सत्यमेव जयते
NITI Aayog

MITIGATION AND MANAGEMENT OF COVID-19

PRACTICES FROM INDIA'S STATES & UNION TERRITORIES

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

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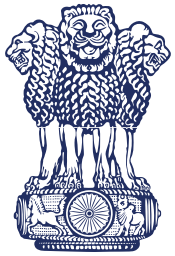
NOVEMBER, 2020



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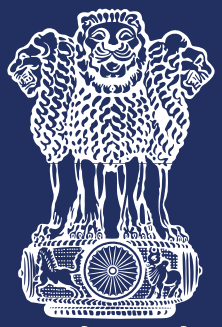
GOVERNMENT OF INDIA



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FOREWORD

Over the past several months, the world has been facing an unprecedented public health crisis in the form of COVID-19. India has adopted a proactive and graded response for fighting COVID which includes imposing a timely lockdown, gearing up the health system, boosting the production of necessary medical supplies as well as catalysing large-scale behaviour change by making citizens conscious about personal and public hygiene.

In the pre-covid era, India produced virtually no Personal Protective Equipment (PPE) kits domestically, however, we are now able to manufacture 450,000 PPE kits per day. Production of ventilators and N-95 masks has also been ramped up to an extent that India has not only become self-sufficient in this regard but can also export to other countries. In addition, around 92,000 civil society organizations have been mobilized to assist District Administrations across the country in the fight against COVID.

States and Union Territories have been equal partners of the Central Government in managing the COVID-19 outbreak in the country. Based on the broad protocols and guidelines put in place by the Centre, States and UTs have implemented several practices to enhance the effectiveness of COVID prevention and management initiatives in their local context.

For instance, Kerala prepared comprehensive route maps for contact tracing and Gujarat operationalized mobile vans for testing and providing essential health services to the doorsteps of people. Technology has been leveraged extensively by several States and UTs in the fight against COVID-19. In Tamil Nadu, a hospital developed a six-layered protection model based on Artificial Intelligence and Robotics for detecting COVID symptoms while in Jharkhand, 'Co-Bots' have been deployed for delivering food, water, and medicines to patients.

Aspirational Districts have also been at the forefront of innovation in these trying times. Wayanad, for instance, proactively trained its doctors, nurses, and other frontline workers in COVID management using virtual platforms while Washim established fever clinics for early detection of COVID. From Panchgani in Maharashtra which has taken to decentralized segregation for managing the increasing COVID waste to Nandyal Municipal Corporation in Andhra Pradesh which has arranged mobile handwashing facilities in slum areas, several practices have come to the fore from cities across the country as well.

Further, the efforts of States and UTs have been greatly amplified through partnerships with the private sector and civil society. A host of innovations have been driven by start-ups such as robots for sanitization of hospitals and public places as well as

applications for delivering telemedicine services. Civil society organizations too have worked closely with State Governments and District Administrations to set up control rooms for COVID, enable the delivery of door-to-door food supplies, and mobilize Self-Help Groups for making masks and sanitizers.

While there is much to be gained by learning from global practices for tackling COVID-19, it is equally important to take note of practices that are grounded in our realities. Instead of expecting every State to reinvent the wheel, dissemination of such practices allows them to learn from each other and help find solutions to common problems. Documentation of initiatives and practices implemented in various sectors and their subsequent sharing is a part of NITI Aayog's mandate and this publication is another step in that direction.

As we continue our fight against COVID-19 on a war footing, I take this opportunity to congratulate States and Union Territories across India for their initiatives in tackling this unprecedented crisis and appreciate the efforts of the Health Team at NITI Aayog. This compendium was authored by Ms. Urvashi Prasad, Public Policy Specialist with inputs from Ms. Aishwarya Choubey, Young Professional under the overall guidance of Dr. Vinod K. Paul, Member (Health) and Dr. Rakesh Sarwal, Additional Secretary. It was peer reviewed by Dr. K. Madan Gopal, Senior Consultant, NITI Aayog.

I hope readers will find this collection of practices to be a vital source of organic innovation which has been enabled by the tireless efforts of various unnamed health professionals, police personnel, district officials, sanitation workers, innovators, and members of the civil society, all of whom are COVID warriors and worthy of our collective appreciation.

AMITABH KANT
CEO, NITI Aayog

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INTRODUCTION

This compendium details 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.

An email was sent to all States and Union Territories (UTs) in July, 2020 requesting them to share any practices or models that they believe had been useful for COVID-19 mitigation and management. The email was followed up with phone calls to officials from the health departments in States and UTs. Ten States/UTs responded in writing to this request for information. Additional information was provided by States telephonically as well as during review meetings with Member (Health), NITI Aayog.

Literature searches were conducted using various combinations of keywords in PubMed, ScienceDirect, Google and Google Scholar. Relevant case studies and papers were also identified by searching the websites of State/UT Governments and the National Disaster Management Authority (NDMA). The last literature search was conducted on November 10, 2020.

Only case studies/reports/papers published in English between 1 February-10 November, 2020 were considered. While efforts have been made by all States and UTs to follow the broad guidelines issued by the Central Government pertaining to different aspects of COVID containment and management, this review captures the specific practices adopted by State and UT Governments to make the implementation of the Central Guidelines effective and relevant to their local context.

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 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 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.

– PUBLIC HEALTH AND CLINICAL RESPONSE –

Surveillance

GoI Guideline: Updated Containment Plan for Large Outbreaks Novel Coronavirus Disease 2019 - Chapter 7[i]

For active surveillance, residential areas will be divided into sectors for ASHAs/Anganwadi Workers/ANMs each covering 100 households (50 households in difficult areas). Additional workforce may be mobilized from neighbouring Districts (except buffer zones) to cover all households in the containment zone. Field workers will perform active house-to-house surveillance daily in the containment zone. They will line list the family members and those with symptoms. The patient will be isolated at home till such time he/she is examined by the supervisory officer. Field workers will also follow up with contacts identified by the Rapid Response Teams (RRTs) within the sector allocated to them. All Influenza Like Illness/Severe Acute Respiratory Illness (ILI/SARI) cases reported in the previous 14 days by the Integrated Disease Surveillance Programme (IDSP) in the containment zone will be tracked and reviewed to identify any missed cases of COVID in the community. Any case falling within the contours of the case definition will be conveyed to the supervisory officer who in turn will conduct a house visit, confirm that the diagnosis made is as per the case definition and also make arrangements to shift the suspect case to the designated treatment facility. The supervisory officer will collect data from health workers under him/her, and provide daily updates to the control room.

For passive surveillance, all health facilities in the containment zone will be listed during the mapping exercise. All such facilities, both in the Government and private sector, (including clinics) shall report clinically suspect cases of COVID on a real-time basis to the control room at the District level.

GoI Guideline: Integrated Disease Surveillance Programme[ii]

IDSP aims to strengthen/maintain a decentralized laboratory-based, IT-enabled disease surveillance system for epidemic-prone diseases to monitor disease trends as well as to detect and respond to outbreaks during the early phases through trained RRTs. Integration and decentralization of surveillance activities is carried out through the establishment of surveillance units at the Centre, State and District levels.

[i] Updated Containment Plan for Large Outbreaks Novel Coronavirus Disease 2019 (COVID-19) [Version 3 16th May 2020] Chapter 7. Ministry of Health & Family Welfare, Government of India. Retrieved October 21, 2020 from https://www.mohfw.gov.in/pdf/UpdatedContainmentPlanforLargeOutbreaksofCOVID19Version3.0.pdf.

[ii] Integrated Disease Surveillance Programme. National Centre for Disease Control, Directorate General of Health Services, Ministry of Health & Family Welfare, Government of India. Retrieved October 21, 2020 from https://idsp.nic.in/index4.php?lang=1&level=0&linkid=313&lid=1592.

State Surveillance Officers, District Surveillance Officers, RRTs and other Medical and Paramedical staff are trained on the principles of disease surveillance. The Training in IDSP is three-tiered - State and District Surveillance Officers and RRT members are trained at identified National Institutes; Medical Officers and District Lab Technicians are trained by Master Trainers at the State level; Health Workers and Lab Technician/Assistants at peripheral institutions are trained by District Surveillance Officers/Medical Officers at the District level.

Information Communication Technology is used for collection, collation, compilation, analysis and dissemination of data. Under IDSP, data is collected for epidemic-prone diseases on a weekly basis. The information is collected in three specified reporting formats, namely "S" (suspected cases), "P" (presumptive cases) and "L" (laboratory confirmed cases) filled by Health Workers, Clinicians and Laboratory Staff respectively. The weekly data gives information about disease trends and seasonality of diseases. Whenever there is a rising trend of illnesses in any area, it is investigated by the RRTs to diagnose and control the outbreak. Data analysis and actions are undertaken by the respective State/ District Surveillance Units.

ASSAM[1]

- The State carried out active surveillance under the "Assam Community Surveillance Plan (ACSP)" to look for SARI, ILI and fever cases covering all 28,000 villages/wards of Assam from 7 May, 2020. Through door-to-door visits, potential cases were listed for testing.
- The ACSP is implemented through the Health Sub Centres and the role of the ASHA is considered critical, as she is the one, who undertakes door-to-door visits for identification of potential cases. Once the ASHA completes the listing of all potential cases, the medical team, comprising of the Medical Officer (as the team leader), Auxiliary Nurse Midwife, Multi-Purpose Worker and lab technician visit the village for screening the listed potential cases. The team also informs the patient and his/her family members about COVID prevention and management.
- Suspected individuals are advised to be in strict home quarantine till the test report is made available. Help from community members is also sought in reaching out to every household so that no potential case is left untested.

BIHAR

- In April, 2020, door-to-door screening was organised in 4 districts of Bihar along the lines of the Pulse Polio Campaign for identification of individuals with COVID-like symptoms. Screening was conducted in a 3 km radius around locations where people had been found to be COVID positive. Special attention was paid to the health of senior citizens during the screening process. Workers who carried out the screening were provided requisite training and equipped with protective gear like gloves and masks.

JHARKHAND[2]

- An active household survey was undertaken for finding people with ILI/SARI as well as those above 40 years of age with comorbid health conditions. Pregnant women and children were also identified during this process for antenatal check-ups and immunization.

- An Intensive Public Health Survey (IPHS) Week was organized. Prior to the IPHS Week, “miking & wall writing” was done extensively to make the public aware about the survey. Community meetings were held at the village level and in cities.
- The survey involved Sahiyas, Anganwadi Workers and Community-Based Organizations. Data compiled by Block Development Managers and District Development Managers was shared at the State-level for policy formulation and action.

MAHARASHTRA

- Washim established fever clinics for early detection of COVID, with a special focus for senior citizens, pregnant women and patients with co-morbidities. This early action was critical in limiting the spread of the infection and keeping mortality rates low.

PUDUCHERRY[3]

- COVID surveillance is conducted by health workers going door-to-door as well as by doctors from private colleges, through screening booths.
- In addition to COVID relevant data, details of potential co-morbidities as well as immunization and antenatal history are also recorded during the surveillance process.
- Data of vehicles travelling into Puducherry are forwarded to all concerned institutions.
- Circulars have been issued to all pharmacists and single practitioners for sharing data about customers who are buying medicines for ILI and fever. Lists of such cases are forwarded to the respective PHCs.
- In order to check community transmission, samples for COVID testing are taken with the help of ENT specialists in designated PHCs which function as collection centres, while adjoining PHCs are instructed to send 10 cases each.

WEST BENGAL[4]

- The State launched a sentinel surveillance plan with sample testing from low-risk, non-SARI/ILI patients visiting District Health Centres as well as high-risk health workers.
- This exercise was undertaken with the intention of better understanding the infection trends in all parts of the State and ensuring the readiness of medical facilities.

Contact Tracing

GoI Guideline: Updated Containment Plan for Large Outbreaks Novel Coronavirus Disease 2019 - Chapter 7[iii]

The contacts of the laboratory confirmed case/suspect case of COVID-19 will be line listed, tracked and kept under surveillance at home for 28 days (by the designated field worker). The supervisory officer in whose jurisdiction, the laboratory confirmed case/suspect case falls shall inform the Control Room about all contacts and their residential addresses. The control room will in turn inform the supervisory officers of the concerned sectors for surveillance of the contacts. If the residential address of the contact is beyond the allotted sector, the district IDSP will inform the concerned supervisory officer/concerned District IDSP/ State IDSP.

Aarogya Setu enables early identification of potential risk of infection. District authorities may advise individuals to install the Aarogya Setu application on compatible mobile phones and regularly update their health status on the application.

