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COVID-19 GOVERNANCE IN INDIA

(A Special Issue under Disaster Governance in India Book Series)

Series - 1 (March, 2024)

Centre for Disaster Management (CDM)

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COVID-19

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DIRECTOR'S MESSAGE

Sriram Taranikanti, IAS
Director,
Lal Bahadur Shastri National Academy of Administration, Mussoorie

The unprecedented COVID-2019 crisis has underlined the criticality of effective response as never before. Responsiveness has emerged as a yardstick for measuring the success of Governments across the world in tackling this calamity. Adopting a multi-pronged cross-departmental approach, supported by the collective expertise and experience of specialists and frontline workers has become the need of the hour.

Needless to say, the crisis is far from over, and the road ahead is long and challenging. Although the strategic initiatives systematically taken in the past few years have placed us in an enviable position of being in significant control of the situation, massive challenges still remain and there is no room for complacency. Hence, to define the way forward more comprehensively, the importance of period feedback, analysis and interpretation of programmes, plans and policies to reassess their status from time to time, cannot be overstated.

As the world bravely battled against COVID-19, the gravest health crisis of times, we have seen a total paradigm shift in the way we live and work. The pandemic has led to the emergence of a new and radical construct of societal norms and governance. The country has adopted a cross-departmental approach in the formulation and implementation of the COVID-19 protocol geared towards engineering a sustainable ecosystem for co-existing alongside COVID-19. The country has set forth novel strategies curated to sensitize, motivate and inspire citizens to collaboratively combat the deadly virus, through virtual awareness platforms, digital campaigns and institutionalisation of health, educational, agriculture, industrial and employment operations both in the rural and urban areas.

The lockdown provided an opportunity to not only upgrade our level I, II and III COVID care facilities in the states and to stock up our supplies but also to forge new partnerships with the best health professionals from India and abroad to train our doctors on the latest protocols for COVID patient management. There have been a number of success stories, which all have contributed to our overall understanding of such kind of management, thus adding significantly to the learning process.

I would like to thank the Centre for Disaster Management, Lal Bahadur Shastri National Academy of Administration who have worked on those success stories and have been able to compile a special issue titled: COVID-19 Governance of India, Series-1. Hopefully, the document will be equally useful for both the trainees and the administrators in the field. I want to congratulate the CDM Team for this publication and also place on record my appreciation for the contribution made by the faculty & staff of CDM who contributed in various capacities for bringing out this book.

I would also urge all to go through this compilation carefully and add to the knowledge base.

(Sriram Taranikanti)

PREFACE

Abhiram G. Sankar, IAS
Director,
Centre for Disaster Management

The COVID Pandemic that gripped the entire world has underlined the criticality of effective response as never before and once again highlighted need of health facility preparedness. Responsiveness has emerged as a yardstick for measuring the success of Government across the world in tackling this calamity. Government of India's integrated, multi-pronged action plan of containment and development involving cross Departmental approach, supported by the collective expertise and experience of specialists as well as frontline workers, paid rich dividends.

As the world bravely battles against COVID, the gravest health crisis of times, we have seen a total paradigm shift in the way we live and work. This issue highlights emergence of a new and radial construct of societal norms and governance. The novel initiatives undertaken by various district administrations adopting a cross departmental approach in formulation and implementation of COVID-19 protocol geared towards engineering a sustainable ecosystem for co-existing with COVID. The articles also highlight, all-inclusive approach adopted by administration involving community has set forth novel strategies curated to sensitize, motivate and inspire citizens to collaboratively combat the deadly virus, through virtual awareness platforms, digital campaigns and institutionalisation of heath, educational, agriculture, industrial and employment operations both in the rural and urban area.

The COVID Pandemic provided an opportunity to not only upgrade our health care facilities in the states but also to forge new partnerships with the best health professionals from India and abroad, and to upgrade and modify our protocols for COVID like patient management.

Needless to say, similar crisis may recur in future also new variants have emerged challenging the medical and scientific fraternity, in more ways than one. The strategic initiatives we have systematically under taken in these past few years placed us in significant control of the situation.

I would like to thank the Centre for Disaster Management, Lal Bahadur Shastri National Academy of Administration who have been able to compile the best practices adopted by District Administrations, PSUs and Institutions in the form of a Special issue of COVID-19 Governance of in India, Series-1.

I would urge all of you to go through this compilation carefully and add to the knowledge base for disaster management in the country, and will be useful for both the trainees and the administrators in the field. I would like to congratulate CDM Team for publication at the opportunity time.

(Abhiram G. Sankar)

CONTENTS

Contact tracing effective way to contain the spread of COVID 19 in Nagpur City, Maharashtra, India

Tukaram Mundhe, IAS

Abstract

This case study describes aggressive contact tracing and timely mass quarantine implemented for containing spread of COVID-19 pandemic are effective key steps. Author reports in details about these activities from Nagpur city, Maharashtra, India. Case argues that in cases of such national emergency/disaster situations, especially with unknown behaviour of the host, agent contact tracing and mass quarantine stand as important building block. It is expected that this case study will benefit authorities, governing structures responsible for management of public health emergencies as a road map.

Keywords: COVID-19, Pandemic, Contact tracing, Mass quarantine

1.0 Introduction

Initially described as 'just like Flu', the Corona disease is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (1). The outbreak was identified in Wuhan, China, in December 2019, declared to be a Public Health Emergency of International Concern on 30th January 2020, and recognized as a pandemic on 11th March 2020 (1). The spread of COVID-19 has prompted proactive responses from Governments, State Health Departments and Health Facilities globally. Response strategies are being adjusted to their high social and economic costs / factors (2) and sustainable & effective are sought for scale-up, particularly in lower-middle income and low-income countries.

In India, the first case of COVID-19 was reported in January 2020 (6). In the month of March 2020 the first case of COVID-19 was detected in Maharashtra (7). Nagpur reported its first COVID-19 case in the month of March 2020 (8). The district of Nagpur has a population of 4.6 million spread across 14 Tahsils (administrative divisions), seven Sub-Division & Blocks (a district sub-division) over an area of 9,892 sq. kms (9).

Nagpur Municipal Corporation (NMC) adopted various innovative strategies to combat and control COVID-19 impact in the city. The most important and effective strategy as per our assessment has been Contact Tracing which is screening and identification of COVID-19 suspects who came in close contact with a positive person to control the spread of disease. This case study specifically focus on NMC's success story lies in aggressive contact tracing for restricting the spread of infection.

2.0 Description of contact tracing

Contact tracing is fundamental/basic activities that involve working with a patient (symptomatic and asymptomatic) who has been diagnosed with an infectious disease to identify and provide support to people (contacts) who may have been infected through exposure to the patient (This definition is as per CDC guidelines about contact tracing).

Contact tracing along with robust testing, isolation and care of cases – serves as a key strategy for interrupting chains of transmission of SARS-CoV-2 and reducing mortality associated with COVID-19. The trigger to commence contact tracing is detection of a probable or confirmed case. Individuals who have been in contact with this case are identified and instructed to quarantine to avoid further transmission of the virus. Because individuals may transmit SARS-CoV-2 while pre-symptomatic or asymptomatic, quarantine should be implemented promptly after exposure to reduce potential onward transmission.

It has been estimated that most SARS-CoV-2 infections originate from relatively few individuals in high-transmission events or settings and such individuals are called as super spreaders or spreaders. Consequently, identifying the source of infection through case investigation (also referred to as 'backward tracing') is key to detecting unrecognized chains of transmission and common points of exposure. Case investigations may be an efficient way to identify additional contacts at particularly high risk of becoming ill with COVID-19. At population level, source investigations help identify risk factors and allow development of targeted public health and social measures (PHSM). WHO characterizes SARS-CoV-2 transmission into four epidemiological scenarios, one of them with four sub-categories? Approaches to contact tracing need to be adapted to local transmission dynamics and response capacity ready to be increased for higher levels of transmission (Table 1).

Table 1: Targeted approaches to contact tracing according to SARS-CoV-2 transmission patterns

Epidemiological Scenarios	**Description**
No cases	A well-trained contact tracing workforce should be identified and ready to deploy and scale up (i.e. have the required tools) to respond to first cases.
Sporadic cases	Exhaustive contact tracing and case investigation for all cases is essential for rapidly suppressing transmission.
Clusters	Contact tracing is essential to reduce transmission within clusters and to identify events that have led to high levels of virus transmission. PHSM can then be implemented to reduce the occurrence of such events.

