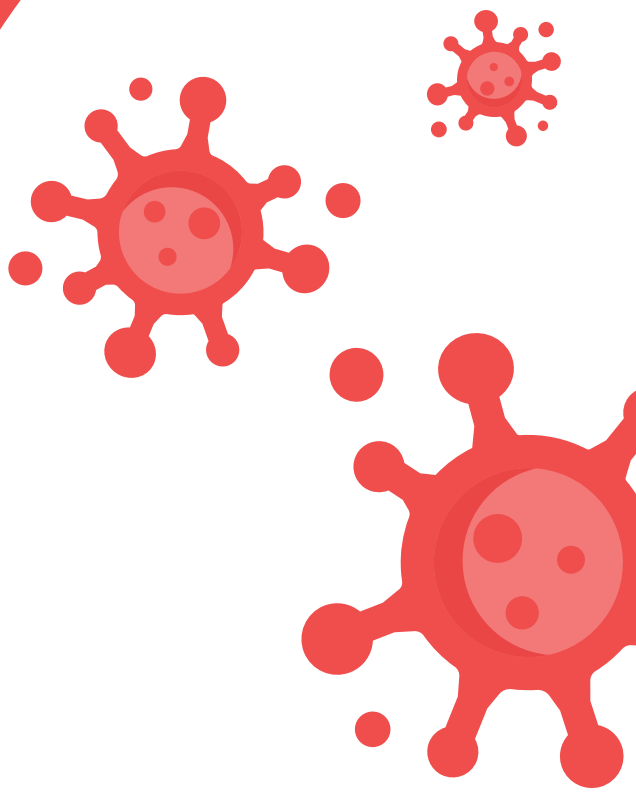
India fights COVID-19

PATH's multi-pronged approach in India to support efforts to control COVID-19



PATH

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COVID-19 demonstrates the world's vulnerability to infectious disease outbreaks and highlights the importance of preparedness. The COVID-19 pandemic is already devastating communities, threatening economies, and diminishing quality of life for people around the world. We have an obligation to respond to COVID-19 and to continue strengthening health systems to prevent future epidemics.

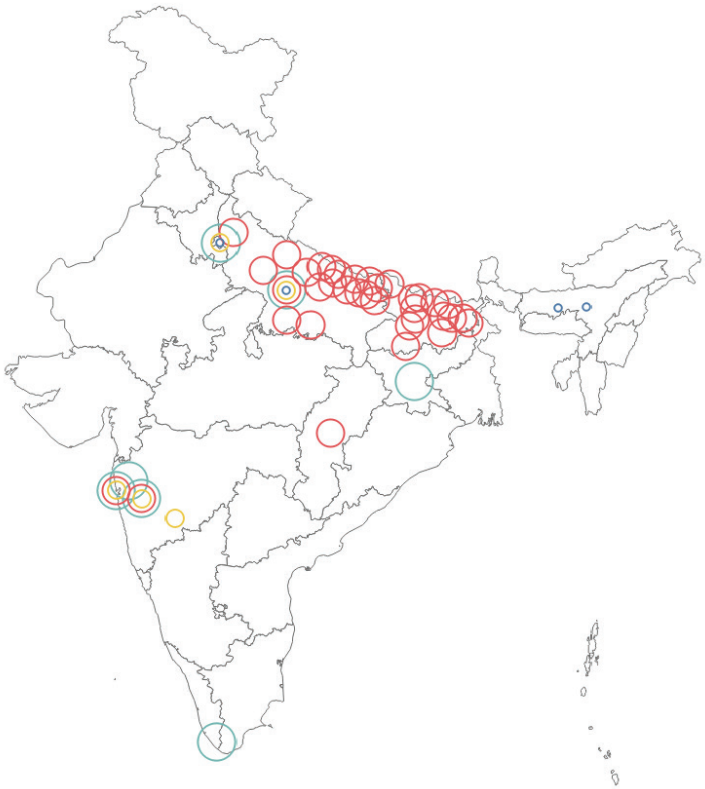
As COVID-19 spreads around the world, we are working to lessen its impact. Our experts are partnering with governments to establish emergency operating centers, to advise on testing, treating, and managing the outbreak, and to stand up digital and data systems that support real-time disease surveillance.