KERALA[5]

- Kerala's contact tracing protocol is based on SARS-CoV and developed at the Government Medical College.
- Field teams, comprising of ASHA workers, junior public health nurses, medical officers and block-level officials are in place for finding primary and secondary contacts. These teams are responsible for assessing CCTV footage on the basis of approximate time frames as well as checking the records of various places an individual might have visited, including hotels, hospitals and homes of people.
- On the basis of details collected from patients as well as their primary contacts, route maps are prepared. Such graphic representations have proved to be especially effective as they help with the identification of primary or secondary contacts who might have been missed by field teams. Once information about location and timing is shared, several people come forward on their own to get their health status evaluated.
- In-depth interviews of patients are crucial for identifying the places a person visited and the people they interacted with. In case patients are under intensive care and unable to engage with authorities, contact tracing and preparation of route maps is done with the assistance of primary and secondary contacts.

MADHYA PRADESH[5]

- The RRT lists contacts of suspects/laboratory confirmed cases in the contact tracing form. A health worker follows-up with high-risk contacts for a period of 14 days. The District Surveillance Officer in collaboration with the RRT maps the contacts to determine the potential spread of the disease.
- If the residential address of the contact is outside the District, the District IDSP official informs the concerned District IDSP/State IDSP.

[iii] Updated Containment Plan for Large Outbreaks Novel Coronavirus Disease 2019 (COVID-19) [Version 3 16th May 2020] Chapter 7. Ministry of Health & Family Welfare, Government of India. Retrieved October 21, 2020 from https://www.mohfw.gov.in/pdf/UpdatedContainmentPlanforLargeOutbreaksofCOVID19Version3.0.pdf.

- The supervisory officer, within whose jurisdiction the laboratory confirmed case/suspect case falls, informs the Control Room about all the contacts and their residential addresses. The Control Room in turn informs the supervisory officers for carrying out surveillance of the contacts.

Containment Zone/Cluster Management

GoI Guideline: Updated Containment Plan for Large Outbreaks Novel Coronavirus Disease 2019 - Chapter 2[iv]

When "only travel related cases were reported from India" the recommended strategic approach included the following elements (i) Inter-ministerial coordination (Group of Ministers, Committee of Secretaries) and Centre-State Coordination. (ii) Early detection through Point of Entry (PoE) screening of passengers coming from affected countries through 30 designated airports, 12 major ports, 65 minor ports and 8 land crossings. (iii) Surveillance and contact tracing through IDSP for tracking travellers in the community who have travelled from affected countries and to detect clustering, if any, of acute respiratory illness. (iv) Early diagnosis through a laboratory network of Indian Council of Medical Research (ICMR) for testing samples of suspect cases. (v) Maintain buffer stock of Personal Protective Equipment (PPE). (vi) Risk communication for creating awareness among the public to follow preventive public health measures.

For local transmission of COVID, in addition to the measures listed above, cluster containment strategy is recommended with active surveillance in containment zones; contact tracing within and outside the containment zone; expanding laboratory capacity for testing all suspect samples, close contacts; establishing surge capacities for isolating all suspect/confirmed cases for clinical management; implementing social distancing measures as well as undertaking intensive risk communication.

For large outbreaks amenable to containment, the recommended strategy remains the same as explained above but varies in extent depending upon the spread and response to be mounted. Geographic quarantine and containment strategy in such a scenario entails defining a large area of operation and applying strict perimeter control; active search of cases; early isolation; contact listing and tracking, quarantine and follow up of contacts; testing all suspect cases, symptomatic contacts, asymptomatic direct and high-risk contacts of a confirmed case and ILI/SARI cases as well as clinical management based on risk profile. It is recommended that States deploy RRTs at the State and District levels to undertake mapping of cases and contacts so as to delineate containment and buffer zones.

MADHYA PRADESH[5]

- The Government is leveraging the network of private practitioners in the State to increase the presence of fever clinics in densely populated areas for early identification of COVID symptoms, augmentation of sampling as well as streamlining the referral system for minimizing deaths. At least 1,000 such fever clinics have been planned in both rural and urban areas to act as the first point-of-care for potential COVID cases.
- Patients can directly approach these clinics, without waiting for a referral from a health worker monitoring the area. The model also leverages technology wherein private practitioners across cities can refer individuals with COVID-like symptoms to a fever clinic.

[iv] Updated Containment Plan for Large Outbreaks Novel Coronavirus Disease 2019 (COVID-19) [Version 3 16th May 2020] Chapter 2. Ministry of Health & Family Welfare, Government of India. Retrieved October 21, 2020 from https://www.mohfw.gov.in/pdf/UpdatedContainmentPlanforLargeOutbreaksofCOVID19Version3.0.pdf.

- It has been envisaged that in a hotspot, at least one clinic will function out of a Government hospital, dispensary or Primary Health Centre (PHC) for 50,000 people in urban areas and one block in rural areas. In non-hotspot areas, one urban clinic will cater to 100,000 people, while a rural clinic will serve one block.
- Upon arrival in the clinic, patients will be prioritized based on illnesses needing urgent attention. Samples of individuals with COVID-like symptoms will be collected, followed by referral to a COVID Centre. Patients with other conditions will be prevented from getting exposed to those with COVID-like symptoms.
- This is a holistic approach as the fever clinic will not only serve as a treatment facility but also a sampling unit in some cases and a drug distribution centre. For non-COVID conditions, the outpatient department at hospitals which host these clinics will remain functional, as will PHCs.

MAHARASHTRA (Brihanmumbai Municipal Corporation Action Plan)

- The strategy that helped contain the COVID outbreak in Worli and Dharavi helped to shape the BMC's Rapid Action Plan as part of which 50 mobile fever clinics in ambulances were pressed into action.
- The mobile clinics carried out door-to-door screening of residents through a team of doctors who checked for fever and other symptoms, monitored co-morbidities, and collected swabs for suspected cases.
- Door-to-door surveys were conducted for a minimum of 10,000 houses per ward. As part of the Rapid Action Plan, while 47,500 people were assessed by doctors and private clinics through door-to-door screening, approximately 14,970 people were screened through mobile vans. Another 4,76,775 individuals were surveyed by BMC health workers. Community volunteers, each of whom screened around 100 houses, was equipped with a pulse oximeter and thermal scanner.
- For the purpose of screening high-risk individuals like senior citizens, fever clinics were established. As part of the policy of 'Timely Separation', senior citizens were separated from the rest of the community to minimize disease transmission. Suspected cases were shifted to COVID Care Centres and Quarantine Centres.
- Similar to Dharavi, public-private partnerships with civil society organizations have been established in the suburbs as well. BMC has tied up with local doctors, Bharatiya Jain Sanghatana and Desh Apnaye Foundation, among others who are providing support in the form of mobile vans, medicines etc. while isolation, testing and quarantine facilities are looked after by BMC.

PUNJAB

- Punjab has adopted the practice of clearly delineating containment zones (one street/two adjoining streets or entire village/mohalla/residential society depending on the distribution of COVID cases in the area).
- Line-listing is carried out for vulnerable population groups in containment zones such as the elderly and those with conditions like hypertension, diabetes, renal disease etc. Individuals identified through the line-listing process are offered an institutional quarantine facility (hotel, lodge etc.) outside the containment zone, till such time that their area is delisted. A caregiver can accompany them during their stay at the Quarantine Centre. People in quarantine facilities are also supervised by a medical officer twice a day.
- Door-to-door surveys are conducted by ASHA workers/community volunteers in containment zones for identifying people with COVID like symptoms or comorbidities and ensuring timely testing. The process is enabled by the "Ghar Ghar Nigrani" mobile-based application. Data generated through these surveys is utilized for risk-mapping and facilitating targeted interventions.

RAJASTHAN (Bhilwara Model)[6]

- A curfew was imposed on 20 March, 2020 with sealing of entry points across the District. Containment zones were created around hotspots and movement was restricted within these zones. Daily disinfection and sanitization activities were carried out in containment zones.
- Mass screening of individuals for ILI/SARI symptoms was conducted and efforts were made to cover every person in the District.
- Hotels in the District were repurposed as Quarantine Centres for isolation of potential and asymptomatic COVID cases. “Corona fighters” were appointed in various neighbourhoods across the District to monitor the movements of people in home quarantine.
- Teams of Government personnel fanned out across the District to manage the supply and distribution of food and medicines to residents during the lockdown period.

UTTAR PRADESH (Agra Model)[7]

- A ‘Containment and Rapid Emergency Response System’ was devised, the initial step of which involved tracing the infection epicentre or hotspot. Health workers traced the first individual who tested positive for COVID in Agra and subsequently mapped out his entire travel history. Every individual who had come in contact with the first COVID positive case in the District was quarantined.
- The Integrated Control and Command Centre (ICCC) of Agra Smart City, established as part of the Smart City Mission was converted into a COVID war room.
- The Agra Police constituted teams of officials to prepare for the cluster lockdown. The local administration demarcated a 3 km area around the hotspot following which the population in the area was screened through door-to-door visits conducted by community health workers. The entire process was monitored by the District Magistrate and other senior officials who also worked on the identification of additional clusters.
- Treatment facilities for symptomatic COVID cases were designated and readied in collaboration with the private sector. A large number of paid institutional Quarantine Centres were developed in the public-private partnership mode, in addition to free-of-cost institutional Quarantine Centres.
- During the lockdown period, the District Administration put in place a doorstep distribution chain to ensure that people living in hotspot areas do not face any scarcity of essential items. Local food and medicine suppliers were identified and shopkeepers were issued an e-pass. E-commerce firms were tasked with ensuring regular food supply for homeless people living in shelter homes within containment zones.

Testing

GoI Guideline: Updated Containment Plan for Large Outbreaks Novel Coronavirus Disease 2019 - Chapter 8[v]

For routine surveillance in containment zones and screening at points of entry, a Rapid Antigen Test, RT-PCR, TruNat or CBNAAT test (in order of priority) may be conducted for all symptomatic cases including health care workers and frontline workers; all asymptomatic direct and high-risk contacts of a laboratory confirmed case as well as all asymptomatic high-risk individuals in containment zones.

For routine surveillance in non-containment areas, an RT-PCR, TruNat, CBNAAT or Rapid Antigen Test (in order of priority) may be conducted for all symptomatic individuals with a history of international travel in the last 14 days; all symptomatic contacts of a laboratory confirmed case; all symptomatic frontline workers involved in containment and mitigation activities as well as all symptomatic cases among returnees and migrants.

In hospital settings, an RT-PCR, TruNat, CBNAAT or Rapid Antigen Test (in order of priority) may be conducted for all symptomatic patients (ILI/SARI), asymptomatic high-risk patients who are hospitalized or seeking immediate hospitalization, all pregnant women in/near labor who are hospitalized for delivery and all symptomatic neonates presenting with acute respiratory/sepsis like illness. A provision for testing on demand has also been introduced with State Governments responsible for deciding simplified modalities.

GOA[5]

- Goa was one of the first States to put in place random testing protocols to check people entering the State for potential COVID related symptoms. Testing kiosks were set up in various places across the State, especially at the borders and on industrial estates.

GUJARAT[8]

- A specialist was deployed for training laboratory personnel on identification of the virus. An orientation programme was also launched for patients to gain a better understanding of the virus and its effects on the human body.
- Ahmedabad Municipal Corporation deployed mobile testing vans across all zones in the city.

JHARKHAND[9]

- TruNat machines have been installed in Community Health Centres.
- The confirmatory assay for the TruNat test has been provided to all Districts in the State, making them self-sufficient for detecting COVID positives. This has facilitated local testing and made it easier to deal with quick testing requirements such as for pregnant women and emergency cases.

[v] Updated Containment Plan for Large Outbreaks Novel Coronavirus Disease 2019 (COVID-19) [Version 3 16th May 2020] Chapter 8. Ministry of Health & Family Welfare, Government of India. Retrieved October 21, 2020 from https://www.mohfw.gov.in/pdf/UpdatedContainmentPlanforLargeOutbreaksofCOVID19Version3.0.pdf.

SIKKIM[10]

- Sikkim established a State-of-the-Art Viral Research and Diagnostic Laboratory at the State Tertiary Care Hospital in record time. At this facility, tests can be conducted rapidly and reports are made available in a short timeframe.

UTTAR PRADESH[11]

- TruNat and antigen detection assay were adapted for use as point-of-care tests at every District and medical college hospital.
- King George's Medical University, Lucknow applied the principle of pooled sampling which has helped to reduce costs by one-third and increase laboratory testing capacity by three times.