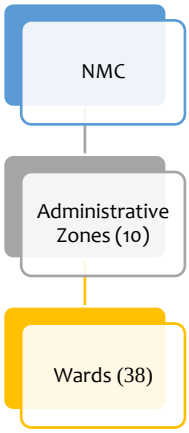
Community transmission (including 4 sub-categories of increasing incidence)	Contact tracing remains an important activity in high incidence scenarios where capacity to trace and follow-up all contacts may be at the breaking point. Contact tracing activities should be targeted rather than abandoned. It is possible to prioritize tracing of higher risk exposure contacts based on capacity (see below).

(Source: WHO)

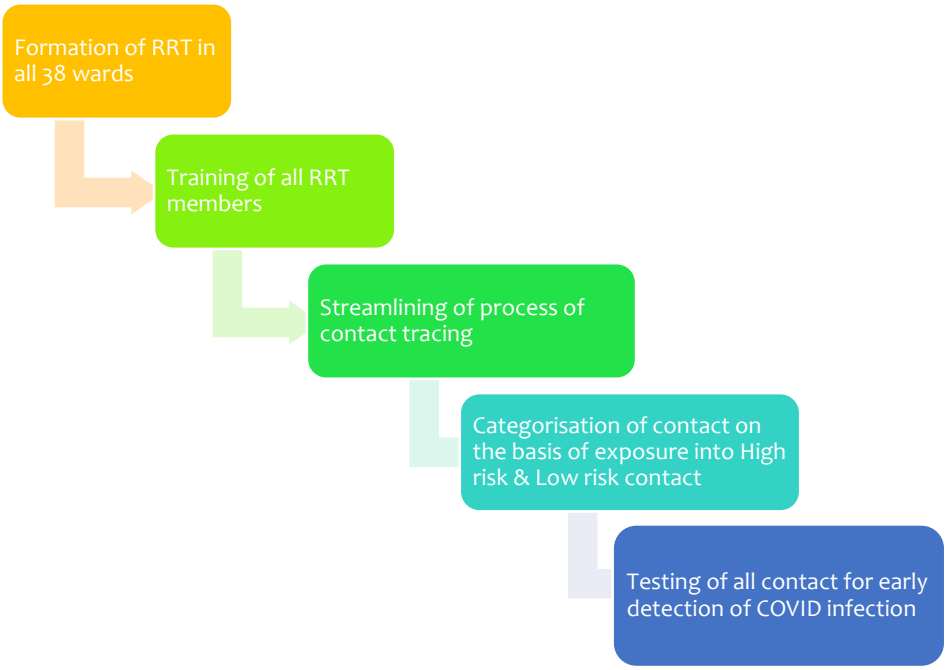
Contact tracing helped in early identification and isolation of suspects, and initiation of their treatment. Nagpur Municipal Corporation (NMC) started contact tracing in Nagpur city under the leadership of Commissioner, Nagpur Municipal Corporation from 11th March 2020, when the first case of COVID-19 is detected in the city.

3.0 How Nagpur Municipal Corporation has implemented aggressive contact tracing

NMC has population approx. 25 Lakhs as per Census 2011. For administrative purpose NMC has created decentralized structure for an effective implementation of all activities.



All these 10 zones are headed by assistant commissioner and for implementation of public health activities, per zone one Zonal Medical Officer is posted. During COVID 19 epidemic, NMC has formed War room, which is working as nerve centre. From this war room all COVID related activities are monitored & time to time course correction is made in existing strategies. For containing the spread of COVID, NMC has focused on aggressive contact tracing. To implement contact tracing process on ground, NMC has formed 144 RRT (Rapid Response Team) on ground. i.e. avg. three RRT per ward.



3.1 Contact tracing process

- Every time a person tested positive for coronavirus disease (COVID-19), a process for tracing his/her contacts was activated
- Exclusive teams at NMC level re-winded the movement of each patient -- places visited, mode of transport used and tracking of persons with whom he/she came in contact with before testing positive
- NMC team asked the patient or his/her close family member for details on travel history - whether he/she travelled by flight or train or city bus, their recent places of visits including clinics and hospitals. If required, the appropriate authorities -- airports, railways or app-based ride-hailing services were contacted directly for information.

3.2 Algorithm of contact tracing

RRT team has followed the above process for contact tracing. Contact tracing was not easy and health staff as well as RRT has faced many difficulties like people have not disclosed about their travel history, their work location, who they meet last 14 days. If any person has refused to disclose about details where he/she work or when & where he/she travelled, then RRT has involved religious leaders or any reputed persons to counsel the patients for sharing past history of travel or any other activity.

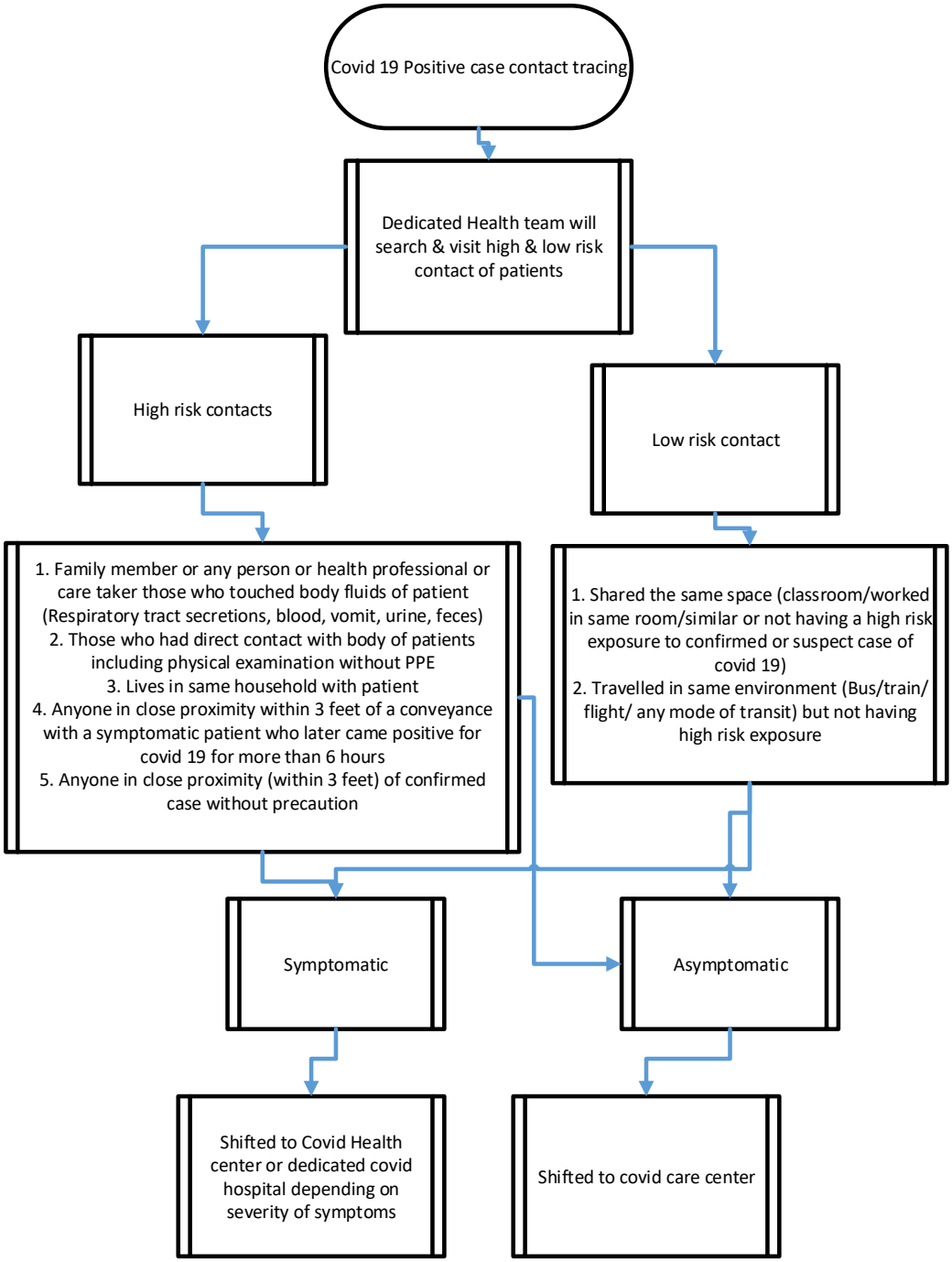


Table 2: Showing identifying contacts in different setting: (WHO)