PATH is already at work in more than 30 countries, advising on global health security and strengthening the health systems we count on to identify, track, and respond to outbreaks. We do this by developing disease-agnostic systems that enable digital tools, data infrastructure, and community-based measures to strengthen public health surveillance and response systems, as well as diagnostic and laboratory capabilities at local, district, and national levels.

In India, PATH is working with state governments, innovators and partners to deploy testing, surveillance, mitigation strategies, and to strengthen health systems.

To fight any pandemic, the foremost step is to ensure that effective health systems are in place. PATH is partnering with governments, innovators and peers across the country to plug the gaps in health systems and provide support to develop and strengthen systems that are preventing, identifying, tracking, and responding to the COVID-19 outbreak. This includes policy, preparedness, information, education and communications support, capacity-building and strengthening, digital and data strategies, accelerating innovations and collaboration with partners.

PATH's support in India for COVID-19 control efforts: Broad areas of work



- Capacity building of healthcare staff
- Community engagement
- Digital data management and analysis
- Health systems strenghthening

Providing strategic support and epidemic preparedness

We are supporting government, policy makers, officials, healthcare workers in preparing response plans and establishing governance, strategies, policies, and road maps.

In the state of Uttar Pradesh and Bihar, PATH participates in various government and health partner meetings, providing key insights to the government strategy for addressing COVID-19.

We are providing vital inputs to the government of the state of Chhattisgarh in preparation and implementation of technical and operational guidelines for management of COVID-19. We are also supporting the state in drafting guidelines for refurbishment of infrastructure to build hospitals and wards for COVID-19 containment

With hospitals expecting a surge in patients, PATH is engaging private doctors in Mumbai to map and augment the outpatient capacity of the city's general hospitals and peripheral health centers. We are involved in compiling and collating daily reports from 26 private hospitals on occupancy and patient status to help the government get an accurate picture of hospital bed availability and use the information to save as many lives as possible.

In Maharashtra and Karnataka, staff members from our supply chain team are supporting the Directorate of Health and Family Welfare in their statewide activities towards containing COVID-19. This includes planning on hospital preparedness, demand estimation of COVID-19 essential drugs and equipment, coordination and knowledge sharing support on viral transport medium and engaging with suppliers for personal protective equipment, and support in formulation of guidance on maternal and family planning services during COVID-19 along with support on organizing webinars for maternal and family welfare services at high cases load facilities. The teams are also supporting the state COVID response control rooms in date- and district-wise analysis of case trends for planning interventions, estimation of oxygen demand of the state for the next three months and partner coordination.

Our data collectors in Uttar Pradesh have been oriented on a gap assessment tool that will soon be undertaken in 13 facilities of 18 districts. The tool will help to inform the oxygen need of a facility when COVID-19 is at its peak, available capacity within the facility and the gap that needs to be plugged. PATH's team in UP is currently working to get all the necessary approvals from the government so that the data collection can begin. The work includes undertaking facility assessments, production and capacity assessment and supplier landscaping and outreach.

Bihar Medical Service Corporation Ltd was facing issues with collection of drug samples by postal department due to COVID-19. Through interventions by our supply chain team that has strong engagement with the national office of postal department, the collection services have been resumed by the Bihar postal department.

We are providing consultation to the government of Kerala and assisting them in undertaking a modelling study to understand the incidence of COVID-19 based on the baseline to predict cases in future and plan better

The power of targeted communication

Information, Education and Communications (IEC) plays an important role in creating awareness and containing the spread of a new disease. This is especially true in instances of pandemics like COVID-19, where a cure is yet to be developed and behavioral change becomes critical to prevent the spread of the disease. PATH is assisting governments across the country to deploy a well-planned IEC strategy to create necessary conditions to bring about favorable behavioral changes.

