

MULTICOMPONENT SERVICES OF ICMR-NICED IN RESPONSE TO COVID-19 PANDEMIC

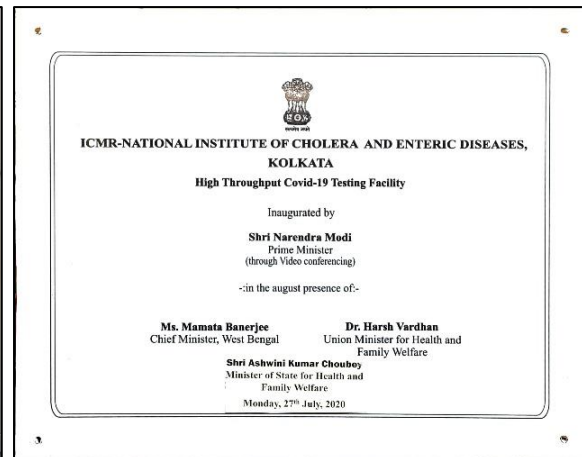


COVID-19 Testing and Reporting

- Regional Virus Research and Diagnostic Laboratory (VRDL-NICED) is the first laboratory in Eastern India to start routine testing on 03rd Feb 2020.
- It is one of the 13 VRDLs to initiate testing besides NIV, Pune and NCDC, New Delhi. It later became confirmatory centre for all samples tested positive in initial screening test at government and private labs.
- In early months, provided diagnostic support to Bihar, Jharkhand, Odisha, Sikkim, West Bengal, and entire North-East India.
- Currently it is a regional referral centre for RT-PCR testing of suspected COVID-19 samples for the state of West Bengal and final confirmation of doubtful cases.
- Since March 2020, VRDL-NICED is working 24x7 to provide timely diagnosis of COVID-19. Over 3.7 lakh samples have been tested so far.



High Throughput Testing Facility



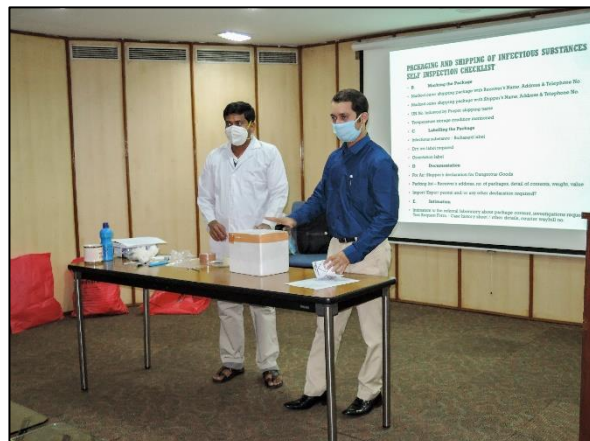
- BSL2+ facility was commissioned housing the high throughput Roche COBAS 8800 at ICMR-NICED to keep up with increasing testing demands in West Bengal.
- The facility was inaugurated by the Prime Minister of India in July 2020.
- This automated machine has daily testing capacity exceeding 3000 samples.



Inter Laboratory Quality Control

- VRDL-NICED acts as the State Quality Control lab for ensuring Quality Control and Quality Assurance for the COVID-19 testing labs of West Bengal and Sikkim.
- 75 labs were mapped under VRDL-NICED undergoing periodic evaluation; The ILQC of this lab is done by the National QC lab at NIV, Pune.

Capacity Building



- Regular hands-on training workshops on Laboratory Detection of SARS-CoV-2 by RT-PCR have been conducted by VRDL-NICED for the government and private labs of West Bengal.
- Workshops on Biosafety & Biosecurity were organized for the laboratory personnel of the institute.

Kit Validation

- Kit Validation and Batch Testing of indigenous RNA isolation and RT PCR kits were done at ICMR-NICED validation lab.
- Around 25 kits have been validated and 16 kits were batch tested March 2022.

Rapid Response Endeavour

- On the directives of EMR Division, MoHF&W, Govt. of India, scientist from ICMR-NICED was deputed as a member of Central Rapid Response Team.
- The team supervised implementation of Cluster Containment Plan, Microplanning and Hospital Preparedness in West Bengal for COVID-19 (18 Apr – 01 May 2020).
- Various health facilities such as Medical Colleges, Sub-divisional / Rural hospital, Quarantine centres and Safe homes were visited.

Central And Regional Depot



- The Central and Regional Depot is responsible for receiving, storage and distribution of Viral Transport Mediums, RNA extraction and RT-PCR kits.
- Till date more than 44 lakh kits have been received and stored while more than 37 lakh kits have been distributed.
- The states of West Bengal, Bihar, Odisha and North-East India were covered from the Central depot; West Bengal, Jharkhand, Sikkim and Tripura were covered from the Regional Depot.

National COVID-19 Biorepository

- One of the national COVID-19 biorepositories for collecting, storing, and maintaining different clinical samples of COVID-19 cases.
- Pivotal in steering research and development of new diagnostics, therapeutics, and vaccines for COVID-19 infection.

NATIONAL POPULATION BASED SERO-SURVEY FOR SARS-COV-2 INFECTION TRANSMISSION IN INDIA

- ICMR-NICED was involved in four rounds of COVID-19 serosurvey conducted in 6 districts of West Bengal – Alipurduar, Bankura, South 24 Parganas, Purba Medinipur, Jhargram and Kolkata during May-June 2020, September 2020, December 2020, and June 2021.
- From each district 400 samples were collected per round.