Setting	**Ways to identify contacts**
Household contacts	Direct interview with the SARS-CoV-2 case or their caregiver.
Contacts in closed settings (long-term living facilities, prisons, shelters, hostels, social settings, household settings other than the	Direct interview with the SARS-CoV-2 case or their caregiver

case's home, gyms, meeting rooms, etc.)	• List of residents, visitors, and all staff members working during the relevant timeframe • Sign-in sheets • Membership lists of gyms or other access-restricted facilities • Interview with coordinator or manager of facility
Hospital or healthcare center	Identify all staff who have been in direct contact with the COVID-19 patient or who may have been within 1 metre of the COVID-19 patient without PPE for >15 minutes without direct contact by interviewing shift managers or reviewing rosters • Review the list of patients hospitalized in the same room or sharing the same bathroom • Review the list of visitors who visited the patient or another patient in the same room during the relevant timeframe • Undertake a local risk assessment to determine whether any additional exposures may be relevant, such as in common dining facilities
Professional contacts, including workplaces (other than healthcare settings)	Direct interview with the SARS-CoV-2 case or their caregiver(s) • Interview with facility managers
Public or shared transport	Contact identification is generally possible only where there is allocated seating • Airlines and transport authorities should be contacted to obtain details of passengers and flight manifests. • Passengers at highest risk will be those sitting within two rows of cases (in any direction), travel companions or persons providing care and crew members serving in the section of the aircraft where the case was seated. • For public or shared transport where passenger lists or allocated seating is not

	available, a media release may be required to request passengers to self-identify. • The media release may specify the date, time, pick-up location and destination and stops along the way, requesting people to self-identify as a potential contact.
Other well-defined settings and gatherings (places of worship, schools, private social events, restaurants and other places serving food or drinks)	Undertake a local risk assessment and collaborate with organizers and leadership to notify potential contacts either actively or passively (for example, through media messages to an audience of possible attendees) • Communication with focal points, such as faith leaders, about potential transmission events • For private social events, work from guest registration and booking lists • When necessary, consider media release specifying the event day and time, with request for people to self-identify as a potential contact • For commercial settings, use registries of visitors where possible and consent-granted records. For schools, conduct a risk assessment in the school with support from the school authorities. List possible high-risk contacts (e.g. close friends, classmates); follow up with family of confirmed cases to identify possible exposure

Table 3: Following table is highlighting challenges faced during contact tracing & strategies implemented to overcome the challenges:

Sl. No.	Challenges faced during contact tracing process	Strategies implemented to overcome the challenges & achieve the target
1	Few patients have provided false or incomplete history of his/her movements of last 14 days.	• Involvement of front line health worker, school teachers in RRT.

2	Refusal from sharing information about history of travel or his/her movements in last week	• Awareness generation about importance of contact tracing through mass media. • Involvement of community leaders, NGO representative in contact tracing process. • Contact tracing improved from 1:5 to 1:13.4
3	Overburden on existing RRT considering sudden increase of COVID positive cases i.e. only one RRT per Prabhag wise doing contact tracing, follow up with COVID positive cases those are in home isolation, mobilization of identified high & low risk contact for testing	• Deployment of two dedicated RRTs Prabhag wise exclusively for contact tracking. Total 144 RRT are functional, these includes total 434 ASHAs, 112 ANM, 175 school's teachers. • Use of technology: System generated SMS to COVID patients for encouraging them to share information related to history of travel or his/her movements. • Decentralized Corona War room at zone level for effective execution of strategies at ground level. • Setting up zone wise call center: From this call center a dedicated team will make calls to traced high & low risk contact for encouraging them to do testing

3.3 Outcome

The effective contact tracing has contributed into reduce number of mortalities also in densely populated zones of Nagpur Municipal Corporation Area i.e., Gandhibagh & Satranjipura. In July & August 2020, when per day 1500 – 2000 positive cases reported per day, NMC has identified the potential hotspots & it came out that majority of cases are from Gandhibagh & Satranjipura zone. NMC team has done aggressive contact tracing of all cases and mass quarantine was also implemented in these two zones. More than 8000 beds were make available for isolation of people. In Gandhibagh & Sataranjipura zone around 200400 people were traced & more than 4000 people were mass quarantined. These interventions resulted into restricting the spread of disease & reducing the COVID deaths.

3.4 Example from field

In March 2020, one COVID positive patient has died & approx. 600-700 people has attended his funeral. Post to his funeral, when 2 of family members were came positive & RRT has visited his house for contact tracing and that time these positive patients has refused to provide any history. But these RRT team has continued their efforts of extracting information & met his neighbors, kirana shop situated near by to these patients & collected that one of the family member has died and around 600-700 people has attended the funeral & currently two of his family member has positive. Considering the treat of spread of disease RRT has listed down approx. list of 633, people those who attended funeral. NMC Commissioner has taken decision of mass quarantine of all these 633 people & all these people were mass quarantined in quarantine centres. And after five days when RTPCR test was done in all these people, 22% people found COVID positive i.e. 140 people. But because of aggressive contact tracing & timely mass quarantine has restrict further spread of disease into the other people.

3.5 Impact

If 80% of infectious people who develop symptoms are tested and traced & isolated within 2 days after symptom onset, the effective reproduction number R (naught) is expected to decline from 3.1 to R (naught) 1.1 using mass quarantine & contact tracing strategy. Densely populated zones like Gandhibagh & Satranjipura zone showing lowest cases & COVID related deaths (In Dec 2020) i.e. avg. 15 positive cases per day & avg. zero deaths per day from Gandhibagh zone & avg. 10 cases per day & avg. zero deaths per day from Sataranjipura area, compare with Aug 2020, avg. 500 to 600 cases per day & 15-20 deaths per day from both the zones.

4.0 Discussion

In case of a national emergency/disaster situation, the central government leads the overall coordination and communication efforts. The central governments should plan and build on existing public health emergency/disaster preparedness and response plans for managing pandemic situations at micro-level including for pandemic influenza (10). Such efforts have been supported by the World Health Organization (WHO) and other United Nations (UN) organizations under International Health Regulations (IHR) (2005), and through the Cluster-coordination approach where relevant (10). However, there is a clearly recognized need to plan and implement actions/strategies needed at state and district level. Contact tracing is instrumental to contain infectious diseases and its prioritization as a surveillance strategy will have a substantial impact on reducing deaths while minimizing the impact on the fragile economic systems of developing country like India.

5.0 Formulating a strategic plan

At the local level, outbreak response is guided by 1) the extent of the outbreak within the district and its most likely trajectory, and 2) the risk and trajectory within the rest of the

state and nation. Precise epidemiological analysis and forecasting guide local authorities and policy makers for answering these two questions. An appropriate to handle the situation may comprise of three parts – structure (components of strategic plan and how they all will fit together), frameworks (methodologies that are applied to help authorities to come up with desired goals) and governance (path to be taken for tracking and reporting on the goal elements of the strategy) (11). Contact tracing process followed by NMCs, has showed that if aggressive contact tracing process followed then containing spread of any infectious disease is very easier. Understanding the spread of spread disease specifically in communicable disease, more focused need to be given in containing spread of disease. Aggressive contact tracing need to be followed in TB & leprosy cases.

6.0 Way forward

NMC is continuously striving to undertake innovative measures to control the spread of COVID-19 within the Nagpur city. As a way forward, NMC is planning to use drones or fixed camera-based systems with round the clock monitoring system to discourage movement between households and for monitoring implementation perimeter control activities. Additionally, keeping in view the post lockdown scenarios, NMC is planning for extensive scaling up of laboratory-based testing and sero-surveillance through rapid antibody test kits to find out cases in the community.