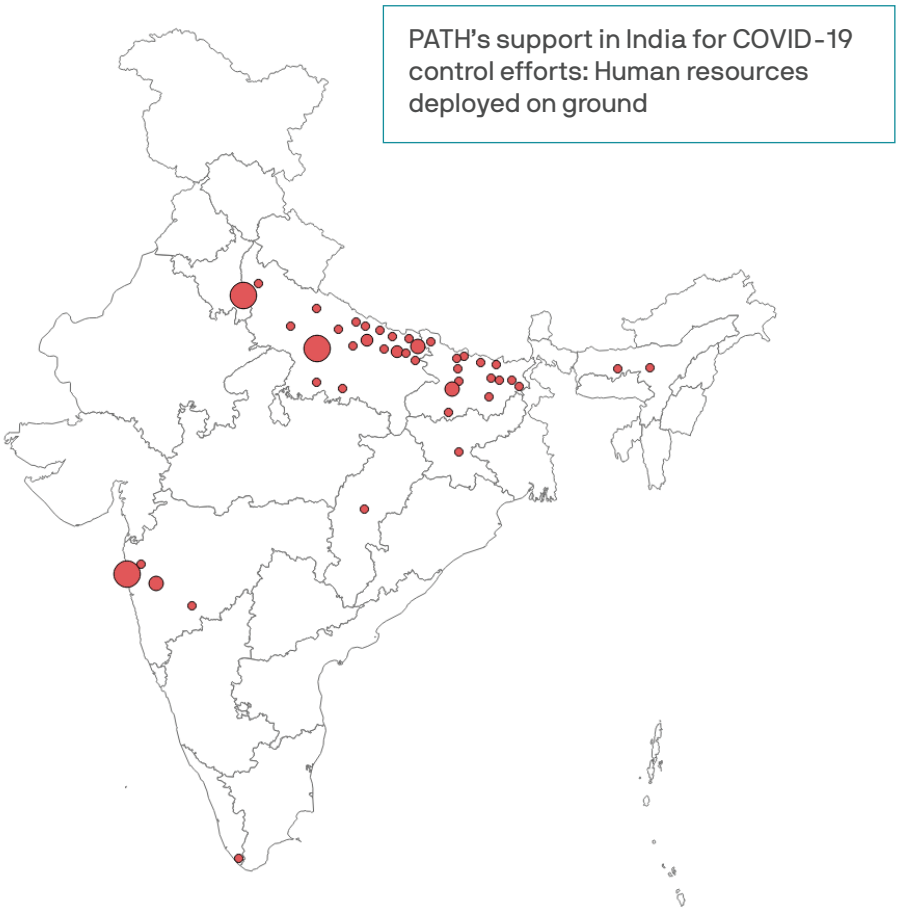
Leveraging our existing work, we are providing the Municipal Corporation of Greater Mumbai and the Maharashtra state government with technical support to develop and disseminate key educational materials on COVID-19 to all private doctors, clinics, and hospitals in the areas where we operate. At the same time, our 25 treatment coordinators and 48 hub agents are creating awareness on COVID-19 among all the TB patients registered under our project. More than 700 TB patients have received telephonic counselling from our staff till date.

We are supporting the governments of Jammu and Kashmir and Uttarakhand in creating awareness on COVID-19, sharing regular updates with the general public and guiding them on various aspects pertaining to COVID-19 as well as tuberculosis. We are helping to ensure that treatment of TB patients continues during the crisis. We are counselling and helping distressed TB patients and connecting them with private practitioners and District TB Center (DTC) staff so that they don't miss out on their medicines. Patients who need Universal Drug Susceptibility Testing or ATT medicines (4-drug TB regimen) are referred to the DTC. We are also coordinating with private practitioners and coordinators in hospitals to ensure timely notifications on NIKSHAY so that TB notifications from the private sector won't get affected. We are also disseminating relevant information in WhatsApp district groups through infographics in Hindi and English.