Homecare

GoI Guideline: Updated Containment Plan for Large Outbreaks Novel Coronavirus Disease 2019 - Chapter 13[vi]

In the containment phase, patients with suspected or confirmed mild COVID-19 are being isolated to break the chain of transmission. Patients with mild disease may present to primary care/outpatient department, or may be detected during community outreach activities, such as home visits or through telemedicine. Mild cases can be managed at COVID Care Centres, First Referral Units (FRUs), Community Health Centres (CHC), Sub-District and District Hospitals or at home subject to conditions stipulated in the home isolation guidelines.

HARYANA[12]

- Once an individual tests positive for COVID-19, a dedicated team conducts a home visit to assess if he or she is eligible for home quarantine.
- If the individual is allowed to stay at home, a yellow notice is pinned or displayed on the wall of the house mentioning the COVID positive status as well as the dates of initiation and completion of the home quarantine period.
- An ASHA worker visits the house of the patient daily and enquires about his or her condition. In case the patient is experiencing any symptoms or distress, a team of doctors is informed immediately for further action. Primary Health Centre/Community Health Centre doctors also call patients who are in home quarantine daily or once in two days to review their condition. If the condition of a patient deteriorates, he or she is shifted to a Dedicated COVID Health Centre or Dedicated COVID Hospital.
- Pulse oximeters are provided to patients who are in home quarantine for regular monitoring of oxygen levels.

[vi] Updated Containment Plan for Large Outbreaks Novel Coronavirus Disease 2019 (COVID-19) [Version 3 16th May 2020] Chapter 13. Ministry of Health & Family Welfare, Government of India. Retrieved October 21, 2020 from https://www.mohfw.gov.in/pdf/UpdatedContainmentPlanforLargeOutbreaksofCOVID19Version3.0.pdf.

Quarantine/Isolation Management

GoI Guideline: Updated Containment Plan for Large Outbreaks Novel Coronavirus Disease 2019 - Chapter 13[vii]

Isolation refers to separation of individuals who are ill and suspected or confirmed of COVID. There are various modalities of isolating a patient. Ideally, patients can be isolated in individual isolation rooms or negative pressure rooms with 12 or more air-changes per hour. In resource constrained settings, all positive COVID-19 cases can be cohorted in a ward with good ventilation (COVID Care Centre, Dedicated COVID Health Centre). Similarly, all suspect cases should also be cohorted in a separate ward.

CHHATTISGARH

- The State converted at least 100 bogies provided by the Railways into COVID isolation and care wards for accommodating up to 1,800 patients. The biggest facility was prepared at the indoor stadium in Raipur, with the capacity of admitting at least 3,000 patients. This facility provides everything from beds, plyboard partitions to slippers and clean toilets for patients.

[vii] Updated Containment Plan for Large Outbreaks Novel Coronavirus Disease 2019 (COVID-19) [Version 3 16th May 2020] Chapter 13. Ministry of Health & Family Welfare, Government of India. Retrieved October 21, 2020 from https://www.mohfw.gov.in/pdf/UpdatedContainmentPlanforLargeOutbreaksofCOVID19Version3.0.pdf.

Boosting Health Infrastructure

GoI Guideline: Updated Containment Plan for Large Outbreaks Novel Coronavirus Disease 2019 - Chapter 9[viii]

A three-tier arrangement for managing suspect/confirmed cases will be implemented. The mild and very mild cases will be kept in COVID Care Centres which essentially are temporary makeshift hospital facilities made by repurposing hotels/hostels/guest houses/stadiums near a COVID Hospital. Dedicated COVID Health Centres would be identified in existing hospitals. These Centres will have isolation beds with oxygen support for managing moderate cases, which require monitoring of their clinical status. Severe cases requiring critical care/intensive care will be managed in Dedicated COVID Hospitals. If such facilities are not available in the containment zone, the nearest tertiary care facility in the Government/ private sector will have to be identified.

GUJARAT[8]

- At least one hospital was designated in every District for the treatment of COVID patients. A team of senior officials was tasked with the responsibility of ensuring bed availability in the Designated COVID Civil Hospitals.
- A two-part pricing arrangement was adopted in Ahmedabad in collaboration with private hospitals for augmenting health infrastructure availability. Half the beds in these private hospitals were blocked by the Government for providing treatment to patients referred by them. The cost of treating these patients was borne by the Government at previously negotiated rates. In case the beds were unoccupied at any stage, the Government paid a fixed sum to the hospital. The remaining 50% of beds in private hospitals were available to patients on a payment basis, chargeable up to a ceiling rate specified by the Government. Daily patient feedback was solicited in order to ensure quality of health service delivery. The availability of private quota beds was shared publicly.
- Private hospital employees were designated as COVID employees under the Epidemic Act. Therefore, they could not leave their job during this period and their service conditions also could not be changed adversely.

MAHARASHTRA[5]

- On 21 May, 2020, a directive was issued by Maharashtra to all charitable hospitals for enhancing their bed capacity to accommodate as many patients as possible. Around 80% of the operational bed capacity of such hospitals was regulated by rates determined by the State till 31 August, 2020.
- In addition, private clinics, dialysis centres and nursing homes were also asked to offer necessary services.
- For increasing the number of isolation beds, the State Government reached out to the Central and Western Railways for converting train wagons into isolation facilities.
- Patients facing issues of overcharging in hospitals were encouraged to lodge a complaint through the official email addresses of District Collectors.

[viii] Updated Containment Plan for Large Outbreaks Novel Coronavirus Disease 2019 (COVID-19) [Version 3 16th May 2020] Chapter 9. Ministry of Health & Family Welfare, Government of India. Retrieved October 21, 2020 from https://www.mohfw.gov.in/pdf/UpdatedContainmentPlanforLargeOutbreaksofCOVID19Version3.0.pdf.

ODISHA[5]

- Odisha Government entered into a Memorandum of Understanding with two private hospitals for establishing Dedicated COVID Hospitals. The facilities were set up using Corporate Social Responsibility funds of the Odisha Mining Corporation, in collaboration with private hospitals. A collaborative approach with the private sector enabled Odisha to become one of the first States in the country to have a Dedicated COVID Hospital in each of its Districts before end-April, 2020.

Case Management

GoI Guideline: Guidance Document on Appropriate Management of Suspect/Confirmed Cases of COVID-19[ix]

Mild cases can be managed at a COVID Care Centre, First Referral Unit, Community Health Centre, Sub-District and District Hospital or at home subject to conditions stipulated in the home isolation guidelines.

Patients with suspected or confirmed moderate COVID are to be isolated to contain virus transmission. Patients with moderate disease may present to an emergency unit or primary care/outpatient department, or be encountered during community surveillance activities, such as active house-to-house search or through telemedicine. Such patients will be isolated in a Dedicated COVID Health Centre (DCHC) or District hospital or Medical College hospitals. They may be provided oxygen and anti-coagulant therapy.

Patients with SARI experiencing respiratory distress may require pulse oximetry, oxygen therapy, non-invasive and invasive ventilator therapy. Supplemental oxygen therapy needs to be administered immediately to patients with Severe COVID and respiratory distress, hypoxemia, or shock: initiate oxygen therapy at 5 L/min and titrate flow rates to reach target SpO2 ≥ 90% in non-pregnant adults and SpO2 ≥ 92-96% in pregnant patients.

UTTAR PRADESH

- Early infusion of oxygen in patients with moderate or severe COVID symptoms can prove to be a lifesaving intervention as evidenced by the experience in several Districts. In Noida, even when COVID cases were surging, the District was able to maintain a very low fatality rate because of measures like equipping surveillance teams with pulse oximeters, checking the oxygen levels of patients visiting fever clinics and keeping individuals with oxygen saturation levels below 96% in high-dependency units where infusion can be initiated immediately if required.
- Health facilities in Noida used four types of masks for regulating the level of oxygen concentration – while the normal mask supplies 30% oxygen, three other types were kept in reserve. The venturi mask provides up to 65% oxygen, a high flow nasal canula increases oxygen concentration to 80% and the non-rebreathing mask with reservoir releases up to 90% oxygen. Use of steroids, anti-inflammatory medicines and anti-coagulants also helped to reduce mortality among patients.

[ix] Guidance Document on Appropriate Management of Suspect/Confirmed Cases of COVID-19. Ministry of Health & Family Welfare, Directorate General of Health Services, EMR Division. Retrieved October 21, 2020 from https://www.mohfw.gov.in/pdf/FinalGuidanceonMangaementofCovidcasesversion2.pdf.

Awareness Creation and Behaviour Change

GoI Guideline: Addressing Social Stigma Associated with COVID-19[x]

There is an urgent need for health literacy with respect to COVID-19. Citizens should be advised to understand that although COVID is a highly contagious disease which spreads fast and can infect any one of us, we can protect ourselves through physical distancing, washing our hands regularly and following sneezing/coughing etiquettes. Despite all precautions, if anybody catches the infection, it is not their fault. In situations of distress, the patient and the family need support and cooperation. It must be noted that the condition is curable and most people recover from it.

Citizens should be encouraged to appreciate the efforts of people providing essential services and be supportive towards them and their families; share only authentic information available on the website of MoHFW, Government of India or the World Health Organization; cross check any information related to COVID-19 from reliable sources before forwarding any messages on social media as well as share positive stories of those who have recovered from COVID.

Citizens should also be informed about and encouraged not to spread names or reveal the identity of those affected/under quarantine or their locality on social media; avoid spreading fear and panic; not target healthcare and sanitary workers or police as well as not hold any community or area responsible for spread of COVID.

Risk communication materials will be prepared and kept ready for targeted roll out in the entire geographic quarantine zone. During house-to-house surveillance, ASHAs/other community health workers will provide information on preventive public health measures. Awareness will also be created among the community through miking, distribution of pamphlets, mass SMS and social media. Also, use of radio and television (using local channels) will ensure penetration of health messages in the target community. A dedicated helpline number will be operated by the Control Room (District Headquarter). The number will be widely circulated for providing the general population with information about the risks of COVID-19 transmission, the preventive measures required, need for prompt reporting to health facilities, availability of essential services and administrative orders on perimeter control. There will be regular press briefings/press releases to keep the media updated on developments and avoid stigmatization of affected communities. Every effort shall be made to address and dispel any misinformation circulating in the media, including social media.

ARUNACHAL PRADESH[13]

- To address the challenge of chalk circles getting washed away by frequent rain, a concept of a 'social distancing shed' was developed in Arunachal Pradesh using bamboo poles and colourful umbrellas to demarcate spots for citizens one-and-a-half metres apart.

[x] Addressing Social Stigma Associated with COVID-19. Ministry of Health & Family Welfare, Government of India. Retrieved October 21, 2020 from https://www.mohfw.gov.in/pdf/AddressingSocialStigmaAssociatedwithCOVID19.pdf.

GUJARAT[8]

- Several approaches were used including video conferencing with leaders of Nagar Palikas, engaging citizens through social media campaigns as well as painting, essay, and poem competitions on the theme of "Corona warriors" for school and college students.
- A public campaign called 'Hu pan Corona Warrior,' ('I am also a Corona Warrior') was launched for engaging religious leaders, resident welfare associations and citizens in the fight against COVID. People were reminded about the importance of physical distancing and masks and encouraged to use the Arogya Setu application through this campaign.
- Live music was used by the Ahmedabad police for creating awareness about preventive measures for COVID.

JHARKHAND[5]

- A Driver and Transport Safety Campaign was announced by the State Government in May, 2020 for providing COVID prevention related information to drivers, vehicle owners and the public in general. The campaign was run by the Jharkhand State Transport Department.
- The State Transport Department issued a guide emphasizing the need for using face covers, maintaining physical distance, washing hands regularly as well as sanitizing vehicles.

KARNATAKA[5]

- The State created a special task cell for promoting awareness through various channels, including social media like Whatsapp, Facebook, Twitter. The State also engaged celebrities to create videos and implemented a "mask day" for awareness.

KERALA[6]

- Kerala has disseminated health-related information in languages such as Hindi and Bengali through news channels, print and digital platforms, as well as direct announcements. These communications have helped to reach out to large numbers of people in migrant-dominated areas.
- Transmedia storytelling has also been used. This concept involves developing content that engages large numbers of people by permeating their daily lives. For example, a video was produced by Kerala Police's Media Centre which showed a group of policemen dancing to a popular song while demonstrating the correct handwashing technique.
- Further, Kerala has launched a mass handwashing campaign called ''Break the Chain'' which aims to educate people about the importance of public and personal hygiene.