- Additional 100 HCWs' samples collected to identify pre-vaccination seroprevalence in the 3rd and 4th rounds. Children more than 10 years of age were included in 3rd round and more than 6 years of age in 4th round.
- Serum IgG antibody against SARS-CoV-2 was tested to identify extent of exposure.
- The staff of ICMR-NICED along with the State Health Department came forward to meet the challenges particularly amidst the havoc caused by 'Amphan' cyclone.
- The results of COVID-19 serosurvey helped the Government of West Bengal to identify the high priority districts for vaccination program.



VACCINE TRIALS

Recombinant BCG Vaccine Trial

- ICMR-NICED was included as one of the sites for the study entitled “Multicenter, Phase-III, Double-Blind, Randomized, Placebo-Controlled Study to Evaluate the Efficacy of Recombinant BCG VPM 1002 In Reducing Infection Incidence and Disease Severity of SARS-COV-2/COVID-19 Among High-Risk Subjects” funded by Serum Institute, Pune.
- A total of 139 volunteers were recruited in the trial.

COVAXIN Trial

- One of the Category I site for the study entitled “An Event-Driven, Phase3, Randomized, Double-blind, Placebo-controlled, Multicenter Study to Evaluate the Efficacy, Safety, Immunogenicity, and Lot-to-Lot consistency of BBV152, a Whole virion Inactivated SARS-CoV-2 Vaccine in Adults \geq 18Years of Age” to determine safety and efficacy of COVAXIN developed by Bharat Biotech in collaboration with ICMR.
- A total of 987 volunteers were recruited.
- COVAXIN trial is the largest clinical trial in India till date.



HGCO19 Trial

- Multicentric trial of mRNA vaccine (HGCO19) developed by Genova Pharmaceuticals Phase III study has been initiated entitled “A Prospective, Multicentre, Randomized, Active-controlled, Observer-blind, Phase II study seamlessly followed by a Phase III study to evaluate the Safety, Tolerability and Immunogenicity of the candidate HGCO19 (COVID-19 vaccine) in healthy subjects”.
- A total of 125 volunteers have been recruited and will be followed up for 12 months.

COVID-19 Precautionary Dose Study

- ICMR coordinated multicentric precautionary dose study has been initiated titled “Immune response to precautionary third dose of COVISHIED/COVAXIN among healthy adult population: an ICMR cohort study, India”.
- It will be conducted among fully vaccinated individuals working at ICMR-NICED aiming to look for SARS-CoV-2 immune kinetics.
- About 120 fully vaccinated volunteers will be recruited over a one-year period of time.

COVID-19 RESEARCH

- ICMR-NICED is a part of the Pan-India 1000 genome sequencing of SARS-CoV-2 in collaboration with DBT Institutes.
- Whole Genome Sequencing (WGS) of SARS CoV-2 virus was performed in collaboration with NIBMG, Kalyani & IISc., Bengaluru from clinical samples. It revealed mutations in the viral RNA (RdRP, S, N regions) which was the first report from Eastern India. Preliminary evidence of emergence of multiple subclones of SARS-CoV-2, which might have altered phenotypes.
- The same team has studied the evolution of SARS-COV-2 delta variant by non-Spike signature co-appearing mutations and its correlation with the COVID-19 disease outcome.
- In-silico Mutational and Phylogenetic analysis of SARS-CoV-2 strains circulating in India revealed prevalence of A2a clade (71.34%), followed by A3 (23.29%) and B (5.36%), presence of 33 different mutations - 18 novel to India.
- Studies revealed emergence of a new SARS-CoV-2 variant from GR clade with a novel S glycoprotein mutation V1230L in West Bengal, India.
- Correlation of case fatality rate with the circulating dominant SARS-CoV-2 clades around the globe were also studied.
- Antiviral actions of ion channel inhibitors to combat COVID-19 are being explored.
- Study has been initiated to evaluate the long-lasting protection of various combination of heterologous prime boost immunization of currently rolling vaccines in India. It will be the first attempt to compare anti-SARS-CoV-2 immune repertoire in heterologous prime boost immunization with COVAXIN, COVISHIELD and Sputnik V in experimental animals.
- The immunology group is also trying to develop a novel DNA vaccine, based on doggy bone (dbDNA) vector or MIDGE vector technology and compare its immunogenicity and memory response with existing vaccines.
- Other studies have been initiated in collaboration with different institutes like:
- Genomic epidemiology of SARS-CoV-2 virus in India and isolation of different strains (with NIV, Pune).
- Validation and testing of a new portable device and method for the detection of COVID-19 infection as a low-cost alternative to the RT-PCR test (with IIT-KGP).
- Development of CRISPR based diagnosis of COVID-19 using paper microfluidics (with IIT-Guwahati).
- Prophylactic and therapeutic effect of BCG on SARS-CoV-2 infected hamster model to understand the efficacy of BCG against COVID-19 infection (with NIV, Pune).

AWARENESS CAMPAIGNS

- The Director and other scientists from ICMR-NICED participated as resource persons in COVID-19 related various social awareness programmes in educational institutes, local communities, print media, TV shows and seminars/webinars.
- Vaccination of all staff were done on priority including the third precautionary dose.
- All the staff of the Institute were made aware of the principles of social distancing, wearing mask and hand hygiene through programmes, pamphlets, banners and notices.

THE WARRIORS BEHIND



Winner of SKOCH Gold award 2021 under Excellence in Health



The COVID-19 Testing Team