In the state of Uttar Pradesh, we are supporting the Director of Communicable and Vector Borne Diseases Division, Directorate of Health Services in sensitizing the community and spreading awareness on COVID-19. Our field teams are supporting the government in tele-counselling of local communities. We reached out to 16,494 citizens and the work continues. We are leading on sensitization of community by eliminating myths and misconceptions, supporting with linkages of symptomatic cases, ensuring adherence to social distancing behaviours, and creating awareness about prevention, hygiene, social distancing, isolation and combating stigma.

Stronger capacity for stronger response

Better pandemic response requires working with communities and individuals to deliver services driven by local needs and preferences. We are helping the government strengthen health systems, information systems, clinics, and the well-trained staff they need to prevent, detect, and stop disease outbreaks. To meet the urgent need for personnel, we are also filling crucial human resource gaps.



PATH's support in India for COVID-19 control efforts: Human resources deployed on ground

States	
Assam	2
Bihar	16
Chattisgarh	16
Delhi	16
Jharkhand	1
Kerala	1
Maharashtra	55
Uttar Pradesh	55
Total	279

In Mumbai, our teams were deputed in the Kasturba Hospital epidemiology department, Seven Hill Hospital and at the airport cell in Mumbai to help in digitizing data entry and provide counselling support. We have supported the set-up of a virtual call centre using our existing team from hypertension and TB projects and provided volunteers to conduct calls, undertake community counselling, counsel travelers and facilitate data entry of detected patients and their contacts.

We have facilitated training of a team of doctors in Saint George Hospital for setting up a virtual call centre to enable contact tracing of high and low risk people and follow up with people who are put on home quarantine. We have developed a management information system to aid with the same.

One of our digital partners created a single point tool using Google forms to enable efficient data entry for both public and private sector hospitals. We are working on driving the process in all the private sector hospitals in Mumbai. Training was provided to 18 private hospitals and was also rolled out to public sector hospitals over a video call. A team of 7 people is involved in coordinating with hospitals and a COVID-19 core team. The Municipal Corporation of Greater Mumbai (MCGM) has also requested our support in contact tracing for COVID-19 positive patients in the city. Calls will be made to trace these positive contacts for index cases and I2 case listing. New staff are being recruited to provide interim support to MCGM

Need for pregnancy care, lactation practices and newborn nutrition and care came up during needs assessment and discussion with King George Medical University, Lucknow. To address their concerns, we conducted online video trainings for CLMC and NICU staff from KGMU and QMH-Lucknow focusing on pregnancy, lactation practices, newborn nutrition and care, prevention and protective measures to be taken during the COVID-19 pandemic and lockdown. The training was attended by 22 participants that included neonatologists, pediatricians, nurses and lactation counselors. A similar session is being planned for health facilities in the cities of Bhopal, Indore and the state of Rajasthan.

In Assam, our staff members are engaged in supporting and ensuring follow up with TB patients and sensitizing them on various aspects of COVID-19 and how to take care of themselves during this crisis. In the state, we are conducting training of all our staff to impart them with knowledge on COVID-19 and enhance their calling and soft-skills. We are targeting 10,000 calls every week for the follow up of TB patients (private and public) in the state.

The government of Bihar undertook a house to house survey in all districts to ascertain the travel history of people having symptoms of COVID-19 and take further action for isolation, quarantine and treatment as needed. The activities started from 16 April and continued for 8 days. Our project team supported the government of Bihar in these critical activities. Our project's field staff supervised and monitored the house to house activities in their respective districts in coordination with the district health officials.

Our state lead is on special duty for COVID-19 as a part of the surveillance team of the State Health department in Jharkhand.