NAGALAND[13]

- The special action group constituted under the chairmanship of the principal secretary engaged with faith-based organizations for creating awareness about physical distancing and personal hygiene measures.
- It also sought their support for popularizing the COVID-19 helpline among people who require assistance or screening.

ODISHA[5]

- The Odisha government organized an online competition ‘Mo Pratibha’, with different categories such as art, painting, slogan writing, poster making, short stories and poetry for keeping children engaged during the COVID period as well as for creating awareness.

UTTARAKHAND

- A pilot project was rolled out in the Doon Medical College Hospital providing disposable ‘easy spit’ glasses to patients in the isolation ward to check the practice of spitting in public places.
- The glasses were conceptualized by a group of youth from Nagpur and made out of biodegradable materials like polymer, paper and pulp.

Production and Distribution of Medical Supplies

GOA[5]

- During the national lockdown period, the State administration issued permissions to liquor manufacturing units for producing hand sanitizers, including for Government departments such as health, police and disaster management. After meeting the local demand, sanitizers were exported out of the State.

UTTAR PRADESH[6]

- In order to ensure the safety of ASHAs, ASHA Sanginis and ANMs working on COVID management, it is necessary to provide them with basic protective gear like masks and sanitizers.
- Demand estimation for provision of two reusable masks and a bottle of hand sanitizer for every field worker in the State was developed. This was shared with all Chief Medical Officers in the State vide a letter through Mission Director, National Health Mission instructing them to ensure the provision of protective supplies.
- Also, guidelines were issued to use Village Health Sanitation Nutrition Committee funds for the procurement of sanitizer, mask etc. A protocol for appropriate use and cleaning of masks was also developed and shared with field workers. Moreover, ASHA Sanginis and ASHAs were encouraged to source homemade masks locally for self-use and distribution in the community.
- Uttar Pradesh State Rural Livelihood Mission (UPSRLM) SHGs played an instrumental role in manufacturing and distribution of masks and sanitizer in the community.

WEST BENGAL[4]

- The State Government procured 3 Crore masks for distribution free-of-cost to frontline health workers, police personnel, fire services staff, students and the 100-day scheme beneficiaries.
- To address the heightened demand for Personal Protective Equipment (PPE), the State Government established a partnership with a leading textile manufacturer under the West Bengal State Handloom Weavers Cooperative for reconfiguring their existing machinery to manufacture PPE at the requisite scale.

Medical Waste Management[14]

GoI Guideline: Revision 1 - Guidelines for Handling, Treatment and Disposal of Waste Generated During Treatment/Diagnosis/ Quarantine of COVID-19 Patients[xi]

The biomedical waste during the COVID-19 outbreak is to be managed in accordance with Biomedical Waste Management Rules.

MAHARASHTRA

- To deal with the rising COVID waste in the city, Panchgani has taken to decentralized segregation.
- Separating dry and wet waste before handing over to waste collectors has been mandated for every household, shop and institution. Following the outbreak of COVID, a third component in the form of a waste bin for hazardous items like medical waste and batteries, was added.
- Directions have been issued to every household for storing medical waste like syringes, masks, gloves, medicines, tissues as well as other items which could be contaminated with the virus, in a separate bin. Waste collection is carried out on a daily basis by the civic body and sent to a Common Bio-Medical Waste Treatment (CBMWT) facility in the nearby town of Satara.
- A fine of Rs. 500 has been imposed by the Municipal Council for failing to segregate the waste before handing it over to the waste collector.
- The civic body in Panchgani has also established a group of waste collectors called 'swachhagrahis' who are playing an important role in raising awareness about the hazards of biomedical waste and the need for segregating it from other waste.

MULTIPLE CITIES

- In Bhopal, five dedicated DTDC vehicles have been allocated in every cluster for waste collection by the biomedical incinerator service provider. They collect waste in sealed dechlorinate bags and transfer them to incineration plants for processing.
- In Delhi, biomedical waste is being collected from the doorstep of quarantined households in yellow bags by trained workers equipped with protective gear. One vehicle in every zone has been deployed to collect waste from quarantined homes. It is then transported to the waste-to-energy plant in Okhla for proper disposal.

[xi] Revision 1: Guidelines for Handling, Treatment and Disposal of Waste Generated During Treatment/Diagnosis/ Quarantine of COVID-19 Patients. [25th March, 2020 - In Suppression of Earlier Guidelines Uploaded at CPCB Website on 19/03/2020], Central Pollution Control Board, Ministry of Environment, Forest & Climate Change, Government of India. Retrieved October 21, 2020 from https://www.mohfw.gov.in/pdf/6394860950158556898 7wastesguidelines.pdf.

TELANGANA

- The Telangana State Pollution Control Board has requested urban local bodies, health establishments, common bio-medical waste management facilities and citizens to follow the specified guidelines for handling, collection, transportation, treatment and disposal of bio-medical waste generated from potential or confirmed COVID cases.
- As per the guidelines, separate color-coded bins/bags/containers are to be installed and maintained in wards for enabling proper segregation of waste as per the Biomedical Waste Management Rules, 2016 as well as the Central Pollution Control Board guidelines. Double-layered bags are used for collection of waste from COVID isolation wards to prevent any leakages.

Delivery of Essential Services

GoI Guideline: Enabling Delivery of Essential Health Services During the COVID 19 Outbreak - Guidance Note[xii]

Mapping all existing heath facilities in the public, not-for-profit and private sectors should be undertaken. States should identify and designate facilities or separate blocks within existing facilities to provide COVID related services. Remaining facilities/blocks of facilities can continue to provide essential non-COVID services. States can also involve not-for profit/private sector in the provision of non-COVID essential services, particularly for secondary and tertiary care, where public sector capacity needs to be supplemented. Dedicated first-level 24*7 hospital emergency units, may be set up in suitable Community Health Centres/Sub-District Hospitals to provide non-COVID acute care, including provision of emergency obstetric services. Mobile Medical Units can be utilized for delivery of services, especially follow-up care for reproductive, maternal, new born & child health services, chronic communicable and non-communicable diseases.

Patients requiring ambulatory care, should be encouraged to utilize tele-platforms to determine the need to visit a health facility/ hospital/fever clinic. Those due for immunization, antenatal care, non-communicable disease screening etc. could be asked to come to peripheral facilities (SHCs/PHCs/UPHCs/HWCs/Urban Health Posts) on particular dates/times, decided at local levels and informed telephonically or through ASHAs. Home visits by ASHAs should be optimized to provide follow-up care to all beneficiaries in a particular household/hamlet/mohalla during one visit and avoid making repetitive visits to the same house/ mohalla. Guidance issued by MoHFW provides several strategies to augment health workforce availability including expediting filling up existing vacancies, redeploying staff from non-affected areas and facilities, utilizing fit retirees for non-COVID services roles and augmenting human resources from the non-profit sector, among others.

The State should establish dedicated teams within each State and each District to ensure the continuity of essential services and COVID preparedness and response. States should ensure that facilities have sufficient funding to continue the provision of essential services.

GUJARAT[15]

- The Ahmedabad Municipal Corporation (AMC) has developed an innovative concept, the “Dhanwantari Rath”, which is a mobile van providing non-COVID essential health services to the doorsteps of people in the city. Many large hospitals in the city have been dedicated for COVID treatment, hence such measures are important for ensuring that non-COVID essential services, for instance, those related to diabetes, blood pressure and cardiac ailments, are delivered to people who cannot visit hospitals at this time.
- These mobile medical vans are staffed with an AYUSH doctor, paramedic and nursing staff along with the local Medical Officer from the Urban Health Centre (UHC) of the AMC. They are also equipped with all essential

[xii] Enabling Delivery of Essential Health Services During the COVID 19 Outbreak. Ministry of Health & Family Welfare, Government of India. Retrieved October 21, 2020 from https://www.mohfw.gov.in/pdf/EssentialservicesduringCOVID19updated0411201.pdf.

medicines including ayurvedic and homeopathic, vitamin supplements, basic testing equipment and pulse oximeters. The scope of health services provided by the mobile medical vans has now been extended to include malaria and dengue tests.

- The vans have treated individuals for fever and respiratory infections as well as referred patients with hypertension, diabetes and other comorbidities for clinical treatment at nearby UHCs, CHCs and hospitals.
- A team was formed for going door-to-door and identifying people with non-communicable diseases in containment and non-containment areas. The team also advised people to postpone any surgeries that were not critical in order to minimize their exposure to possible infections.
- ASHA workers were given the responsibility of ensuring safe deliveries and creating awareness about the need for keeping mosquito breeding in check and taking precautions against dengue and malaria during the rainy season.

PUNJAB

- Separate labour rooms were set up in all District hospitals for assisting the deliveries of pregnant women who test positive for COVID.
- Civil surgeons were also instructed to establish a dedicated operation theatre for COVID positive patients in District hospitals, according to the specified standard operating procedures.

SIKKIM

- Doorstep delivery of drugs and services under various non-COVID national health programmes (NTEP, NACP) was continued and efforts were made to ensure that the delivery of essential health services is not disrupted.

Capacity Building and Welfare of Health Workforce

GoI Guideline: Updated Containment Plan for Large Outbreaks
Novel Coronavirus Disease 2019 - Chapter 17[xiii]

Training will be designed to suit the requirements of every category of healthcare workers involved in the containment operations. These trainings for different target groups shall cover field surveillance, contact tracing, data management and reporting; surveillance at designated exit points from the containment zone; sampling, packaging and shipment of specimens; hospital infection prevention and control including use of appropriate PPEs and biomedical waste management; clinical care of suspect and confirmed cases including ventilator management, critical care management as well as risk communication to the general community and health service providers. District-wise trained manpower will be made available on the dashboard of MoHFW as will training material on the IGOT platform. Training should be accompanied by functional exercises like mock drills.

BIHAR

- Bihar Government has organised virtual sensitization and training programmes on safety protocols, infection control and clinical management for various categories of health professionals and sanitary workers through collaboration with institutions like AIIMS, Delhi. Meetings have been held on a regular basis with superintendents and principals of medical colleges as well as hospitals for sharing good practices highlighted by experts.

CHHATTISGARH

- The service period of over 400 contract-based Ayurveda physicians was extended by three months and a special allowance provision for staff engaged in COVID treatment was made within the first two weeks of the outbreak in the State.

GUJARAT[8]

- To ensure and oversee availability of health professionals during the COVID crisis a specific human resource management policy was formulated and a District Task Force was constituted. The policy included various aspects of deployment of health professionals for COVID management and care including nursing students and residents in medical and paramedical colleges. The Task Force was responsible for reviewing deployment of health personnel, identifying gaps and preparing a plan for deployment of human resources from Government and private hospitals.

[xiii] Updated Containment Plan for Large Outbreaks Novel Coronavirus Disease 2019 (COVID-19) [Version 3 16th May 2020] Chapter 17. Ministry of Health & Family Welfare, Government of India. Retrieved October 21, 2020 from https://www.mohfw.gov.in/pdf/UpdatedContainmentPlanforLargeOutbreaksofCOVID19Version3.0.pdf.

JHARKHAND[16]

- ASHAs and frontline health workers are trained on different aspects of COVID management including awareness creation, formulation of field-level strategies and reporting mechanisms. Training takes place over the course of a week and is organized either over a virtual platform or in-person with small groups so that the norms of physical distancing are met.
- Linkages with the ASHA database and demarcation of catchment areas of ASHAs as clusters makes it possible to create a visualization of the surveillance planning. Regular sharing of field data by ASHAs using their codes with geospatial attributes helps identify target geographies and priority zones as well as develop a spatio-temporal database of individuals in home quarantine across the State.

KERALA[6]

- National Service Scheme (NSS) volunteers have taken turns to work at the District Medical Office on the Collectorate premises. One of their major functions has been to trace the primary and secondary contacts of people who came to the District from other States and countries.
- These volunteers also double up as helpline service staff for addressing various queries and concerns of callers. Upon completion of the day's work, the volunteers attend classes online so that their studies are not disrupted.

KERALA (Wayanad)

- Wayanad proactively trained its doctors, nurses and other frontline workers in COVID management using virtual platforms during the early phase of the pandemic itself. This enabled the District to boost its health system preparedness.

ODISHA[5]

- For boosting the morale of health personnel, Odisha announced that that payment of 4 months' salary for doctors, nurses and paramedical staff will be made in advance. The Chief Minister personally appealed to citizens to deal respectfully with health professionals and warned that any instances of misbehaviour would attract a penalty.
- Further, a sum of Rs. 50 Lakh, was announced as compensation for any health worker who unfortunately loses his or her life in the line of duty.
- Media personnel covering COVID were also provided with a similar risk cover of Rs. 15 Lakh in case of loss of life.

