director, National AIDS Research Institute added that “The development and deployment of COVAXIN ensures that India has a powerful weapon in its arsenal in a continually evolving pandemic situation and will go a long way in helping us win the war against COVID-19.”

COVAXIN has been developed on the WHO prequalified vero cell platform, which is globally recognized with a well-established track record of safety. Recent, interim efficacy trend was analyzed as per the protocol approved by the DCGI and puts it at par with other global front-runner vaccines. COVAXIN’s ability to neutralize UK variant strain of SARS-CoV-2 has also recently been established.
Indian Council of Medical Research (ICMR) has been at the forefront of forging public-private partnerships to develop COVID-19 vaccine in India. ICMR has partnered with Serum Institute of India (SII) to conduct phase II/III bridging clinical trial of COVID-19 vaccine ‘COVOVAX’. US based biotechnology company Novovax Inc. is developing COVID-19 vaccine, ‘COVOVAX’ (NVX-CoV2373). This vaccine is a protein-based vaccine candidate engineered from the genetic sequence of SARS-CoV-2, the virus that causes COVID-19.

Bridging clinical trials in India will be led by ICMR-National AIDS Institutes, Pune. It is planned to enroll almost 1600 volunteers for these trials. ICMR has commenced the trials with first three volunteers administered first dose of the vaccine in Pune. Earlier, ICMR had partnered with SII for clinical trials of Oxford University/Astra Zeneca vaccine COVISHIELD. Phase II/III clinical trial was successfully done on 1600 participates at 15 different centres across the country. ICMR had funded the clinical trial site fees while SII had funded other expenses for COVISHIELD.

Dr. Balram Bhargava, Director General, Indian Council of Medical Research (ICMR), commented, “At present, India is playing a prominent role in vaccine development and manufacturing globally. The partnership is our contribution to lending our expertise and support to bolster fight against the global pandemic. Successful completion of trial will add to the global arsenal to fight the COVID-19 pandemic”

According to Novavax, its COVID-19 vaccine had shown overall efficacy of 89% in a major Phase-III clinical trial in Britain and was highly effective against the first UK variant and claims it will be effective against other variants as well.
The focus on face masks has come about with the advent of COVID-19. It has covered a space in public discussion and political debate, which is larger than ever before. As such respiratory infections occur through the transmission of microorganism-containing droplets (≥5-10 μm) and aerosols (≤5 μm) exhaled from infected individuals during breathing, speaking, coughing and sneezing, the risk of which can be reduced by wearing face mask. Wearing a mask is not an alternative to physical distancing and hand hygiene, but it is most valuable in scenarios where physical distancing is challenging.

Studies have established that in Canada estimated a reduction of 25 per cent in weekly COVID-19 cases with mask mandates, and a study in Germany suggested a 40 per cent reduction in daily growth rate of COVID-19 cases with masks. Contrastingly, in the West, initial hesitation from some of the government officials to implement mask mandates was associated with a relatively rapid spread of SARS-CoV-2. A study in the United States noted that if face masks were nationally mandated for employees on March 14, 2020, perhaps 19,000-47,000 lives could have been saved by the end of May.

There are various types of face masks which are being used globally. Of these cloth masks block the exhalation of coarse particles and limit the spread of the smaller particles. The filtration efficacy of multi-layered cloth masks is 50-70 per cent for respiratory aerosol particles. Whereas medical masks without gaps can filter 99 percent particles larger than 0.3 μm and 75 per cent particles smaller than 0.3 μm. N95 and N99 respirator masks are relatively more effective in filtration than the cloth and medical masks. N95 masks without gap can filter 99.9 percent particles larger than 0.3 μm and 85 per cent particles smaller than 0.3 μm.

It is important to ensure the appropriate use of face masks for it to be effective. A recent survey noted that only 44 percent of Indians were wearing it properly in compliance with the guidelines.

In conclusion, it is important to appreciate that diligent face mask use is a crucial component of the set of public health interventions, components of which together build multiple layers of barriers between individuals infected with SARS-CoV-2 and those who are susceptible. Masks on faces could serve as reminders for others, especially in the current environment when people are experiencing prevention fatigue. People wearing masks thus could not only help in generating peer pressure but also serving as the agents for social change. Face masks are here to stay for some time, as even with the recent introduction of COVID-19 vaccines, the development of vaccine-induced herd immunity is going to take some time. Finally, it is important to recognize that although vaccinated individuals would have less risk of getting symptomatic SARS-CoV-2 disease, they may still be able to spread the virus to others and should therefore use face masks.
Findings of ICMR study on ‘Prevalence and epidemiology of hearing impairment in six regions in India’ released

- Report Released by Minister of Health and Family Welfare on World Hearing Day
- Prevalence of hearing loss was at 11% in rural India while in urban areas was at 9%
- Common risk factors identified as tobacco smoking, industrial noise and chemical exposure

Indian Council of Medical Research has released the findings of study on ‘Prevalence and epidemiology of hearing impairment in six regions in India’ on World Hearing Day. The study was coordinated by All India Institute of Medical Sciences in New Delhi and was India’s largest survey, which included more than 92,000 individuals on hearing impairment across India.