Targeted response through digital and data

Armed with real-time data, decision-makers can develop a targeted response and therefore slow the spread of a virus like COVID-19. PATH is working alongside governments and partners to share, analyze, and leverage reliable data using our expertise that spans health systems, emergency operating systems and clinics.

We are supporting the government of Uttar Pradesh with data management at the Data Analysis Unit of the state's Integrated Disease Surveillance Program cell to manage and upload voluminous travel and case tracking data in India's National Centre of Disease Control portal. A dedicated human resource from the project team, Mr. Jyoti Prakash Das, has been embedded in this center who coordinates and provides oversight and analysis on the data compilation to the team of data entry operators. Uttar Pradesh state government nominated Jyoti as a 'COVID WARRIOR' for Uttar Pradesh! He has also been featured in various local media

We are supporting our partner MAMTA to engage with Department of Medical Education to develop an online dashboard for COVID-19 to link 51 different medical colleges in Uttar Pradesh for regular updates on availability, utilization, and requirements of logistics to strengthen facility preparedness. They also plan to help with the establishment of COVID-19 electronic surveillance registers across the medical colleges.

कोरोना के योद्धा

हम गर्व करेंगे कि सबने मिलकर मुकाबला किया

मैं पाथ संस्था में कार्यरत हूं और इस वैश्विक महामारी से जुड़ी उत्तर प्रदेश डेटा सहायक टीम का लखनऊ में सहयोग कर रहा हूं। मैं एक महीने से देश के सभी अंतरराष्ट्रीय हवाई अड्डों से यूपी आए यात्रियों का डेटा जुटाकर उसे जिलों से साझा करता हूं, ताकि उनकी निगरानी की जा सके। इसके अलावा भारत सरकार के पोर्टल पर अपलोड संक्रमितों के डेटा की मॉनिटरिंग भी करता हूं। हालांकि, संक्रमितों और संदिग्धों का डेटा लगातार बढ़ने से यह काम जटिल होता जा रहा है। इसके बावजूद पूरा डेटा व्यवस्थित कर सभी जिलों से साझा किया जाता है। किसी-किसी दिन तो 18 से 20 घंटे काम करना पड़ता है। अक्सर नींद भी पूरी नहीं होती, लेकिन अपने काम से मुझे बहुत खुशी मिलती है। मुझे विश्वास है कि एक दिन कोविड-19 पर जीत हासिल करने के बाद हम गर्व करेंगे कि हमने इस जंग को एक साथ मुकाबला कर विजय प्राप्त की।

ज्योति प्रकाश दास
सदस्य, कोविड-19 डेटा सहायक टीम, यूपी

In Bihar, our data team and coordinators from the immunization program have been deputed to support the state. They are helping with data management pertaining to traveler verification and contact tracing data from all districts and involved in cleaning that data, compiling it and preparing a summary report, which is submitted to the State Health Department. The report, prepared twice daily, is a live status of traveler verification details along with screening and sample collection status. We are also supporting the government of Bihar in collating and analyzing all block-wise, district wise COVID-19 related data in a master sheet and preparing a consolidated summary of daily activities of 38 districts and submitting it to the State Nodal Officer every day. In addition, two coordinators and a data entry operator of PATH are supporting COVID-19 related activities in the state control room.

Our M&E officer in Bihar, Mr. Sanjeev Das has been assigned to design and develop a system for managing the state's voluminous travel related data across 38 districts of the state. His critical data management support to the state data team in their COVID-19 response activities has been deeply appreciated by the state government. His efforts have led to efficient management of high-volume data and its collation and assimilation to enable timely action.

In Mumbai, we are working with a team in a fellowship program from the Chief Minister's office and Municipal Commissioner to provide support to the Municipal Corporation of Greater Mumbai in coordinating and streamlining daily line listing reporting and other data collection as needed in both private and public sector hospitals where COVID-19 patients are being treated. We have rolled out a new excel based management information system developed by Microsoft for easy and accurate data collection and are facilitating the training of hospital staff to use the same.