PUNJAB

- Punjab has released a Clinical Management Manual for COVID-19 as a single reference point for health providers in the State. Developed by an Expert Committee, the manual includes audio-visual aids, color coded assessment tools, experience-based referral criteria and best practices in clinical management for various categories of symptomatic COVID patients.
- Self-assessment questionnaires and home-based tests have been incorporated in the manual for evaluating the progress of asymptomatic individuals in home isolation.

- An updated list of District-wise experts who can help the District Medical Teams, especially for minimizing fatality rates, has been included in the manual along with a platform of psychiatrists, psychologists and social workers who can help address any mental health issues faced by patients.

UTTARAKHAND

- As one of its flagship programmes, Reckitt Benckiser (a British multinational company), in collaboration with Wipro GE Healthcare India and Dettol Banega Swasth India launched a training Programme for frontline health workers in Uttarakhand (as well as Maharashtra and Uttar Pradesh), with on-ground support from Jagran Pehel and Plan India.
- Participants are trained on best practices in hygiene and infection control, do-it-yourself tools (for making masks and hand sanitizers), recommendations for home isolation and quarantine, busting myths and misconceptions related to COVID as well as promoting overall mental health.
- Insurance benefits were provided to personnel working on the frontline for tackling COVID. A sum of Rs. 1,000 each was transferred to the accounts of 1 Lakh laborers in the State.

UTTAR PRADESH[7]

- Training modules were developed for COVID prevention and management. Separate training modules, including audio and video voiceovers, were developed for ASHAs, ASHA Sanginis and ANMs in order to explain their roles and responsibilities to them.
- A decision was taken to train field workers in a cascade model starting from the State-level. A comprehensive training plan was formulated for the orientation of District- and block-level functionaries centrally through virtual platforms.
- As a first step District-level officials including Chief Medical Officers and District Surveillance Officers were oriented centrally. Subsequently, block-level officials were also oriented centrally on the measures to be taken for containment of COVID at the community and outreach levels via a virtual training platform. These trained block-level officials, in turn, were tasked with training field-level workers in groups of 10-15 virtually or while ensuring that physical distance was maintained. It was decided to seek technical support and collaboration from the Uttar Pradesh Technical Support Unit, WHO and UNICEF in the field-level orientation.
- The State Government has developed flyers on important COVID-related topics like home quarantine and care for the elderly, approved by the Directorate of Medical Health and shared with all District Community Process Managers and Block Community Process Managers for further dissemination to field workers.

– GOVERNANCE MECHANISMS –

CHHATTISGARH

- A team of officials was formed as part of the Central Command Centre in the State. The team was responsible for collecting all relevant data for containing and managing the epidemic from District Collectors and Chief Medical Officers. The team was also tasked with issuing instructions and guidelines related to the prevention of COVID.
- Guidance was provided to District Collectors on setting up Isolation Centres, managing individuals in home quarantine as well as designating hospitals and wards for COVID-19 patients, in partnership with a team of doctors at AIIMS, Raipur.

GUJARAT[11]

- A dedicated control room was established for ensuring provision of essentials to citizens especially during the lockdown period and responding to any grievances in a swift manner. Citizens could register their complaints through specified emergency numbers at the State and District levels.
- A Core Crisis Management Committee comprising the Chief Minister, Deputy Chief Minister, Minister of State (Home), Chief Secretary, Principal Secretary (Health and Welfare), Principal Secretary (Social Justice & Empowerment Department) Secretary to Chief Minister, Additional Chief Secretary (Revenue), Secretary (Cooperatives) and Secretary (Food, Civil Supplies and Consumer Affairs Department) was also constituted.
- The State Government has established partnerships with leading pulmonologists, critical care specialists and intensivists who visit hospitals on a regular basis, examine patients and provide guidance on the best treatment possibilities.
- Tele-mentoring has also been initiated by a group of experts based in Ahmedabad who interact with Intensive Care Units dealing with COVID patients from across the State and share best practices.
- A State-level Task Force has also been constituted with nine eminent doctors, primarily from the private sector.

HARYANA[12]

- A key element of the governance mechanism put in place for large area and cluster management includes constitution of State RRTs. These RRTs are placed in high-priority areas and provide reports to the State Headquarters where daily monitoring of containment area activities is carried out.
- Public health manpower is mobilized to support civil surgeons in Districts and additional field staff is deployed for active surveillance in containment zones, wherever necessary.
- Strict regulation and maintenance of records about movements is ensured at the entry-exit points of the containment zone.
- Implementation of daily door-to-door active surveillance is carried out by field staff in containment zones, with the use of a thermal scanner.
- For data analysis, District health authorities coordinate with the Community Medicine Department of medical colleges.

- Communication with Resident Welfare Associations is carried out through WhatsApp groups. Sarpanch and other panchayat members are involved in contact tracing (done through a pre-designed format within 72 hours), awareness creation and preventive activities.
- Loudspeakers are utilized in temples, mosques and ambulances for Information Education Communication (IEC) activities.
- Dedicated helplines have been launched for establishing linkages with ambulance, mental health and telemedicine services.
- Expert Committees have been set up for providing clinical management advice to doctors.
- A death audit is conducted for every COVID positive case and corrective measures are taken to minimize fatalities in the future.

JAMMU AND KASHMIR[4]

- In the first week of March, 2020, a 24×7 control room was operationalized in Srinagar to oversee contact tracing and containment efforts.

KERALA[6]

- To assess the needs of individuals in home quarantine and to ascertain whether or not they are adhering to the requisite guidelines, a call centre was established and tool developed at the Government Medical College in Thiruvananthapuram.
- To keep quarantine violators in check, a WhatsApp number has been made public for people to register their complaints and concerns.
- Additionally, a dedicated team in District-level control rooms scans print, television and social media on a regular basis for identifying any challenges being faced by people who are under quarantine, debunking fake news as well as keeping a tab on pneumonia or related deaths.
- A control room was established at the State-level for combating COVID-19. Two key tasks undertaken by the control room include surveillance (thereby reducing the burden on individual Districts) and identification of primary contacts.

MAHARASHTRA[5]

- A special Task Force comprising of specialist doctors has been formed to minimize death rates and treat critically ill COVID-19 patients.
- The State has also appointed experts for dialysis, cardiac arrest and diabetes at COVID-19 hospitals.

NAGALAND

- A COVID-19 War Room was set up under the chairmanship of the Chief Secretary comprising of around 20 officials from various departments for monitoring the situation related to the outbreak in the State.
- The team has been responsible for overseeing health related activities at this time, facilitating the provision of essential commodities to citizens during the lockdown period, ensuring the welfare of daily wage earners and stranded people as well as identifying good practices for containing and managing the epidemic.

PUDUCHERRY[3]

- Teams, led by a medical officer, were constituted early on during the COVID outbreak by identifying officials from various Government Departments including revenue and police as well as volunteers.
- A medical team visited any new arrivals in Puducherry and officials from the Revenue Department pasted stickers on their place of residence for ease of identification. Monitoring individuals in home quarantine was the responsibility of the Police Department whilst data was collected and tracked by the Social Welfare Department alongside the IDSP team. A daily list of individuals in home quarantine was provided to the District Collector's office and municipality for the purposes of ensuring safe management of medical and household waste.
- A Core Committee was constituted and nodal officers were appointed to handle different aspects of managing a COVID positive case. Medical Officers were provided training on coordinating with other stakeholders for managing different aspects of the outbreak.
- A daily review meeting was held with the Lieutenant Governor and Health Minister for deciding the future course of action with respect to tackling the epidemic in the Union Territory.

SIKKIM[10]

- As one of the first steps post the COVID outbreak in the State, the Government mobilized its State and District Surveillance Units to carry out community surveillance. Decision-making was decentralized to the level of Districts and District Task Forces were constituted to monitor the situation on a regular basis. The Chief Minister also constituted a State-Level Task Force.

UTTAR PRADESH (AGRA)[6]

- The Integrated Control and Command Centre (ICCC) of Agra Smart City, established as part of the Smart City Mission was converted into a COVID war room.

– DIGITAL HEALTH –

GoI Guideline: Updated Containment Plan for Large Outbreaks Novel Coronavirus Disease 2019 - Chapter 16[xiv]

A control room (if not already in place) shall be set up at State and District Headquarters, managed by designated officers. This shall be manned by State and District Surveillance Officers (respectively) with data managers responsible for collecting, collating and analysing data from the field and health facilities. Daily situation reports will be put up. A control room shall be set up inside the containment zone to facilitate collection, collation and dissemination of data from various field units to District and State Control Rooms. This shall be manned by an epidemiologist under which data managers (deployed from IDSP/ National Health Mission) will be responsible for collecting, collating and analysing data from field and health facilities. This control room will provide daily input to the District Control Room for preparation of the daily situation report.

GoI Guideline: Guidelines for Domestic Travel (Air/Train/Inter-State Bus Travel)[xv]

All passengers shall be advised to download Arogya Setu app on their mobile devices. A suitable announcement about COVID-19, including precautionary measures to be followed, shall be made at airports/railway stations/bus terminals and in flights/trains/buses. States/UTs shall ensure that all passengers undergo thermal screening at the point of departure and only asymptomatic passengers are allowed to board the flight/train/bus. During boarding and travel, all passengers shall use a face cover/mask. They will also follow hand hygiene, respiratory hygiene and maintain environmental hygiene. Asymptomatic passengers will be permitted to go with the advice that they shall self-monitor their health for 14 days. In case, they develop any symptoms, they shall inform the District Surveillance Officer or the State/National call centre. Those found to be symptomatic will be isolated and taken to the nearest health facility. Those having moderate or severe symptoms will be admitted to dedicated COVID health facilities and managed accordingly. Those having mild symptoms will be given the option of home isolation or isolated in a COVID Care Centre (public and private facilities) as appropriate and tested as per ICMR protocol. States can also develop their own protocol with regards to quarantine and isolation.

[xiv] Updated Containment Plan for Large Outbreaks Novel Coronavirus Disease 2019 (COVID-19) [Version 3 16th May 2020] Chapter 16. Ministry of Health & Family Welfare, Government of India. Retrieved October 21, 2020 from https://www.mohfw.gov.in/pdf/UpdatedContainmentPlanforLargeOutbreaksofCOVID19Version3.0.pdf.

[xv] Guidelines for Domestic Travel (Air/Train/Inter-State Bus Travel). Ministry of Health & Family Welfare, Government of India. Retrieved October 21, 2020 from https://www.mohfw.gov.in/pdf/Guidelinesfordomestictravel(airortrainorinter-statebustravel).pdf.

GoI Guideline: Telemedicine Practice Guidelines - Enabling Registered Medical Practitioners to Provide Healthcare Using Telemedicine[xvi]

The purpose of the telemedicine guidelines is to give practical advice to doctors so that all services and models of care used by doctors and health workers are encouraged to consider the use of telemedicine as a part of normal practice. These guidelines will assist the medical practitioner in pursuing a sound course of action to provide effective and safe medical care founded on current information, available resources, and patient needs to ensure patient and provider safety. These telemedicine guidelines will help realize the full potential of these advancements in technology for health care delivery. It provides norms and protocols relating to physician-patient relationship; issues of liability and negligence; evaluation, management and treatment; informed consent; continuity of care; referrals for emergency services; medical records; privacy and security of the patient records and exchange of information; prescribing; and reimbursement; health education and counselling.

These guidelines will provide information on various aspects of telemedicine including information on technology platforms and tools available to medical practitioners and how to integrate these technologies to provide health care delivery. It also spells out how technology and transmission of voice, data, images and information should be used in conjunction with other clinical standards, protocols, policies and procedures for the provision of care. Where clinically appropriate, telemedicine is a safe, effective and a valuable modality to support patient care. Like any other technology, the technology used for telemedicine services can be abused. It has some risks, drawbacks and limitations, which can be mitigated through appropriate training, enforcement of standards, protocols and guidelines. These guidelines should be used in conjunction with the other national clinical standards, protocols, policies and procedures.

ANDHRA PRADESH[6]

- Two tools have been developed by the State Disaster Management Authority (SDMA) - one for tracking every individual in home quarantine on a real-time basis and another for tracking the travel history of COVID positive people.
- A database of people in home quarantine, along with their mobile numbers and location of residence, is maintained. The tool developed by the SDMA alerts the District authorities if any person in home quarantine goes beyond a 100-metre radius from his or her location of residence.
- The other tool which helps track the travel history of COVID positive cases uses mobile tower signals to determine all the places a person has travelled to. Upon receiving the location details of patients, authorities identify the places where he or she might have spent at least 15 minutes and could potentially have spread the infection to others.