Hon’ble Union Minister for Health & Family Welfare Dr. Harsh Vardhan and Hon’ble Minister of State for Health & Family Welfare Shri Ashwini Choubey virtually released the report on 3rd March, 2021.

The findings of the survey revealed that one in ten surveyed participants had some form of hearing loss. This trend was found to be equitably distributed across genders. In terms of social divide, it was found that prevalence of hearing loss was at 11% in rural India while hearing loss in urban areas was at 9%.

It was also observed that of all causes for hearing loss, a third was identified as reversible and 40% as preventable. Such figures indicate that with urgent and focussed public health interventions, we can address the prevalent issues and prevent further damages in a timely manner.

More importantly, causes of the widespread hearing impairments and most common risk factors for age related hearing loss were identified as tobacco/ smoking, industrial noise exposure and chemical exposure.

Such studies help targeted identification of underlying health problems and in developing public health policies to address the same.

According to WHO, globally about 1.5 billion people currently have some kind of hearing loss and nearly a third of them require hearing services to carry on day-to-day functioning. This number is likely to go up to 2.5 billion by 2050.
ICMR develops ‘Water Quality Management Information System’ for Jal Jeevan Mission

- System design based on ICMR’s robust online portal for COVID-19 test monitoring.
- Water Quality Information Management System (WQIMS) set up for network of 2000 water testing labs.
- ‘WQIMS’ will allow for real time monitoring of water testing.

Leveraging the technical capacity built for COVID-19 testing and surveillance, ICMR in partnership with the National Jal Jeevan Mission (JJM), has launched an online portal that will make it possible for users to get quality of drinking water tested through a network of nearly 2,000 labs across the country. The portal can be accessed at https://neer.icmr.org.in/website/main.php

The Water Quality Management Information System (WQIMS) will ensure that any adverse test report will be automatically flagged up to state and central-level authorities for corrective action at the source of the supply of drinking water. The guidelines have been prepared in consultation with the Indian Council of Medical Research (ICMR).

The system has been designed on the same model as ICMR’s robust online portal for COVID-19 test monitoring, with a clear data flow protocol where testing laboratories provide results to the person requesting the test, state and national databases.

Union Jal Shakti minister, Shri Gajendra Singh Shekhawat said, “Har Ghar Jal (water to every household) is not just a one-time infrastructure programme. It will go a long way in building the capacity of the frontline workers, empowering women and creating employment in villages.”

The preliminary testing of drinking water at village-level will be done by trained women workers using field kits (FTK). One among the five women trained to perform the FTK test in every village in the country would be registered on the portal by the block / sub-divisional laboratory in-charge to upload the FTK test results.

After the success of ICMR’s COVID-19 testing model, this will also allow for real time monitoring of water testing which will prove most beneficial for timely, easily accessible and accurate data collection.
New Green Campus of ICMR-NIREH Bhopal inaugurated by Hon’ble Union Minister for Health and Family Welfare Dr. Harshvardhan

New Green Campus of ICMR-National Institute for Research in Environment Health (NIREH) at Bhopal was inaugurated by Union Minister for Health and Family Welfare Dr. Harsh Vardhan on 13th March 2021. This event was attended by Prof (Dr.) Balram Bhargava, Secretary (Health Research) and DG-ICMR, Dr. R R Tiwari, Director, ICMR-NIREH and other senior officials. Dr. Prabhuram Chaudhary, Minister for Public Health, Government of Madhya Pradesh was also present at the inauguration ceremony.

On this occasion Dr. Harsh Vardhan said “In the current times, massive urbanization and development have taken a toll on our environment. Thus, looking into the health effects being caused by adverse environmental conditions is a need of the hour. Thus, NIREH research, especially targeted at estimating the burden of pollution/climate change and consequent health effects, is essential to design and implement suitable intervention strategies that will enable the achievement of the sustainable development goals of UNDP.”

National Institute for Research in Environmental Health (NIREH), Bhopal, is one of the permanent institutes of the Indian Council of Medical Research. After Bhopal gas disaster in December, 1984, ICMR had established a coordinating unit in 1985 for several research programmes. In October, 2010 this unit was upgraded as permanent Research Centre to focus on the issues of environmental health research aimed at becoming a Centre of excellence in capacity building for research and health interventions to meet challenges in environmental disasters in the country. It is poised to become a Centre of Excellence in capacity building for research and health interventions to meet challenges of environmental disasters in the country.
Hon'ble Minister for Health & Family Welfare Dr. Harsh Vardhan and Director General ICMR & Secretary, Department of Health Research, Prof. Balram Bhargava inaugurated ICMR-Mycology Advanced Resource Centre (iMARC) at All India Institute of Medical Science in Bhopal, Madhya Pradesh.