We are also supporting the National Urban Health Mission (NHUM) with data management. We are coordinating with hospitals to get data of COVID-19 positive patients. We are enabling contact tracing and collecting all relevant data to enter into the NHUM portal. We are also coordinating with hospitals to get logistics and infrastructure details along with images of hospitals as specified for NUHM records

Retooling and accelerating innovations

Innovations are vital to improve the quality and continuity of health systems. PATH is working with innovators to develop strong and responsible innovations. We are also supporting innovators in distilling cutting-edge innovations to their essence and then quickly retool and deploy them towards COVID-19.

Qure.ai: We are supporting Qure.ai to enable deployment of innovations like qXR and qScout in public health settings in India to aid in pandemic mitigation efforts. qXR, which is already deployed in TB diagnosis can now detect findings such as ground glass opacities and consolidation indicative of COVID-19 in about a minute. On the other hand, qScout is an AI powered pandemic response app to assist care teams in contact tracing, patient triage, daily remote monitoring and incidence geo-mapping. We are in discussion with the governments in Maharashtra and Kerala to adopt qXR and qScout to enable faster diagnosis, efficient data and contact management.

MolBio: Our partner MolBio got an approval for COVID-19 assay. PATH provided support to scale the testing kits and undertook a mapping of COVID-19 testing capacity of private labs in Maharashtra so that they are prepared to roll this out as soon as possible.

Wadhwani AI: They have developed a cough-based AI driven symptom recognition tool to screen cough related to COVID. PATH has been providing technical assistance by identifying and facilitating discussions with private labs in Mumbai where they can test the prototype.

MiBiome: We have proposed (miBiome) virome sequencing of high-risk carriers with respiratory symptoms at port of entry for international travelers and domestic transit points (airports, railway stations, bus stations); and high congregated settings such as malls, markets, hospitals, schools, offices, theatres etc. This will help in identification and isolation of carrier to arrest spread of the disease as well as to understand the trend and virulence pattern of the virus genotypes.

KardioScreen: iMedrix released KardioScreen- a contactless 'distance-ECG' that can help caregivers in quarantine facilities, clinics, and homes to monitor cardiac function without getting exposed. CHRI and iMedrix jointly submitted a proposal for Quest 2020, a quest for disruptive innovations to combat TB and other respiratory and airborne infections in India.

Lumify: Philips has developed a portable hand-held ultrasound machine to ease diagnosis for TB and other respiratory infections in India including COVID-19. CHRI submitted another proposal for Quest 2020 with Philips to combat TB and other respiratory and airborne infections in India.

Innerhour: During this crucial time, it is important to take care of the mental health of the health care providers. We are working with Innerhour in this space. Inner Hour has developed an app and have finished preparing a module exclusively for healthcare providers consisting of assessments, self-exercises, community groups- through chat box features and access to therapist if required as a higher-level session. PATH is in discussion with them to undertake a quick survey in Maharashtra to find out what the need is and also get the funding to support them and ensure that the course is made free for healthcare providers.

Building up partnerships and collaborations

PATH is securing the support of partners, influencers, peers and other organizations to commit the necessary resources and bring health solutions for COVID-19 to scale. We are engaging with other organizations to bear our collective expertise to contribute to better access, use, and quality of health services for those who need them most.

C-CAMP: C-CAMP launched a COVID-19 Innovations Deployment Accelerator or C-CIDA on 26th March, 2020 to help accelerate COVID-19 innovations stuck in last-mile issues. The initiative by C-CAMP has now been joined by multiple partners like UNHIE, Social Alpha, XYNTEO India2022, MedTechConnect, India Health Fund, AIC CCMB, CCMB and PATH. The innovations are near deployment ready with a potential for high impact in combating the COVID- 19 pandemic.