DELHI

- A dedicated WhatsApp helpline number was announced following the COVID outbreak.

[xvi] Telemedicine Practice Guidelines, Enabling Registered Medical Practitioners to Provide Healthcare Using Telemedicine [25th March 2020]. BOARD OF GOVERNORS In Supersession of the Medical Council of India. Retrieved October 21, 2020 from https://www.mohfw.gov.in/pdf/Telemedicine.pdf.

- Director EMR was made in charge of providing the updated status, protocols, guidelines and a list of essential contacts for COVID containment.
- An application was created wherein all Government/private COVID testing labs and hospitals were required to complete the requisite data for ensuring proper follow-up of COVID cases.

GOA[5]

- The State made efforts to facilitate easy communication between citizens and doctors by leveraging technological innovations such as CallDoc and tele-consultations.

GUJARAT[8]

Surveillance

- Surveillance by police in containment zones was supplemented by technology solutions including CCTV cameras, drones and hydrogen gas balloons fitted with Pan-Tilt-Zoom (PTZ) cameras each of which can keep a watch over an entire area.
- Through the images captured by PTZ cameras, the police could monitor movements in containment zone areas on their phone, make public addresses as well as conduct aerial surveys of gatherings and instances of violation.
- Using data generated from the application about COVID positive patients, the people they met and the areas in which they spent the maximum time prior to their diagnosis, AMC was able to identify areas which could potentially become hotspots in the future. In such areas, AMC conducted door-to-door surveillance and also took samples of residents exhibiting COVID-like symptoms with the assistance of staff operating mobile vans. Based on the incidence of COVID positive cases, areas which were most at risk of becoming hotspots, were colour coded as pink followed by amber, blue and light blue.

Home Quarantine

- An application was developed for monitoring people living in home quarantine in Ahmedabad. The application mandates online attendance thrice a day along with photographs. People can feed any symptoms they develop into the application which are immediately notified to the administration for necessary action. Once the application is installed, the location of the individual is captured and a geo-fence created around her or his latitudes and longitudes so that alerts can be generated should the person move outside their location.

Health Worker Capacity Building

- An online platform was developed for training doctors, nurses, and paramedical staff. Three rounds of virtual training were followed by hands-on training. In particular, MBBS doctors and AYUSH personnel were imparted training on management of ventilators. Training modules were delivered in the local language to enable ease of learning for trainees.

Haryana[12]

- Application-based screening of people in containment zones and those with SARI/ILI is conducted.
- GPS technology is utilized for monitoring the movement of mobile teams in containment zones through their live locations.
- Monitoring of home quarantined persons through video calling is also carried out.

HIMACHAL PRADESH[6]

- A portal has been designed for busting fake news related to COVID. Citizens can post relevant web links on the portal for determining the veracity of the content. They can do so while maintaining their privacy as the portal requires them to enter their mobile number and email address but does not reveal their identity to the fake news monitoring unit. The result of the content check is sent to the user by SMS.
- Himachal Pradesh also makes use of an inventory management system to organize information related to COVID hospitals, availability of beds, quarantine facilities, ventilators and masks These applications are hosted on covidportal.hp.gov.in.
- Inter-State movement is monitored through registration in the COVID e-pass software.

JAMMU AND KASHMIR[4]

- Four technology applications are being used by the State administration for the purposes of monitoring geo-fencing and door-to-door surveillance as well as quarantine management.
- By leveraging mobile-based applications, crowdsourced information, GPS tracking, bank account transaction details and other vigilance measures, control room officials in Srinagar are able to trace a large number of people who had previously not revealed their travel history.

JHARKHAND

Co-Bots in Hospitals[17]

- Co-Bots have been deployed to minimize interaction between ancillary health workers/paramedical staff and COVID patients. In COVID hospitals, Co-Bots deliver medicine, food and water to patients.
- They have been developed at Rs. 25,000 per Bot with a carrying capacity of 45 Kg. The machine can be operated with a remote within a 200 feet range. Co-Bots, which are fitted with a Wi-Fi camera and microphone, can move freely and operate remotely for two-way communication. They are also waterproof which makes it easy to sanitize them once they have been in contact with a patient. Further, they are fitted with an ultrasonic obstacle warning system.
- Through the use of Co-Bots, doctors can monitor patients remotely and pass on necessary instructions through a microphone. Cameras also keep a vigil on the interaction between patients in isolation wards.
- Another feature of the Co-bot is that it will serve food, water, medicines with a reduced risk of infection spread. A doctor or nursing staff can view through the camera installed in the robot if the patient picks up the correct medicines or not. The speaker enables staff to communicate with the patient who can air his/her grievance through the speaker and microphone.

Application-Based Essential Health Services Reporting and Social Vulnerability Mapping[18]

- Additional features were added to the existing application used for recording data from Participatory Learning Action (PLA) meetings to make it more comprehensive for reporting information about essential health services and mapping social vulnerability for over 25,000 villages during COVID times.
- This includes data about high-risk pregnancies, child and adolescent health as well as individuals in the 60+ age group. Once data pertaining to essential health services is fed into this application it becomes accessible to all officials of the National Health Mission through a digital platform and facilitates field-level planning.

KARNATAKA[5]

Contact Tracing and Surveillance

- Karnataka broadened the definition of 'contact' to include both high-risk and low-risk contacts as per the definition used by the Central Government. Primary and secondary contacts were traced diligently and placed under strict quarantine. More than 10,000 field staff were trained to assume specific responsibilities for contact tracing according to the Standard Operating Procedures developed by the State.
- The State developed a digital tracker for tracing COVID-19 infected persons at zero cost to the Government through a team of in-house technicians.
- While data was collected in a centralized manner, the State acted on it locally by transmitting it to the relevant people for action. The digital tracker also enabled District-level reports to be shared with the State team and all Districts were supervised every week through a video conference with the Chief Secretary.
- Karnataka surveyed over 1.5 Crore households across the State through physical visits or phone calls in order to identify people who were particularly vulnerable to COVID including senior citizens, people with comorbidities and pregnant women. Various State and Local Government agencies were involved in the survey as well as the follow-up process during which vulnerable households were contacted through the Apthamitra telemedicine helpline and household visits.

Monitoring of Travellers And Individuals Under Quarantine

- Anyone travelling to Karnataka from another State was required to register on the Seva Setu application. These registrations were ensured and monitored at every border checkpoint. For domestic and international flights, the State put together a list of travelers and their contact details in advance which were subsequently shared with the quarantine watch teams. The same process was followed for individuals entering the State by rail.
- People in home quarantine were required to share 14 selfies with the State Government between 7 am and 9 pm on a daily basis through the Quarantine Watch Application. Defaulters were liable to be shifted to an institutional Quarantine Centre.

Apthamitra Teleconsultation Helpline

- Karnataka launched a toll-free number and an application for identifying people with COVID-like symptoms. A campaign was undertaken during which outbound calls and an Interactive Voice Response System were used to connect with at-risk households and individuals with COVID-like symptoms were provided advice by doctors through telemedicine.
- The Karnataka Health Watch application was also used during this campaign and linked with the GIS portal for mapping State-wide information.

KERALA[6]

Management of Isolation Wards

- The State Department of Health, in partnership with Asimov Robotics, has designed cost-effective robots for performing various functions within isolation wards, thus reducing the requirement for healthcare staff to enter the wards on multiple occasions.

- These robots deliver medicine and food, collect waste items from patients, carry out disinfection as well as enable patients to communicate with physicians and relatives outside the hospital.

Providing Real-Time Information to Citizens

- An application called 'GoK Direct' has been developed by the social communication platform, Qkopy, for the Government of Kerala. It provides COVID-related information and alerts on a real-time basis as released by the Department of Information & Public Relations.
- It also sends COVID updates and travel information through phone notifications, and via SMS for people without smartphones. The messages are delivered in both English and Malayalam.

Telemedicine

- QuikDr Healthcare Private Limited has provided a comprehensive telemedicine solution to the Kerala Government which is being utilized by the Directorate of Health Services. This application enables virtual consultations for patients with top doctors across the State.

Delivery of Essentials

- iBoson, an organization incubated by the Kerala Start-up Mission has developed a software to help the State Government manage the delivery of essential services. Through the application, authorities are able to manage access of designated staff to the workplace and ensure continuity of essential services. This application has been used by the Kerala State Information Technology Mission.

MADHYA PRADESH[6]

- Between July 1-15, 2020, the State conducted a door-to-door survey covering 25 Lakh households for identifying people with SARI/ILI symptoms.
- Community-based surveillance tools including SARTHAK LITE and COVID Rakshak were developed.
- Through SARTHAK LITE, citizens can access real-time information about fever clinics, sample collection centres as well as COVID Care Centres, Health Centres and Dedicated Hospitals in their vicinity. Citizens can also report through this application any person in their family who may have been exposed to COVID.
- Further, a citizen can volunteer to be a COVID Rakshak through registration on SARTHAK LITE. COVID Rakshaks are equipped with pulse oximeters supplied by the local administration and can report any individual for medical examination whose oxygen saturation levels fall below 94%.
- Digital platforms have been utilized by the State for ensuring synchronization of efforts among health personnel, government medical college teams and the police.
- The Niramaya application was also developed to help manage the various needs of COVID patients. The application-based process also helped to reduce wastage by minimizing provision of food kits to the same patients more than once during a specific time period.

MAHARASHTRA[5]

- The State Government partnered with Medscape India-AMET to launch a tele-ICU for COVID patients. Such an arrangement enables doctors at a remote monitoring centre to assess the condition of patients through

a monitor attached to every bed in the ICU. By leveraging technology, a tele-ICU allows access to specialist advice for COVID patients.

MULTIPLE CITIES[14]

- Pimpri Chinchwad Municipal Corporation's SARATHI Public Grievance System connects citizens with medical officers. Standardized information about COVID is made available on a single platform, in simple language and with FAQs.
- The District Administration of Jalandhar has launched an application via Alluzo and a WhatsApp-based service for enabling people to order essential services
- Smart cities such as Chennai, Bengaluru, Raipur and Guwahati have prepared themselves to use technology solutions such as drones for disinfecting public spaces in situations where human access is difficult.

PUNJAB

COVA Application

- The State Government has developed an application called COVA for providing information about COVID to citizens in Hindi, Punjabi and English. During the lockdown period, citizens could use the application for booking essentials and obtaining curfew passes.
- Through COVA, citizens can also access details of hospitals and doctors in their neighbourhood, undertake a self-assessment of their health condition as well as get their queries resolved.
- The application allows citizens to mark their profile if they are in self-isolation as well as report any mass gatherings. COVA has been adopted in other States as well, including Haryana, Rajasthan and Chhattisgarh.

Management of Travellers

- All inbound people traveling to Punjab by road, rail or air had to be registered on the COVA application prior to commencing their journey to the State. Upon arrival in the State, medical screening was conducted, including through the use of rapid antigen test kits.
- With the exception of frequent travellers, all entrants to Punjab were required to self-quarantine for a period of 14 days, during which time they had to update their health status on the COVA application or call 112 on a daily basis. Further, they were required to call 104 for assistance, should they develop any COVID-related symptoms.
- Institutional quarantine was mandated for a 7-day period for international travellers, followed by an equal time period of home quarantine.
- Private players were also engaged in the State for monitoring individuals in home quarantine through regular phone calls and visits.

Surveillance

- The Punjab Government has partnered with IIT-Madras to deploy technology for identifying super-spreader events and tracking patients.
- Mobile tower location data is used for tracing the movements of COVID positive individuals over a 15-day period to identify others they might have come in contact with. Tower location data is obtained from telecom

companies and provided by IIT-Madras to the State Government. Privacy is ensured by not revealing the names of phone users and using only a number ID. It is on the basis of this information that micro-containment zones are declared.

- Further, the data is collated with information obtained from the COVA application to monitor the movements of people who enter Punjab from other parts of the country.

SIKKIM[5]

- Government of Sikkim developed a centralized information system to provide credible information related to COVID-19 as well as dispel myths and fake news. The portal provides access to health updates, helpline numbers, a list of stores providing essential items as well as a link to the Chief Minister's Disaster Relief Fund.