Mycology is the branch of biology concerned with the study of fungi, including their genetic and biochemical properties, their taxonomy and their use to humans as a source for tinder, traditional medicine, food, and entheogens, as well as their dangers, such as toxicity or infection.

The mycology network established by ICMR is changing the clinical care landscape in the country. This will improve our understanding of the raising threat that fungi present for humans, plants and animals, as well as their role in ecology and environment diversity.

Six more mycology centres are planned to be initiated shortly across India. This network will enable and provide advanced diagnostic facilities for fungal infections and improve patient care significantly.

New research building named ‘Desikan Bhawan’ at ICMR-National Jalma Institute for Leprosy & Other Mycobacterial Diseases in Agra was inaugurated by Union Minister of Health and Family Welfare Dr. Harsh Vardhan on 6th March 2021. The new building is named after Institute’s first Director, Dr. K.V. Desikan, who also graced the occasion by his presence. Prof. (Dr.) Balram Bhargava, Secretary (Department of Health Research) and Director General, ICMR along with Dr Prabha Desikan Director, BMHRC and Dr. Rajni Kant, Director of ICMR-Regional Medical Research Centre, Gorakhpur were present along with other dignitaries.

The new building is equipped with new COVID-19 diagnostic facility and is dedicated for research facilities like animal experimentation, whole genome sequencing of different Mycobacterium species and phytochemical extraction from medicinal plants for anti-TB drug development. The capacity of COVID-19 diagnostic laboratory is around 1200 samples per day. This COVID diagnostic lab is loaded with Biosafety level-II cabinets, automated RNA extractors, and Real Time PCR machines.

ICMR-NJIL-OMD in Agra was established in 1967 by Japan leprosy mission for Asia (JALMA) and was handed over to the ICMR in 1976.
ICMR has launched the National Institute of Epidemiology and World Health Organisation e-certificate course on ‘Ethics Review of Health Research’ on 19th March, 2021. The course will be conducted online and will include video lectures, lecture handouts, Multiple Choice Questions, Resource Materials and demo videos. It will also cover topics like general ethical principles, responsible conduct of research, functioning of ethics committees, and review of research proposals and safety of research participants. The course is hosted by Swayam, National Programme on Technology Enhanced Learning and All India Council for Technical Education. Enrollment for four month course starts from 1st April at https://onlinecourses.swayam2.ac.in/aic20_ge08/preview

“The Bio-ethics unit of ICMR has played a significant role in ethics leadership in Southeast Asia. This e-learning course by ICMR- NIE and WHO is a value addition in our ongoing efforts in this area” Prof. (Dr.) Balram Bhargava, Director General ICMR & Secretary, Department of Health Research said during the launch.

ICMR Bioethics Unit was recognised as the first WHO collaborating centre for strengthening ethics in the South East Asia Region. In April 2020 India became one of the first countries in the world to publish the ICMR National Guidelines for Ethics Committees reviewing research during COVID-19 pandemic as well as the standard operating procedures for review of research in an emergency.

ICMR-AIIMS “Centre for Advance Research and Excellence (CARE) in virtual Autopsy Inaugurated

ICMR-AIIMS “Centre for Advance Research and Excellence” (CARE) in virtual Autopsy was inaugurated by Prof. (Dr.) Balram Bhargava, Secretary, Department of Health Research and Director General ICMR. This is the first centre of its kind in India, which will use imaging technology and reduce the risk of human error as well as avoid invasive procedures. With this facility, India will now have a time and cost effective means to conduct an autopsy whereby it would only take 30 minutes to complete an autopsy as against two and half hours taken for normal post mortem.

Virtual autopsies are less time-consuming as compared to traditional post-mortem and are minimally invasive, allowing the body to be released for cremation or burial sooner. Virtual autopsy is conducted with scanning and imaging technology. It involves examination of various tissues and internal organs using CT- scan machine. The body is put in the CT scan machine where it generates about 25,000 images of the body within seconds, which can be examined by experts. This will help in dignified management of dead bodies and reports will be recorded for review.
ICMR is available on Facebook, Twitter and Instagram. For latest update about COVID-19 and other medical research breakthroughs, you can follow ICMR’s Official handles.
Patron
Prof. (Dr.) Balram Bhargava
Secretary DHR and Director-General, ICMR

Communication Team

Dr. Rajni Kant
Director, ICMR-RMRC, Gorakhpur and Scientist G & Head, Research Management, Policy, Planning and Coordination

Dr. Lokesh Sharma
Scientist E, Social Media & Media Coordinator, Communications Unit
Biomedical Informatics Division

Dr. Enna Dogra Gupta
Scientist C, Content Coordinator, Communications Unit
Research Management, Policy, Planning and Coordination

Supported by:
Aakhya India (Media Consultant to ICMR)

Contact Us
Indian Council of Medical Research
V. Ramalingaswami Bhawan, P.O. Box No. 4911
Ansari Nagar, New Delhi - 110029, India
Ph: 91-11-26588895 / 91-11-26588980, 91-11-26589794 / 91-11-26589336, 91-11-26588707
Fax: 91-11-26588662