CCIDA Innovations

CCAMP COVID-19 Innovations Deployment Accelerator

Screening		
Docturnal	Docturnal	Cough sound-based screening for COVID-19
SALCIT	Salicit	Swaasa - a platform for respiratory health checkup
	Predible Health*	LunglQ - Lung CT Scan interpretation with deep learning tech
	Alkenist	Quick - Smart AI based analysis of X ray and CT Scans
Diagnostics		
CO-DIAGNOSTICS INC.	Cosara Diagnostics	Logix Smart™ - Qualitative rt pcr
HUWEL LIFESCIENCES PVT. LTD	Huwel Lifesciences*	Quantiplus - Chip-based real time RT PCR kit with room temperature stable molecular reagents
AmpliGene Diagnostics Private Limited	Ampligene Diagnostics*	AmpEZ - Rapid, sensitive, and battery - operated Real time COVID-19 test
DNA XPERTS	DNA Xperts	Covido - Fast, real-time PCR kit for Cov-2 RNA detection
Treatment & supportive care		
Coéo Labs	Coéo Labs	Saana-CPAP device
Avyantra	Avyantra Health*	Platform technology for cpag, apap and bipap
biodesign innovation labs	Biodesign Innovation Labs	Respiraid-portable emergency & transport ventilation system
AEROBIOSYS INNOVATIONS PVT. LTD	Aerrobiosys Innovations*	Jeevan lite - Low-cost portable ventilator
Ubiqare Health	Ubiqare Health*	Telemedicine solution
Air, water & surface sanitization		
Leaf Box	Leafbox Technologies	UVC based air purifier
Biomoneta	Biomoneta	Zebox - Standalone plug & play decontamination
	Clensta Technologies*	Zero-water personal hygiene solutions
KERASIEV™	Need Innovation	Kerasie - Ceramic membrane-based wastewater filtrator
RR ANIMAL HEALTH CARE LTD.	RR Animal Healthcare	Surface sanitization solutions

*Most promising innovations

CCIDA Innovations

CCAMP COVID-19 Innovations Deployment Accelerator

Cold Chain		
	Blackfrog Technologies*	Maintains present temperature for upto 12hrs in the field
	Tessol	Vehicle independent and flexible solutions for last mile distribution
	Plus Advanced Technologies*	Celsure - Shipping containers maintain temperature between 2 to 8 degrees C for upto 120 hours

Preventative		
	Omicsgen	Smartlyse - Antimicrobial smart wipes
	OMG Innovations	Whiff Biospray - Herbal, antimicrobial and antiviral spray for sanitization
	Anabio Techologies	Viroblock NRJ03 -Fabric additive with antimicrobial properties

Therapeutics		
	Innaumation	Convalescent Plasma Therapy
	Stepeutics	Stempeucel - Mesenchymal Stem cell therapy

Screening platform for anti-COVID Drugs		
	Eyestern Research	Maintains present temperature for upto 12hrs in the field

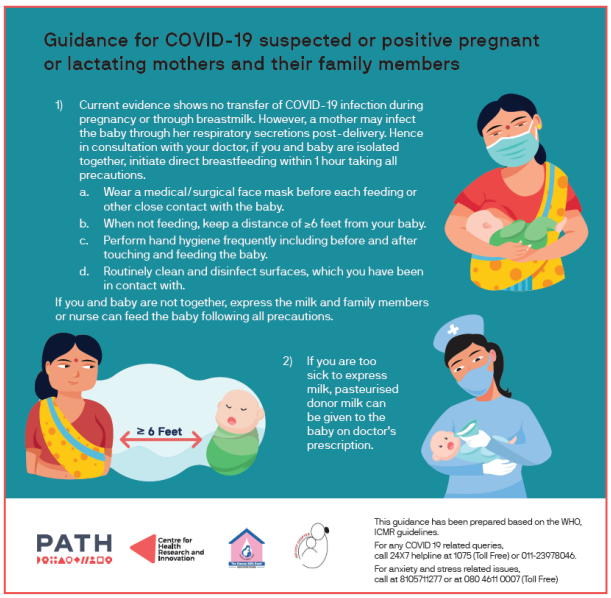
Vital parameter monitoring		
	MedloTek Health Systems*	Vincense - Wearable device connected with a mobile app and web interface
	Nemocare	Wearable device for monitoring vital parameters in neonates
	Dozee	Sensor sheet to be placed under the sleeping mattress
	Cardiac Design Lab	Telemetric system for cardiac montioring