References

1) COVID-19 Corona Virus South African Resource Portal. What is COVID-19? South Africa2020 [cited 2020 31 March]. Available from: https://sacoronavirus.co.za/.
2) Habersaat KB, Betsch C, Danchin M, Sunstein CR, Böhm R, Falk A, et al. Ten considerations for effectively managing the COVID-19 transition. Nature human behaviour. 2020;4 (7):677-87.
3) Anderson RM, Heesterbeek H, Klinkenberg D, Hollingsworth TD. How will country-based mitigation measures influence the course of the COVID-19 epidemic? The Lancet. 2020;395(10228):931-4.
4) Tognotti E. Influenza pandemics: a historical retrospect. The Journal of Infection in Developing Countries. 2009;3 (05):331-4.
5) Rajadhyaksha M. Five lessons for local governments during COVID-19 United Kingdom: Oxford Policy Management 2020 [cited 2020 12 December]. Available from: https://www.opml.co.uk/blog/five-lessons-for-local-governments-during-COVID-19.
6) Andrews M, Areekal B, Rajesh K, Krishnan J, Suryakala R, Krishnan B, et al. First confirmed case of COVID-19 infection in India: A case report. The Indian Journal of Medical Research. 2020;151 (5):490.
7) Malik F. Six months after Maharashtra's first COVID case, tally 943,772; toll now 27,407. Hindustan Times. 2020 9 September 2020.

8) Sukhwani V, Deshkar S, Shaw R. COVID-19 lockdown, food systems and urban–rural partnership: Case of Nagpur, India. International journal of environmental research and public health. 2020;17 (16):5710.
9) Government of Maharashtra. Nagpur District India2020 [cited 2020 8 December]. Available from: https://nagpur.gov.in/.
10) World Health Organization. 2019 Novel Corornavirus (2019-nCoV): strategic preparedness and response plan. 2020.
11) Wright T. Strategic Planning Models: 3 Awesome Examples Australia: Cascade Strategy; 2019 [updated 3 July 2019; cited 2020 16 December]. Available from: https://www.executestrategy.net/blog/strategy-planning-models.
12) Thompson Jr AA, Strickland III A. Strategic management: Concepts and cases. 1998.
13) Longest Jr BB, Darr KJ. Managing Health Services Organizations and Systems (MHSOS): Health Professions Press, Inc.; 2014.

"Hell or High Water"
The story of Sahibganj's response to the COVID-19 pandemic

Varun Ranjan, IAS & Karn Satyarthi, IAS

Abstract

The COVID-19 pandemic posed many unique challenges for district administrations throughout the country. A public health emergency of this magnitude hadn't been experienced by the country in almost a century. The central problem for a remote district like Sahibganj was a paucity of resources, human as well as material. In this case study we present major hurdles faced by the district and how the flexibility of the government system was leveraged to carve out a comprehensive response strategy to the COVID-19 pandemic. We begin with what first brought our attention to the impending challenge. We then take you through our planning process and how it was informed by our experience of conducting two major elections. With the benefit of hindsight we divide the implementation of our plan into three parts. Each part is a story of how the district administration dealt with the risks, uncertainties and responsibilities of the health emergency. The study also illustrates the extraordinary transformation that the government machinery at the grassroots is capable of. Through this metamorphosis existing skills and competencies of the administration were used as a pivot to mount an effective challenge to the health as well as humanitarian crisis.

Keywords: COVID-19, Sahibganj, Public Health, Grassroots, Metamorphosis

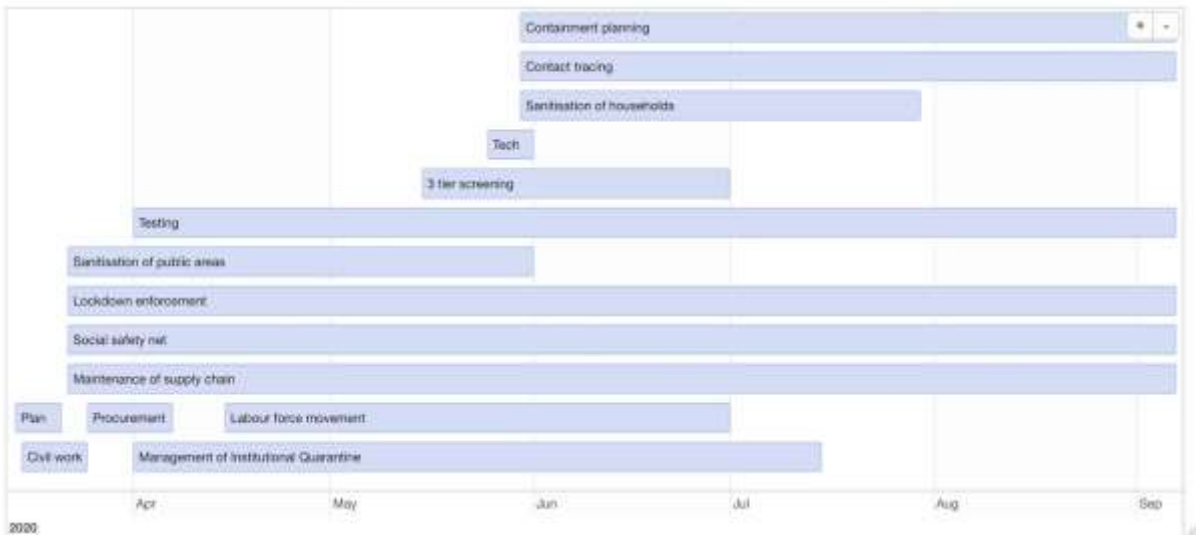
1.0 Introduction

We begin this study by introducing the district, we then take the readers inside our war room where our response strategy was formulated. The analytical foundations of our response lay in a problem solving approach and belief in the capabilities of our own human resource. We then take you through the pandemic in three phases. The first phase shows our focus on implementing the base plan. The second phase is an account of how we dealt with the risks and uncertainties of the pandemic. We give the readers a perspective on our management of logistical challenges like quarantine centres, movement of migrant workers and screening. The third phase is a narrative of how we managed to contain the pandemic through micro containment zones, aggressive contact tracing and mass testing. We also underline some innovative measures taken by the district administration to blunt the edge of the COVID-19 pandemic.

2.0 Sahibganj: Back of Beyond

If a comprehensive league of remoteness were to be developed Sahibganj would feature near the top of the table. It is 423 km away from the state capital but it takes almost 10 hours to travel those 423 km by road. Sahibganj is also one of the 115 districts categorised

by the NITI Aayog as aspirational (1). Sahibagnj's per capita income is nearly 17 percent lower than the per capita income of the state of Jharkhand (2). Historically Sahibganj was the epicentre of the great Santhal Rebellion of 1855 led by the brothers Sido and Kanho Murmu. As a result of the rebellion the British adopted a hands off approach to the socio economic progress of the region (3). Sahibganj's administrative challenges are compounded by two interstate boundaries on the northern and eastern flanks of the district. At its closest Sahibganj is barely 50 km from Bangladesh and riverine connectivity with the country poses complex challenges for the district. Sahibganj has one of the highest rates of migration in the state with 15 percent of all households having at least one member who has migrated in search of employment (4). The health infrastructure available with the district is summarised in Table 1.



A Gantt representation of our approach

Table 1: A brief snapshot of Sahibganj's health infrastructure preparedness level (5).

S.no	Indicator	Sahibganj's performance	Remarks
1	Number of government medical practitioners per 1000 individuals	0.03	
2	Number of government dental practitioners per 1000 individuals	0.00	In the bottom 60 districts in the entire country
3	Number of hospital beds available	222	Pre COVID data
4	Trained nurses and midwives	96	9th lowest in the state
5	Availability of ventilators within the district	0	With the public health system
6	Household where any member has health insurance	6.6 percent	

7	Women with 10 or more years of schooling	13.5 percent	
8	Women aged 15-49 who are anaemic	62.1 percent	

2.1 Everything starts with a rumour (6)

The first confirmed case of COVID-19 was detected in India on the 30th of January. Sahibganj's first brush with the Corona virus came in February albeit through a misunderstanding. On the 6th of February four schoolgirls fainted on account of an unknown illness. Out of a lack of understanding some overzealous citizens as well sections of uninformed media labelled these as cases of COVID-19. A wave of misinformation spread through the district. The fire of this hoax was timely quelled when it was confirmed by the district health department that the girls had fainted as a result of acute anaemia and not COVID-19. The incident however brought our attention firmly to the impending threat of the emergency we were going to face. It brought us to the drawing board and egged us to collect as much cross country information as we could about the Coronavirus. This awareness informed the actions that we took over the next few months that allowed us a little more time to calibrate our district's COVID response. The peculiarity of the case also brought home to us the value of quality communication especially when so little authentic information was available in the public domain.