TAMIL NADU

- Technology has been used extensively in the State for overseeing contact tracing, quarantine and hospital infrastructure management; facilitating the movement of people and industrial workers (ePASS system) as well as managing containment zones and hotspots (GIS mapping).
- An Interactive Voice Response System (IVRS) version of the Aarogya Setu application has been created by Tamil Nadu e-Governance Agency. The questions and algorithm have been designed to analyse an individual's health condition on the basis of his or her response in the IVRS system. The system is available in Tamil and can function without an internet connection.
- Technology driven initiatives for COVID-19 are rooted in the 4Cs model-Communication, Clarity (shared vision) as well as Champions of Change within every administrative and collaborative unit who are provided active support for overcoming any challenges. A WhatsApp group of key officials from different departments was formed to facilitate timely responses.
- Meenakshi Mission Hospital and Research Centre in Madurai deployed the 'Tanjore Air Barrier Technique' for delivering compressed medical grade air to health personnel in operation theatres through a hood and Bluetooth stethoscope. The hospital implemented a six-layered protection model which leverages Artificial Intelligence and Robotics for detecting symptoms in visitors (through smart infrared AI helmets for checking temperature, smart fever clinics and smart thermal surveillance cameras), sterilizing facilities as well as treating patients, without the need for contact.

TELANGANA[6]

- Telangana has developed the HITAM application for providing telemedicine services and monitoring the health status of patients in home isolation. It has been developed by Cisco, AWS and Quantella (Hyderabad-based start-up) and jointly promoted by the departments of health and information technology. The application is available in both android and iOS versions.
- The application connects COVID patients with doctors and enables them to clarify any doubts or misconceptions about their health condition. It also includes a self-assessment test for patients.
- HITAM serves as a single source of information on COVID and curbs the spread of fake news. Government bulletins on COVID status in the State are released on the application and can be accessed by the media instantaneously.

- It also provides live updates on the status of laboratories for COVID testing in the State as well as institutional Isolation and Quarantine Centres.

UTTARAKHAND

- Training is imparted through a digital Learning Management System including videos, quizzes and reading materials.

UTTAR PRADESH

Unified Data Platform[19]

- The unified data platform is built on a single point of case registration from the State-District Helpline, Government of India Database, Laboratories, Tracking Teams and Citizens' Self Quarantine Application. A unique Case ID is assigned for case management across the system.
- The platform can drive bulk allocation of cases to Tracking Teams followed by in-person verification of newly registered cases, daily follow-up and contact tracing.
- Post case allocation, the one-time medical record is updated by a nodal officer. Epidemiological data is updated on a daily basis.
- The system facilitates seamless inter-facility referral.

Health Worker Capacity Building and Mobilisation[6]

- The State Government prepared a WhatsApp compatible training video on the role of field workers which was uploaded on a weblink. An SMS with the link to the video which could be downloaded on tablets was circulated to ASHA Sanginis, ASHAs and ANMs. Voice messages developed for field workers on do's and don'ts, home care etc. were also circulated through WhatsApp groups.
- The State Government is also working in partnership with Productivise, an integrated communication, engagement and operations software, to build a local network of health workers who can assist with infection prevention and control. Infrastructure enabled by Artificial Intelligence helps the State/District Control Room by bringing all available resources (ASHA workers, NGOs, medical students, volunteers, experts) together on one secure channel for official communication. It creates location-based clusters to ensure rapid mobilization of health workers. The software also facilitates data collection and round the clock monitoring.

Platform for Citizens

- A 'Citizenship Self Registry Platform' was developed for enabling citizens to communicate with health officials in case they developed COVID related symptoms. A central helpline was also launched.

– INTEGRATED MODEL –

ANDHRA PRADESH[6]

- Andhra Pradesh started screening passengers arriving in the State from February, 2020, followed by quarantine. Through close coordination among the health department, District Administration and police, the State Government was able to track foreign returnees along with their primary and secondary contacts.
- After tracking and tracing, people were mandated to undergo home quarantine and were equipped with pulse oximeters for measuring their oxygen saturation levels on a regular basis. The health of patients in quarantine was monitored through telemedicine.
- Testing capacity was expanded considerably. TruNAT testing machines previously procured for detecting Tuberculosis were also used for COVID. Rapid antibody kits were procured from South Korea. In 11 Districts, Government medical college laboratories were utilized for COVID testing, while in the remaining 2 Districts, private medical colleges were identified for the same.
- The State Government also took over a large number of private hospital beds to expand the health infrastructure for COVID treatment. To expand the workforce engaged in COVID control, large numbers of village volunteers were engaged for conducting household surveys along with frontline health workers and ward-level officials.

ASSAM[1]

- Pillars of the Assam model for COVID management include scaling up testing infrastructure, building capacity, contact tracing, utilizing both public and private facilities for the treatment of symptomatic cases as well as ensuring transparency in data reporting.
- The Assam Government deployed at least 1,000 medical teams across the State to screen people for seasonal fever in more than 25,000 villages. ASHAs and Multi-Purpose Workers were also deployed for monitoring COVID positive individuals in home quarantine.
- Quarantine wards of 1,500 beds, staffed with 30 doctors and 200 nurses, were set up exclusively for treating COVID related issues among police personnel. The State Government had also arranged for a 14-day mandatory quarantine period for all health workers at the Taj Vivanta Hotel.
- In addition, Assam enforced strict criminal action against those who violate quarantine norms, in the form of non-bailable warrants.
- The mobile app “COVAAS” was launched to create awareness about COVID while the “COVID Suraksha” application helps to monitor the status of home quarantined individuals.

ASSAM (GOALPARA)[1]

- *Awareness creation and screening:* In Goalpara District, screening of all migrants who returned to the District post February, 2020, was ensured. A database with details of their points of origin and contact information was maintained. Community groups, student bodies and religious leaders were engaged for spreading positive behaviour change messages in the community and loudspeakers were used for making announcements throughout the District encouraging people to get themselves screened for COVID.

- *Governance and staff motivation:* A multi-disciplinary COVID monitoring cell was constituted with officials from various departments. To boost the morale of officers and staff, a #CoronaWarrior #HeroesOfTheDay series was launched through the social media channels of the District Administration. The work of 1-2 officials involved in COVID control and management in the District was showcased as part of this series on a daily basis. Frontline COVID workers were provided with special 'care kits' and personalized mugs, along with a message from the District Commissioner, to keep them motivated. An additional life cover of Rs. 2 Lakh was provided for medical staff and Safai Karamcharis through Corporate Social Responsibility initiatives under the Pradhan Mantri Jeevan Jyoti Bima Yojana.
- *Volunteering and fundraising:* Under the #GoalparaCares initiative, several small donors contributed food and health kits for the needy. Students volunteered in large numbers to reach out to vulnerable groups such as the elderly to ensure that they have access to basic provisions during the lockdown period.
- *Expanding health infrastructure:* An area-wise database of educational institutions and hostels was developed and many of these were converted into institutional Quarantine Centres. Memorandums of Understanding (MoUs) were signed with private hospitals for providing hospital beds at pre-fixed rates. Separate Intensive Care Units were created for Japanese Encephalitis/Acute Encephalitis Syndrome and COVID cases.
- *Medical supplies:* Chemistry departments of regional science colleges were mobilized for production of hand sanitizers. Self-Help Groups, along with a group of persons with disability, collaborated to produce masks and hair nets using sewing machines provided under the State Rural Livelihood Mission.
- *Education:* A YouTube Channel called #GoalparaCares was launched with modular, structured videos developed by teachers and shared on parent-teacher WhatsApp groups. 'Mission Tarang' - a learning-from-home campaign, was also launched for connecting teachers with officials and providing students with psychosocial counselling.
- *Flood management during an epidemic:* A dedicated team was constituted for flood management at the District level, while another team focused on tackling COVID. With the support of the National and State Disaster Response Forces, people in flood affected areas were rescued and brought to relief camps. In order to ensure adherence to the COVID safety protocol, schools which were not flood prone were converted into relief camps while those with boundary walls in isolated areas were designated as Quarantine Centres. School principals were made ex-officio in-charges of the camps and were provided adequate capacity building. Once the maximum capacity of a relief camp was reached, people were transported through vehicles or boats to another available earmarked centre. Social and emotional learning classes were organized for children in the relief camps and child-friendly spaces were mandated in all camps, along with visits by Anganwadi workers, for ensuring the welfare of young children.

DELHI

- Delhi adopted a multi-pronged approach including increased testing (5,000 per day to ~20,000 per day), stringent management of containment zones, home isolation for patients with mild symptoms (including provision of pulse oximeters and remote monitoring of vitals by trained nurses) as well as serological surveys.
- Large-scale expansion of COVID specific health infrastructure was also carried out. The Sardar Patel COVID Care Centre, one of the largest facilities of its kind, was inaugurated in Delhi on 5 July, 2020. The 10,000-bedded facility includes two segments - a COVID Care Centre (90% of the beds) for isolation of asymptomatic individuals and a Dedicated COVID Health Centre (10% of the beds), equipped with oxygen support, where symptomatic cases are treated.

- The Indo-Tibetan Border Police is the nodal agency for running the Centre, supported by other Central Armed Police Forces as well as paramedics, assistants and security staff (including a Quick Reaction Team). Ambulances and e-vehicles have been deployed for enabling patients to move inside the Centre.
- For the purposes of monitoring admissions and subsequent care provided to patients, an e-hospital system has been developed which captures the necessary details about patients including information about the ambulances that brought them to the centre, dates of admission, their symptoms etc.
- A 1,000-bedded COVID hospital, with 250 ICU beds, was also built in a record time of 12 days by the Defence Research and Development Organization (DRDO) in partnership with the Ministry of Home Affairs, Ministry of Health and Family Welfare, the Armed Forces, Tata Sons as well as other industry players. DRDO is responsible for the maintenance of the facility. The hospital is run by a team of doctors, nurses as well as support staff from the Armed Forces Medical Services. The hospital is also equipped with a dedicated DRDO-managed psychological counselling centre for ensuring the mental wellbeing of patients.

JHARKHAND[5]

- *Governance:* A District COVID-19 control room and helpline were set up in Ranchi for the management of the COVID outbreak. Task Forces were set up for addressing different aspects of the health emergency including perimeter surveillance; mobilization of teams for health screening at the panchayat, block and District levels; home delivery of food and other essential supplies; procurement of medical equipment as well as capacity building.
- *Medical supplies:* Ranchi was one of the first Districts to initiate local production of masks and sanitizers, at significantly lower prices compared to the national ceiling, through collaboration with Self-Help Groups and industry.
- *Public-private Partnerships:* Continuity of non-COVID health services was ensured with appropriate triage facilities. Additional infrastructure, medical equipment and human resources that could be utilized for COVID control and management were identified through consultations with private hospitals. Distribution of hygiene products to beneficiaries of the Integrated Child Development Services network was enabled by Corporate Social Responsibility donations.
- *Helplines:* To connect citizens with relevant Government departments, a variety of helplines were set up for addressing issues related to mental health, child abuse (in association with Bachpan Bachao Andolan) and domestic violence, among others. A dedicated 24×7 helpline was also set up for pregnant women to facilitate issuance of e-passes as well as ambulance and hospital linkages. Further, specific helplines were launched for containment zones so that concerns could be resolved locally.
- *Vulnerability mapping:* A detailed mapping of various categories of individuals with heightened vulnerability during the outbreak and subsequent lockdown period was carried out in collaboration with civil society organizations, frontline workers, local communities and District officials. Depending on their specific needs, social support interventions were provided to senior citizens, including those living in old age homes; transgender persons; people living with HIV/AIDS; persons with disability; prisoners and sex workers.
- *Contact tracing and screening:* Over a two-month period, a large-scale door-to-door screening exercise was conducted, followed by testing of symptomatic individuals and contacts of positive cases.
- *Management of high-risk patients:* A dedicated COVID-19 dialysis centre was established to cater to the requirements of high-risk patients on dialysis, in containment zones, in particular.

LAKSHADWEEP

- Lakshadweep has adopted an integrated model for COVID control and management, with a special focus on screening, testing and quarantine. The Union Territory began screening passengers early on during the onset of the outbreak in the country. In February, 2020, Lakshadweep had initiated pre-boarding screening of passengers entering its territory by air and sea. Entry of people into Lakshadweep from all ports, except Kochi, was banned.
- For those intending to enter Lakshadweep via Kochi, a 7-day quarantine period was mandated followed by a compulsory COVID test prior to boarding the ship. Upon reaching the Union Territory, passengers had to go through another 14-day period of home quarantine.