*Most promising innovations

If you are interested in using or adapting any of the innovations, please reach out to Priyanka Bajaj at pbajaj@path.org

Human Milk Bank Association of India and Infant and Young Child Feeding chapter of Indian Academy of Paediatrics: The COVID-19 pandemic is presenting several challenges to Human Milk Banks (HMB) worldwide and highlights a range of vulnerabilities in service provision. For the first time, the global HMB community came together to share learnings, collaborate, and plan. We have started to form a Virtual Communication Network (VCN) of milk bank leaders globally. Through this VCN channel, members from over 30 countries have discussed COVID-19-specific challenges and developed mitigation strategies to ensure Donor Human Milk safety.

We have helped to get in milk bank leaders from India into the group including representatives from Ministry of Health and Family Welfare. This group has also come up with an article titled 'Maintaining safety and service provision in human milk banking: a call to action in response to the COVID-19 pandemic'. We compiled and estimated data from around 40 sites and provided inputs to the paper. This paper is now published in The Lancet. We have also developed guidance for health facilities on strengthening practices to ensure effective use of human milk during the COVID-19 outbreak.



Cepheid: Cepheid has leveraged the design principles of their current Xpert Xpress Flu/RSV cartridge technology and prepared a rapid molecular diagnostic test for qualitative detection of SARS-CoV-2, the virus causing COVID-19. The test has been designed to operate on any of Cepheid's more than 23,000 automated GeneXpert® Systems worldwide, with a detection time of approximately 45 minutes. They have secured FDA approval. PATH is a potential partner to Cepheid and will support them in bringing and rapidly scaling the test in health systems in India.

Wadhwani AI: Wadhwani is working in a consortium mode with a broad set of partners. This consortium includes partners pulling in data (Facebook, Jio etc) and models (Wadhwani AI, Stanford, Harvard, IDM) from various sources to provide actionable insights. These insights will be available through dashboards and reports (PwC, Quantela, CPC) with hands-on support embedded within states and central health agencies. PATH is a part of this consortium and is supporting Wadhwani in its efforts.

About PATH

PATH is a global organization that works to accelerate health equity by bringing together public institutions, businesses, social enterprises, and investors to solve the world's most pressing health challenges. With expertise in science, health, economics, technology, advocacy, and dozens of other specialties, PATH develops and scales solutions - including vaccines, drugs, devices, diagnostics, and innovative approaches to strengthening health systems worldwide.

Since 1978, PATH has been working with public and private partners in India to develop local solutions, support homegrown innovation, and share our technical expertise. PATH develops, introduces, and scales up cutting-edge technologies and methodologies to tackle existing diseases and emerging health concerns. A few of our many successes in India include finding new methods to deliver nutritious food to school children, creating and implementing successful public-private partnership models to combat diseases, and expanding access to lifesaving vaccines for new mothers and their infants.

For more:

www.path.org/india

india@path.org

PATHglobalhealth

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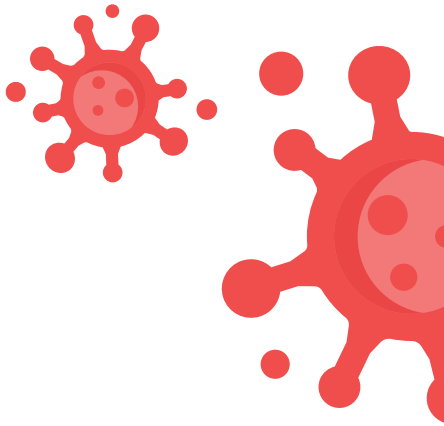

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