2.2 On to the drawing board

The district administration in India is accustomed to working on mission mode and administrative wonders like elections, mass vaccinations, census operation and major incidents of law and order are performed effectively over and over again. However this institutional confidence could not translate directly into our preparations for the upcoming challenge. This was because the nature of the beast we were dealing with was completely uncertain. The COVID outbreak in China had failed to disseminate reliable information on the pandemic and democracies like Italy were badly floundering at their COVID response. East Asian tigers like South Korea had a much better response but were vastly better resourced and experienced at handling public health emergencies because of their experience with Severe Acute Respiratory Syndrome (SARS). When we sat at the drawing board sometime in the middle of March all we had was erratic international news and an understanding of our own strengths and weaknesses.

2.3 Taking a leaf out of the elections

Sahibganj district administration had organised two major elections in 2019. The experience of organising the Lok Sabha election 2019 as well as State Legislative Assembly election of 2019 was still fresh in the mind of our team and smooth conduct of huge logistical and law & order challenges had made us confident in our abilities. The key to organising elections in India is that all arms of the government including all government

personnel are legally deputed to the Election Commission of India this makes it possible to organise various stages of the election process without any significant augmentation of resources. In both the elections that we had conducted Sahibganj did not require any human resource from outside the district (other than security personnel, since it is a legal requirement). On the back of our success in organising the elections we decided to organise our pandemic response on similar lines. We knew that we had to bank upon the human and material resources available within the district since the crisis was going to impact the whole country. The first step that was taken following the cue from our planning was the creation of election styles in the district. A brief description of the cells is given in Table 2.

Table 2: COVID related cells and their main functions

S.no	Name of the cell	Officer heading the cell	Key responsibilities of the cell
1	Personnel	CEO, Zila Parishad	• Management of health, administrative and sanitation personnel
2	Epidemic Monitoring	Project Director, Integrated Tribal Development Agency	• Management of COVID reporting and helpdesks
3	IEC and Public awareness	District Public Relations Officer	• Managing public information dissemination regarding the pandemic including public announcement, web based awareness campaigns
4	Logistics	CEO, Zila Parishad and Nazarat Deputy Collector	• Efficient management of available material resources within the district
5	Inventory management and distribution	Director, DRDA	• Maintaining inventory and distribution of health equipment, medicines and sanitation products
6	Training	Medical Officer (Sadar)and Medical Officer (WHO)	• Training of health personnel • Translating training material received
7	Health Services	Chief medical officer	• Case Management health response • Management of rapid response teams • Testing and contact tracing

8	Disaster Management and relief	Additional Deputy Commissioner	• Smooth availability of all essential items as well as PDS • Managing resource allocation in coordination with wholesalers
9	Hygiene and Sanitation cell	Executive Officer, Nagar Parishad	• Sanitisation of public areas as well as households • General hygiene and cleanliness
10	Enforcement cell	SDM Rajmahal and Sahibganj	• Enforcement of lockdown

Soon after the creation of these cells a meeting was held with the officers in charge to chalk out our coordination strategy. The whole team unanimously supported the decision to keep all available human resources free for our mitigation strategy and we agreed that COVID was our top and only priority for the foreseeable future.

2.4 LBSNAA to the rescue

The Ministry of Home Affairs (MHA) invoked the Disaster Management Act, 2005 (DM Act) on the 24th of March 2020. Through this order a nationwide lockdown was announced. Sahibganj had however begun planning much earlier. The legal tools available to us to implement our plan were limited since neither the DM Act nor the Epidemic Diseases Act, 1897 had yet been invoked. It was here that the good old academy came to our rescue. The Code of Criminal Procedure (CrPC) is one of the most thoroughly discussed legislations in the academy and the much misunderstood but very useful Section 144 of the CrPC is one statute that gives executive magistrates a wide range of powers for combatting emergency situations. Subsections 1 and 2 of Section 144 allows an executive magistrate to act unilaterally if (s)he has reason to believe that injury or danger to life, health or safety is to be expected. We issued the proclamation of section 144 in the early hours of 22nd March. Even after the release of MHA and state government guidelines sections 133 and 144 from the CrPC were used to enforce COVID-19 related guidelines.

3.0 The lockdown is upon us (March-April)

We had already swung into action before the announcement of the nation-wide lockdown on the morning of 24th March 2020. There had been no confirmed cases of COVID-19 yet in Jharkhand but the human problem was upon us, we also had to prepare our medical infrastructure to brave the impending flood of COVID-19 cases. Five areas were identified that needed special focus during this period, these were:

1) Strict enforcement of lockdown measures.
2) Preparing our health response to COVID-19 by beefing up medical facilities.
3) Ensuring that all essential supply chains worked unimpeded.

4) Making sure no individual faced extreme deprivation and everyone's basic needs were taken care of.
5) Sanitation of public areas.

In this part of the study, we will look at how the district administration overcame challenges in these five areas.

Public announcements being made on a rainy day.

3.1 Lockdown enforcement in the district

To ensure that we were able to sustain the intensity of the lockdown it was important to institutionalise the mechanism of lockdown enforcement. We had also observed how China and South Korea had effectively leveraged local and national lockdowns to clamp down on the spread of COVID-19. To implement the national directives nine joint teams of Incident Commanders as well as Station House Officers (SHO) were created under the overall command of the enforcement cell. A ten point enforcement action plan was implemented.

1) Database for all major and minor public places was created. This included shopping areas, community halls, river banks, public parks, village chabutras, community water kiosks & bathing points, public offices, playing grounds etc.
2) Dedicated teams with one section of police force and a magistrate were deputed to ensure round the clock surveillance of all public areas.

3) A control room was established under the epidemic monitoring cell and it was tasked with receiving public complaints and directing enforcement teams to those complaints.
4) Security proceedings from the CrPC were used en masse for binding down individuals who were found violating lockdown rules. In one subdivision alone more than 230 separate cases of security proceedings were initiated binding down 1000s of individuals.
5) Five check posts with 24 hour surveillance through CCTV cameras were created at all entry and exit points of the district. To mitigate the impact of our long riverine border we created 5 check posts at 5 major river ghats and employed mobile river policing through motorboats for monitoring the smaller ghats.
6) Since all non-essential movement was prohibited we had to issue travel passes for all essential and emergency travel. We floated phone numbers and email addresses that the citizenry could reach for issuance of movement passes. The public awareness cell was tasked with publicising these email addresses and phone numbers. Publicity was done through social media as well as traditional forms of media. Community policing was also employed with the local village headman being educated on why mobility needs to be clamped down.
7) Managing riverine mobility was a special challenge for Sahibganj since citizens of the district often relied on the Ganga as a mode for transport for basic needs. For this a round the clock help desk was operational to ensure that medical emergencies were dealt with at once and precious time was not lost.
8) CCTV cameras were installed at all major urban locations to ensure zero movement of non-emergency transport.
9) Public announcements were made throughout the day reiterating lockdown rules and the dos and don'ts according to MHA guidelines.
10) Small teams from the block office were tasked with house to house awareness campaigns in rural areas.

CCTV installation at all major public places.

3.1.1 Handling major festivals

Success of our lockdown enforcement was contingent upon managing risks. One major risk was preventing mass gatherings for religious congregations. At least two major festivals Ram Navami on the 2nd of April and Eid on the 24th of May were slated in the initial months of the lockdown. Each of these festivals is celebrated through mass congregations therefore it was a challenge for us to keep the celebrations within the limits of permissible activity. We undertook a massive public outreach campaign to tackle the challenge. Since we could not meet religious leaders all at once we made small teams of officials and police officers led by the two SDMs. In the weeks leading up to the two festivals we visited all major temples and mosques of the district to interact with citizens and convey to them in clear terms the rules of the lockdown. We found our citizenry to be extremely responsive and to the surprise of all both festivals were celebrated indoors with friends and family without any major breach of lockdown rules. Careful management of the lockdown was one of the main reasons we could give ourselves a head start before the onset of the pandemic.

3.2 Getting medical infrastructure ready

The most important leg of our preparations for taking the COVID tsunami on was upgrading existing health facilities in the district. After much deliberation we declared Rajmahal Sub-Divisional Hospital as our dedicated COVID hospital. We were mindful of the fact that merely one dedicated COVID hospital would not be sufficient to handle peak load in the district. Using cross country data a back of the envelope analysis was done. In the worst case scenario Sahibganj could have as many as 2500 active cases of COVID-19. To be up for the challenge we had to first identify the space for isolating such a huge number of people. Here again our election experience came to the rescue. For elections we had used

the sprawling campus of the newly constructed Sahibganj Polytechnic College for receipt of polling parties as well as counting. It was built in a 10 acre walled campus and had spacious newly constructed buildings replete with basic amenities like piped drinking water and power back up. Fortunately for us the college had not yet started full-fledged operations and only a handful of students resided on campus. We took a quick decision to make necessary changes for it to become our last resort COVID care centre. We were hoping for the best but preparing for the worst.