– WELFARE OF MIGRANT WORKERS AND OTHER VULNERABLE GROUPS –

GoI Guideline: Psychosocial Issues Among Migrants During COVID-19[xvii]

Migrant workers are the most marginalized sections of society who are dependent on daily wages for their living, and in times of such distress need sympathy and understanding. Immediate concerns faced by migrant workers relate to food, shelter, healthcare, fear of getting infected or spreading the infection, loss of wages, concerns about the family, anxiety and fear. Sometimes, they also face harassment and negative reactions of the local community. All this calls for strong social protection. As an immediate response, measures to be taken should include, ensuring community shelters and community kitchens, making other relief material available, emphasizing the need for social distancing, identifying suspected cases of infection and adhering to protocols for management of such cases, putting in place mechanisms to enable migrant workers to connect with family members through telephone, video calls etc. as well as ensuring their physical safety.

ASSAM[1]

- An insurance cover of Rs. 50 Lakh was announced by the State Government for journalists based out of Assam.
- Additionally, all folk artists and Lok Shilpi were provided a monthly sum of Rs. 2,000 for a period of three months.
- For migrant labour returning to Assam, the State Government has implemented several initiatives including the issuance of job cards, supply of food rations for three months and an enhancement of the daily wage from Rs. 182 to Rs. 202 under MGNREGA. Further, the Government has allocated 5 Kg rice per month to all poor families who do not possess a ration card - a measure which is expected to benefit 55 Lakh households.

CHHATTISGARH

- The administration provided free ration including rice, gram, jaggery and salt during the lockdown period to Below Poverty Line (BPL) households. Above Poverty Line (APL) families were also provided a ration kit at a highly subsidized rate of Rs. 10 per Kg.
- The State Government ensured doorstep delivery of cooked nutritious meals for beneficiaries of the ICDS scheme.
- Further, the State Government allocated Rs. 1 Crore each to all District Collectors for setting up temporary camps for homeless families and non-residents.
- A helpline number was established at the State and District levels for the convenience of registered labour stranded in other states amidst the lockdown and all necessary help was provided to them.

[xvii] Psychosocial Issues Among Migrants During Covid-19. Ministry of Health & Family Welfare, Government of India. Retrieved October 21, 2020 from https://www.mohfw.gov.in/pdf/RevisedPsychosocialissuesofmigrantsCOVID19.pdf.

GUJARAT[8]

- Food grains were distributed to migrant labour without ration cards under the Anna Brahma Yojana while cardholders and labour were provided Direct Benefit Transfers under the Mukhya Mantri Garib Kalyan Yojana.
- The Chief Minister also made an appeal to APL beneficiaries to not avail their portion of free food grains if they could afford to pay for them. Around 30 percent of APL beneficiaries responded to this appeal favourably and their share of food grains were distributed free of cost to BPL cardholders.

MANIPUR[13]

- The State Government, in partnership with an Imphal-based NGO, started "Khudol", an initiative for ensuring health, hygiene and food for the LGBTQI+ community, daily wage earners, people living with HIV, adolescents, and children.
- Manipur provided accommodation for the transgender community during the lockdown period and ensured that they are not put into Quarantine Centres for men.
- Manipur's "Khudol" has been listed by the United Nations Secretary-General's Envoy on Youth among the top 10 global initiatives for enabling an inclusive fight against the COVID pandemic.
- The State Government launched a website for connecting with citizens who were stranded in other parts of the country during the lockdown period.
- Additionally, the Manipur Government offered assistance in the form of dry ration, hygiene kits and financial aid (Rs. 2,000 per person) to students and other Manipuris stranded in the national capital after the announcement of the nationwide lockdown. The items distributed were sourced through voluntary contributions.

ODISHA[5]

- Odisha was the first State in India to announce that it will take care of migrant workers from other States and provide services free of cost during COVID-19.
- Odisha estimated that around 5 Lakh migrant workers stranded in various parts of the country will return to the State after the lockdown. To address this challenge, the State Government assigned senior I.A.S officers to all Districts as observers for facilitating the care and management of laborers upon their return to the State.
- Crucially, the State activated its Panchayati Raj Institutions and engaged with Sarpanchs in the planning process. Around 6,700 Sarpanchs took an oath to take care of migrant laborers upon their return to the State. Community-based monitoring was carried out by Gram Panchayats and Urban Local Bodies. Powers of the District Collectors were delegated to the Sarpanch in Gram Panchayats within their jurisdiction.
- Returnees to the State as well as their friends and relatives were required to register with the Gram Panchayat. Quarantine facilities were provided free of cost for a period of 14 days. Upon completion of the requisite quarantine period, returnees were offered an incentive of Rs. 2000. Local communities were engaged to facilitate the identification of returnees who had not registered with a Panchayat-level quarantine facility.
- Further, a toll-free number 104 and a web portal were launched for the registration of travellers from the State, within 24 hours of their return. Following registration, individuals were contacted by Government officials for detailed enquiries and medical examination, if necessary. A cash incentive of Rs. 15,000, along with medical care, was also announced for individuals in home quarantine.

- In order to address the needs of the poorest and most vulnerable sections of society in the areas of food security and social welfare, a comprehensive package of Rs. 2,200 Crore was announced by the State Government. This included measures such as distribution of rice for a three-month period and payment of pension under various social security schemes, in advance, as well as financial assistance for construction workers.
- A large-scale Urban Wage Employment Initiative to the tune of Rs. 100 Crore was also launched with the objective of generating employment for at least 4.5 Lakh urban poor families across 114 Urban Local Bodies (ULBs).
- Further, a provision of agricultural loans was made for marginal and small farmers, in particular, and the loan amount was transferred directly to their bank accounts.

UTTAR PRADESH[7]

- Several community buildings like Anganwadi Centres, primary schools and others have been converted into community Quarantine Centres. This initiative is led by the Panchayati Raj Department with active participation of Gram Panchayat members and support from frontline workers. Migrants entering villages are screened at entry points and quarantined for the incubation period in these community Quarantine Centres where proper facilities like food and lodging are provided.
- ASHAs have been deployed for tracking migrant workers and their contacts. In fact, the Uttar Pradesh Government deployed more than 70,000 front-line workers for listing the contacts of COVID positive individuals.
- The tracking details are shared by ASHAs and ASHA Sanginis with the Block Community Process Managers and District Community Process Managers. The data is also uploaded on a web portal. A pamphlet or poster is pasted on the migrant's house to enable easy identification and follow-up.
- The list of symptomatic patients is shared with the District Surveillance Officers and State Surveillance Officer on a regular basis, who in turn, pass on the information to Chief Medical Officers for taking appropriate action.
- Nigrani Samitis (Vigilance Committees) have been formed in villages under the Gram Pradhan. Samiti members keep in touch with ASHAs and provide her with the details of migrants in their villages.

– OTHER PRACTICES –

GOA[5]

- To encourage those involved with the manufacturing, transportation and distribution of medicines and medical equipment to resume work during the lockdown period, the State Government recorded an appeal and circulated it in WhatsApp groups.
- Appeals were also made through print and other news media which highlighted that such workers were equally important in the fight against COVID as health professionals.
- In cases where workers in pharmaceutical and related industries were forbidden from going to work by Resident Welfare Associations (RWAs), the local administration adopted a mix of persuasion and enforcement. WhatsApp groups were also formed to ensure an immediate response by the administration in cases of overreach by RWAs.

GUJARAT[8]

- The entire distribution chain was computerized enabling administrators to monitor the availability of stock and distribution to beneficiaries at all Fair Price Shops (FPSs). Teams were formed to track the movement of trucks transporting food grains from warehouses to FPSs.
- To ensure and oversee that physical distancing was maintained during the distribution of food grains, a Committee was set up in rural and urban areas. One of the strategies adopted by the State Government was to offer specific slots to people for collecting ration from the FPSs using a classification based on the last digit of their ration card.
- Extra days were designated for beneficiaries who could not collect the ration during the specified slot due to unavoidable circumstances. The time slots assigned to beneficiaries was widely advertised and phone calls were also made to inform them about the same. Further, it was mandated that all FPSs display the helpline number prominently for grievance redressal.

JAMMU & KASHMIR[4]

- A dedicated helpline, 104, was launched and a separate flowchart prepared on how to deal with calls made to this helpline number.
- Allopathy doctors were engaged with the 104 helpline and tele-counselling was offered to the callers, including psychological counselling.

Jharkhand[20]

- The serological survey in Jharkhand was focused not only on the allotted six clusters in each of the ten Districts but also included high-risk and vulnerable groups including those who are immuno-compromised, people living in containment zones, health workers, security personnel, media personnel, industrial workers, farmers and vendors visiting large markets, drivers and municipality workers, bank personnel as well as people living in prisons. The survey included 240 samples from each of the six clusters across the ten Districts and 260 samples from each of the thirteen high-risk groups across the ten Districts.

MULTIPLE CITIES[14]

- Nandyal Municipal Corporation in Andhra Pradesh has arranged mobile handwashing facilities in slum areas where people ordinarily do not have access to hand sanitizer or running water in every home.
- Adopting the 'No Touch Diktat' for COVID prevention, Brihanmumbai Municipal Corporation has devised a wash basin which functions when the foot lever is pressed. Following the principle of 'waste-to-wealth', wash basins have been made out of discarded tanks.
- The Kanpur Automated Response System Phone Line is a unique concept to ascertain the health of the general public through which the respondent is asked seven questions about his/her health. Based on the responses, an assessment is made about whether or not they require medical advice/attention.
- Several cities have operationalized 24x7 control rooms including Bengaluru, Kanpur, Lucknow, Ahmedabad and Hubli Dharwad. These control rooms have been set up to ensure that all queries of citizens can be answered by professionals and also to curb the spread of fake news.
- In Gandhinagar, the Municipal Corporation is creating public awareness on COVID through the garbage collection vehicles' public address system.
- Self-Help Groups in Pauri, Uttarakhand are producing masks on a large scale in coordination with the National Urban Livelihoods Mission.

Disinfection of Public Places

- Cities have adopted various approaches for sanitization and disinfection of public spaces. City Governments have collaborated with fire departments and utilized fire-tenders as well as water wash pumps to sanitize streets by spraying disinfectants such as sodium hypochlorite.
- Tiruppur, for instance, has implemented a disinfection tunnel, which has now been adopted in numerous cities at agriculture/vegetable markets.
- For efficient geographical coverage, cities of Rajkot and Surat have adopted high-clearance boom sprayers (normally used in agricultural fields).
- In Muzaffarpur, sanitisation is carried out through use of fogging, anti-larval spray and disinfectants. Patna Municipal Corporation has been conducting sanitisation of public places such as banks, hospitals and buses using jetting machines.

ODISHA[5]

- Over 1,300 Self-Help Groups have helped implement the 'Mo Jeevan' pledge to all habitations across the State educating over 1.5 Crore people about public health and hygiene measures.
- SHGs have also been involved with manufacturing masks using their tailoring equipment. Over 65 Lakh reusable face masks were produced manufactured and sold at nominal prices to frontline workers. At least 300,000 masks were additionally distributed free of cost by to the poor and vulnerable. Further, over 7,300 SHGs were involved with kitchen management and provided over 1.9 Crore meals in rural and urban areas during the lockdown period.
- Nearly 600 SHGs helped to establish dry rations, vegetables and fruit shops across the State which catered to the needs of around 400,000 households. In close collaboration with the District Administration, over 500 SHGs procured surplus vegetables from 1,500 farmers for onward trading in local markets and supply to free kitchens managed by SHGs.

PUNJAB[21]

- Government improvisation of the procurement operations by leveraging technology, helped to prevent the spread of the disease to villages and to individuals involved in the procurement process. A unified command mechanism was put in place along with ensuring collaboration among all relevant stakeholders.
- The Punjab Government increased purchase centres/mandis from 1,820 to 4,006, thus spreading the procurement operations across a larger number of mandis. This limited the farmer footfall in a single mandi and ensured that farmers did not have to travel far from their villages.
- Over 5 Lakh people (farmers, arthiyas, paledars, health officials, procurement agency officials, mandi board officials, policemen and truck drivers) worked every day in the mandis by observing social distancing protocols. To maintain social distancing, each mandi yard was divided into 30 ft x 30 ft blocks, which were large enough to accommodate a heap of wheat (up to 90-110 quintals) including its mandi operations. 'Procurement by Invitation' was introduced by issuing mandi and date specific Arthiya Kissan Passes. These passes ensured staggered and uniform arrival of wheat in the mandis.
- Regular sanitization of mandis was carried out and optimum supply of masks, sanitizers, soaps and water was ensured.

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