Visiting the COVID ward to boost patients' as well as health personnels' morale

3.2.1 Financing the plan

Our next goal was to bring our dedicated COVID Hospital to a level where it could handle severe cases of COVID-19. A brief survey of all health facilities in the district revealed that the district only had a few ventilators and they were all with private medical practitioners. We also did not have any computerised tomography scanners or mobile radiographic units in the district. Without further ado we set out to purchase the necessary equipment. The challenge now was to arrange the necessary funds for procurement. Government procurement is known to be protracted since many checks and balances are built into the system but we did not have the time to go for lengthy procurement processes in times of such emergency. To shorten the procurement life cycle we decided to persuade the local Member of Legislative Assembly as well as the Member of Parliament for earmarking funds from the MPLAD as well as MLALAD for purchase of medical equipment. This was because upto a certain amount, procurement rules were considerably relaxed for the expenditure from these funds. Both the MLA and the MP very graciously agreed to recommend medical equipment from the funds available with them and we were able to upgrade our existing Sub-Divisional Hospital to a state of the art dedicated COVID facility replete with modern amenities and medical equipment.

3.2.2 Technological interventions in the fight against COVID

COVID had imposed many extraordinary demands on the already thin and weary workforce of the district. To combat some of these problems we employed frugal technology both as a capability demonstrators and force multipliers. Some of our frugal innovations included:

1) **Dhanvantri:** We collaborated with engineers from the Indian Institute of Technology Kharagpur (IIT Kgp) to develop a manual robot that could deliver food, medicine and drinking water to patients. Through the help of this robot the patients could also interact with their doctors remotely through video call. This robot was designed to solve multiple problems, first it reduced the amount of physical interaction between patients as well as between patients and caregivers. Second, it reduced the amount of routine work to be done by our health personnel freeing up their time for important work. Third, it demonstrated the skills and capabilities of engineers within the system. The robot was developed in a week's time using design provided to us by engineers from IIT Kgp.

Dhanwantri and Savitri deployed in the Dedicated Covid Hopital.

2) **Savitri:** Another timely innovation that we made was development of an actuator based remote controlled machine called Savitri for sanitising the hospital premises. We realised that sanitisation of hospital premises is going to be a regular exercise for the months to come and if we could develop a cost and time effective solution

it would save us a lot of time. The design for Savitri too was obtained by engineers from IIT Kgp while the assembly and hardware work was accomplished by engineers from the district. Savitri turned out to be of great help in regular sanitisation of hospital premises.

3) **Automatic Hand Sanitiser Dispensing Machine:** We realised that despite use of Technology at all levels many people were still turning up at major office premises like the collectorate and the SDM office. Expecting every individual to carry their own hand sanitisers was not yet realistic. We installed sanitisers at various places in these buildings but soon enough realised that these sanitiser bottles were themselves leading to an increased number of touches exacerbating the risk of contamination. The solution to all this was having automatic sanitiser vending machines that could sense someone's palm and dispense the requisite amount of sanitiser. All such machines however were very expensive and difficult to procure at a place like Sahibganj. We therefore decided to develop our own automatic sanitiser vending machines. Through the help of some fine young frugal innovators at Prayog India we developed five extremely low cost automatic sanitiser vending machines for our offices. These machines are still installed at our major office buildings and continue to serve citizens and officials alike.

Automatic hand sanitiser dispensing machine.

4) **Testing booth:** We noticed that some districts in the South Indian state of Kerala had developed a testing booth that could facilitate testing for long hours by our laboratory technicians. This method was safe as well as conducive for a large number of tests. Taking a feather out of Kerala's hat we developed two such compact testing booths at two of our main testing locations. These testing booths helped us perform tens of thousands of tests during the peak testing periods through the pandemic.

COVID testing booth inspired from such initiatives elsewhere.

3.3 The clockwork of essential supply chains

Our next big challenge was ensuring that all essential supply chains functioned unhindered. Maintaining essential supply chains were especially important since any miscommunication could have set in panic among citizens and created problems like hoarding and profiteering. We adopted a systematic approach to maintaining essential supply chains in the district. We first enumerated all essential goods and services that had to be sustained unhindered. These included fruits and vegetables, medicines, milk, groceries, cooking gas, fuel and other public utilities and animal fodder.

After long hours of intense effort we were able to map the proximate supply operations of all essential goods. The biggest task in front of us now was to issue passes to all persons involved with the supply chain of essential goods. We constituted 11 teams throughout the district headed by a Block Development Officer or an Executive Magistrate. The purpose of these teams were to hunt for individuals who are essential to maintaining these supply chains and issue passes to them. The result of our efforts was that within the first three days of the lock down we were able to issue more than 1300 passes and ensure that all supply chains were flawlessly managed. For battling against the threat of hoarding and profiteering we constituted teams led by the Block Supply Officer to conduct flying inspections and to attend to complaints being directed to them by the help desk. We also maintained a daily bulletin of prices of all essential goods so that signals of hoarding or profiteering could be sniffed.

Another concern that we had anticipated was crowding at stores of essential supplies. To avoid this we initiated a home delivery service for essential supplies with just two days of planning. Revenue collection officers of the municipal council as well as nagar panchayat

were deputed with the task of managing delivery services since they were aware of each and every household within municipal limits. In rural areas Panchayat Secretaries, Rozgar Sevaks (MGNREGA) and Village Level Workers were tasked with this job. The result of our home delivery services was that within a week's time we were able to make more than 10000 deliveries to our citizens.

3.4 Unto the last

In a district like Sahibganj with a low per capita income the COVID pandemic was as much a humanitarian problem as a health emergency. As a result of the lockdown many individuals working in the informal sector had lost employment and we had to ensure that they are not pushed further down the road of abject poverty. Social safety net built in the system proved to be a life saver in those desperate times. Our multipronged approach to social security can be summarised as follows:

1) All outstanding transfers for social security (old age, widow, PVTG, AIDS and disability) and maternity benefits (JSY, ICDS) were cleared in time.
2) Hassle free withdrawal of funds transferred by GOI in the Jan Dhan accounts through Customer Service Points (CSP) and banking correspondents was ensured.
3) MGNREGA job cards were issued to all returning migrant workers and massive rural works were undertaken.
4) The Public Distribution System (PDS) proved to be our greatest enabler in those tough times. Advance distribution of food grains, enhanced distribution of foodgrains as well as allotments to eligible non card holders were channeled through the PDS. Efficient management of the public distribution system went a long way in mitigating the crippling impact of the pandemic.
5) Didi (community) kitchens and meals on wheels: While the public distribution was a shot in the arm we were conscious of the fact that there were many who could not make full use of dry ration due to disability, old age or poverty. For meeting the needs of the most vulnerable we started more than 160 community kitchens called didi kitchens in every panchayat or sizeable hamlet of the district, we also initiated a meals on wheels program in every block of the district for catering to the needs of individuals who could not use the existing provisions of our social safety net for varying reasons.

Operational community (didi) kitchens.

3.5 Public sanitisation

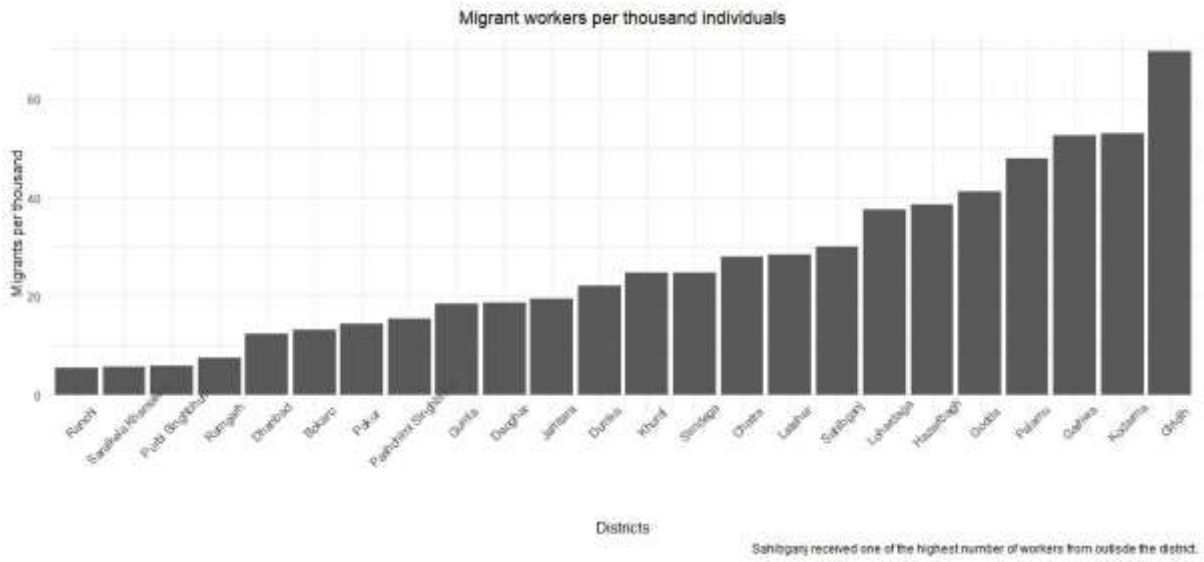
All government as well as WHO guidelines had recommended the use of one percent hypochlorite solution on frequently used surfaces and public areas. Sanitisation of public areas had three distinct advantages, first of course was its medical benefits in arresting the spread of the virus via droplets, second, it reassured the general population that the government was making all necessary efforts to contain the virus and third it visibly reminded our citizens of the huge challenge we were facing everyday and urged them to cooperate with the administration and follow all precautionary guidelines. We prepared a two-fold strategy to tackle the question of sanitisation:

1) For densely populated areas we retrofitted our water tankers with motors converting them into makeshift fire engines. We also used the four fire engines that were available with us. Using these tanker mounted vehicles and fire engines we began a comprehensive sanitisation program of all public areas.
2) It was not possible to use these vehicles for rural areas so we had to come up with something ingenious. It was the multifaceted nature of the administration that held us in good stead again. We realised that we had undertaken a massive household DDT spraying program for prevention of vector borne diseases sometime back. The whole set up was mobilised to sanitise each and every household in the district.

Training and briefing for sanitisation of public spaces

4.0 The uncertainty dawns (May-June)

Partly due to our efforts but mostly because of good fortune Sahibagnj was the last district to have a confirmed positive case in Jharkhand. Despite meticulous planning we had expected some risks and uncertainties and had to be ready to respond at short notice. The biggest uncertainty of course was the unforeseen plight and subsequent movement of migrant workers and their families.



Sahibganj's economy is heavily dependent on remittances by migrant worker population. Citizens of the district work in various states like West Bengal, Kerala, Punjab, Haryana, Delhi, Gujarat and Maharashtra as well as overseas. When the lockdown was announced our focus was entirely on the local population however within days of the announcement we started getting calls by the hundred from migrant workers and their families who wanted to return to the district. We quickly realised that this was going to be a huge challenge going forward. At that point in time we could not do much to bring these workers back since there was a complete ban on movement for non-essential activities by the MHA. As an immediate measure we constituted a migrant workers cell to coordinate and collect information on the location, numbers and need. We realised that most migrant workers were concentrated in pockets, districts like Thiruvananthapuram, Surat and Mumbai were hosting thousands of migrant workers from Sahibganj (7). The state government had not yet come up with a coordinated strategy for dealing with the migrant worker crisis since the government of India had forbidden any movement. In difficult times like these it was the esprit de corps of the Civil Service that we so often talk about at LBSNAA that held us in good stead. We started contacting our batchmates, juniors and seniors in the civil service for coordinating essential supplies to the stranded migrant workers. While this was not enough to solve the problem it did act as a temporary balm, it also made the workers feel that they were not alone and the government was trying to help them till the time a durable solution to the problem could be formulated.

4.1 The long march back home

Towards the end of April Jharkhand government decided that it will facilitate the movement of all migrant workers stranded outside the state to their home districts and villages. This decision kicked off many months of backbreaking logistical balancing for us. We met the challenge through deft operations management. The first step to solving the

puzzle was managing the inflow of migrant workers. Migrant workers were entering Jharkhand through three principal means, these were:

1) Through railway transport organised by the state government
2) Through motor transport organised by the state government (only for neighbouring states)
3) Through self-arranged transport or on foot

Citizens residing away from home start arriving.

The task for the district administration thus was also three fold, first Sahibganj does not lie on any of the main routes of railway connectivity, hence the responsibility of ferrying incoming passengers from places like Ramgarh, Dagmar, Ranchi, Dumka, Dhanbad, Garhwa, Palamu and Malda fell on our shoulders. Transport was arranged for workers alighting at these stations safely to the district. The task was made especially difficult by the prevailing COVID norms of social distancing. Refreshments and first aid were made available en route since the journeys stretched to 12 hours or longer. Once the buses entered the district we arranged for screening and quarantining for all passengers. Post screening we sent people coming from hotspot zones to institutional quarantine and for the rest home quarantine was prescribed. We also had to deal with many law and order challenges since all passengers were weary from days of uncertain and uncomfortable

travel and most of them had to spend further 14 days away from home in quarantine facilities. More than 34000 migrant citizens were thus facilitated by the district.

Screening of migrant citizens arriving home

Second, for passengers coming through motor transport from neighbouring states like Orissa, Bihar and West Bengal we followed a similar protocol. The only difference was that motor transport had more flexibility of travel and the buses could enter the district via road.

Third, circumstances during the time were replete with risks. Due to these uncertain expectations many people had decided to set off for their homes on foot, bicycles and freight vehicles. Jharkhand government had announced that it will not let such a calamitous humanitarian crisis take hold of the state. We were issued instructions that no migrant worker should be allowed to endure these hardships in our district. Keeping the circumstances in mind we decided to take the following measures:

1) Waiting/resting centres were established at all district entry points. Panchayat bhavans near border check posts were converted into waiting centres with mattresses, drinking water, refreshments and sanitation facilities.
2) At these waiting centres we arranged for small vehicles to ferry travelling workers to their places of residence if they belonged to Sahibganj. If they were to travel to neighbouring districts they were asked to wait at the waiting centre until we established contact with the district concerned. Once we had lined up their onward travel arrangements they were dropped off at the district border with the neighbouring district picking them up from there on.

3) At the border check posts we maintained complete logs of people entering the district and these logs were reported back every day for compilation.
4) We also had a 24 by 7 medical screening team at all border checkpoints who screened for symptoms and suggested home or institutional quarantine.

4.2 Managing quarantine

After the transport logistics came the toughest part of the cycle. Since most workers entering Sahibganj had travelled from COVID hotspot zones we had to enforce 14 days of mandatory quarantine. Maintaining institutional quarantine was a logistical challenge for an under resourced district like Sahibganj. Since thousands of migrant workers were entering Sahibganj on a daily basis we decided to adopt a decentralised approach to management of institutional quarantine. We identified community buildings in all Panchayats and ensured that they had basic facilities like drinking water and sanitation. Community mobilisation was done to mobilise the community since institutional quarantines were to be availed by people from those communities themselves. We ensured the following at all government quarantine centres:

1. One officer from the block was deputed to be the overall quarantine centre manager looking after the administration of centre and solving day to day problems of the residents.
2. A roster of sanitation workers was prepared so that each centre is cleaned every day.
3. Round the clock police personnel were deputed in quarantine centres with a capacity of more than 20.
4. Local caterers were engaged for cooking and providing mattresses and other boarding supplies to residents of the quarantine centre.
5. For every resident of the centre we provided a kit with necessary toiletry supplies for the next 14 days.
6. We also decided on a fixed menu on the lines of food provided in our residential hostels so that residents are assured of the quality.
7. To keep the residents entertained we introduced indoor games, film screenings and yoga sessions.
8. The most important part of the entire quarantine process was medical screening and health checkups. Teams of doctors and paramedical staff were deputed to make daily visits to all quarantine centres. The medical teams were tasked with checking for symptoms and referring individuals for testing.

Since the quarantine operations were run for multiple months many major festivals like Eid al Fitr and Eid al Adha were celebrated in the quarantine centres itself. We ensured that all festivals were celebrated with gusto and our citizens were not let down on such occasions. All residents were allowed to leave institutional quarantine on the fulfillment of one of two

conditions. One, if they completed 14 days of quarantine without developing any symptoms or second, if they tested negative on either RTPCR or TRUENAT tests.

Yoga being performed at one of our quarantine centres.

4.3 Health infrastructure to the test

Door to door screening by sub centre screening team.

The main elements of our health response included screening, testing, contact tracing and containment planning. Inventory management was another key activity that the medical cell was tasked with. We had set up a robust mechanism for screening all citizens of the district. The structure of our screening mechanism was as follows:

1) Each Primary Health Centre was responsible for screening the population in its command.
2) 146 teams were created for the district, each team had an Accredited Social Health Activist (ASHA or *Sahiya*), an Anganwadi Worker (AWW) and a Panchayat official. This was because AWWs and *Sahiyas* practically know every individual in their command area through years of mobilisation and community involvement through the ICDS and health programs.
3) The ground teams were responsible for screening each and every individual in their command area. Screening was to be done on three parameters.
    - COVID related symptoms
    - Comorbidities
    - Senior citizens
4) All individuals who fell in any of the three aforementioned criteria were placed in the advanced surveillance program. The advanced surveillance program was to be handled at the level of the second and third tier teams.
5) The second level of monitoring was done by a team of lady supervisors and Auxiliary Nurses and Midwives (ANMs). Lady supervisors were tasked with monitoring ground reports from the field. They were also asked to randomly call at least five percent of the households covered by our ground teams. They also made surprise inspections and field visits of the work done by the AWWs and *Sahiyas*.
6) The second tier team were also responsible for continuous monitoring of the individuals placed under advanced surveillance.
7) The third level of our screening structure consisted of Rashtriya Bal Swasthya Karyakram (RBSK) doctors. RBSK doctors were tasked with visiting individuals that were reported as having symptoms, people having comorbidities and senior citizens

All 3 tiers of our screening teams were trained extensively by specialist doctors from the health management cell. Extensive training on identification of symptoms, administering the questionnaire, counselling of households as well as personal safety were conducted for each team at block as well as district level so that our 3 tier surveillance could be effective. Adequate supplies of masks, sanitisers, gloves and face shields were made available to all team members so that personal safety was at no time compromised. All masks and face shields were manufactured by local SHGs. Through our extensive surveillance campaigns we were able to complete 3 complete screening of all individuals in the district.

Training followed by mock drill of screening and rapid response teams.

4.4 Community led surveillance

After we were done with three rounds of screening we realised that some fatigue had set in among our team members and their efforts needed augmentation. We decided to involve the community for lending support to our surveillance activities. PRI members were trained on basic awareness regarding COVID and door to door screening. We also used PRI members to monitor and if possible provide for basic facilities in the quarantine facilities in their respective areas. This helped us reduce the trust deficit between administration and residents as well as workers entering the district from outside. Since PRI members were responsible for taking care of their own constituents they had to be vigilant as well as efficient. Thus we were able to build in this check into our surveillance and quarantine program.

5.0 Moment of truth (July-August-September)

The months of July, August and September were the months of maximum caseload for our district. It was in these months that our medical infrastructure was stretched to its limit. Thankfully due to the efforts of each individual in the government system, the restraint shown by the people of Sahibganj and detailed planning we were able to brave the storm and come out of it bruised but not beaten.

5.1 Containment zone management

Containment zone management became our top priority when cases started coming in. We were aware of the fact that even though the virus had entered the district all was not lost yet and the damage can be minimised by careful management of containment zones.

We quickly drafted a standard operating procedure informed by best practices around the world and stuck to its physical implementation. The key elements of our SOP included:

1) As soon as a positive case was detected at any location within the district we rushed our ambulance team to the location so that the person who was COVID positive could be admitted to one of our dedicated COVID facilities.
2) Within hours of the detection we screened all contacts of the patient and ensured that contact tracing was meticulously done by a team led by the District Mining Officer and concerned Sub-Divisional Police Officer.
3) The containment zone was barricaded within 12 hours of the case being detected so that the cluster of houses could be isolated.
4) Screening teams were mobilized for an exhaustive screening of all residents of the containment zone. Residents were screened for symptoms like fever/headaches and comorbidities.
5) We also undertook a comprehensive sanitisation program for all containment zones using a one percent sodium hypochlorite solution.
6) Since containment zones were completely sealed off for a period of 14 days we had to make sure that all essentials were delivered to the household's doorsteps. We mobilised our supply team to channel the public distribution system for fulfilling essential needs of the households. We also made sure that home delivery of essential goods through the normal mechanism worked for containment zones as well so that families with sufficient purchasing power were not constrained.
7) Universal masking was enforced.
8) Police personnel along with magistrates were deputed at all entry and exit points since containment zones had to be completely sealed off.

Key to the success of our containment plan was aggressive testing and contact tracing. For a remote district like Sahibganj RTPCR testing was a challenge since for initial phases of the pandemic the nearest testing centre was in Dhanbad, 300 km away. It was because of this that we relied heavily on TRUENAT and Rapid Antigen Testing. The TRUENAT machines installed in Sahibganj worked for close to 22 hours every day to deliver a per million testing rate of 1,04,620. We also conducted extensive testing of all high risk groups like health, sanitation and media personnel. Our approach to contact tracing was similarly aggressive. A contact tracing team was created at every block and the District Mining Officer was made in charge of overall compliance of contact tracing norms. On an average we tested more than 17 people for every positive case detected. A combination of containment planning, extensive testing and contact tracing helped us achieve a case fatality rate of almost half that of the state as a whole (8).

Two friends share a moment across a containment zone boundary.

5.2 Case management

Just like containment planning was important for reducing the R 0, case management was important to limiting the number of deaths. We adopted two distinct approaches to case management for individuals infected with COVID-19. First, for patients admitted to one of our dedicated COVID facilities the following steps were followed:

1) Detailed medical history was taken at the triage to determine the course of treatment.
2) Depending on medical history, symptoms and age patients were admitted to the general ward, high dependency unit or the intensive care unit.
3) All beds in the dedicated COVID facility were equipped with oxygen cylinders.
4) Duty rosters for all medical as well as paramedical staff was displayed in the wards visible to all patients, 24 hour availability of medical staff was ensured in the wards.
5) Sanitation schedule was prepared for cleaning and sanitising hospital amenities.
6) Guidelines released by ICMR and WHO were closely followed.
7) Hospital helpdesk number was given to all patients and family members

8) Access to mobile chargers and television was given to all patients in the general ward

A 94 year old patient is relieved after full recovery from our COVID hospital.

Second, asymptomatic patients were allowed home isolation provided their place of dwelling satisfied certain criteria. This criteria included a separate room and access to a separate toilet. The individuals who were allowed home isolation were also asked to compulsorily keep a pulse oximeter on their person for regular monitoring of dissolved SPO_2 levels. All patients under home isolation were also registered on the Aarogya Setu mobile application so that network effects could be neutralised. If cases of home isolation remained asymptomatic for a period of 14 days they were tested for the second time and freed from isolation on a negative result. If any symptoms were reported from people in home isolation they were kept on watch for a period of three days. If symptoms persisted for more than three days or worsened before that they were immediately rushed to the nearest dedicated COVID facility.

5.3 Mission Muskaan

The COVID pandemic was a psychologically distressing time. More so because there were many people trapped away from friends and families due to travel restrictions. It was also very stressful for essential workers because of the work pressures as well as uncertainties

involved. We initiated the Mission Muskaan to bring a smile on the faces of the most distressed in these uncertain times. The objective of the program was simple, anyone could choose to sponsor a lunch for a group that required support and encouragement. The aim was not as much on the lunch itself as on spending some time with individuals who might need our help and sharing their concerns and fears. This was a unique way of tackling the stress generated through the uncertainties of the time. We started this program with a group of young school children stranded in their hostel rooms in Sahibganj. These children had missed their deadlines hence could not leave for their homes when the lockdown struck. The first edition of the program garnered some media attention and gradually many private citizens with means turned up to sponsor more such programs. Subsequently we had sessions with college kids of some residential colleges, sanitation workers of the Municipal bodies, media personnel and health personnel. These lunch sessions were conducted in small sessions with all COVID guidelines in mind. They turned out to be a huge goodwill gesture and helped us bridge the trust deficit between citizens and administration.

Sharing a moment with college students through Mission Muskaan.

5.4 Protecting our senior citizens

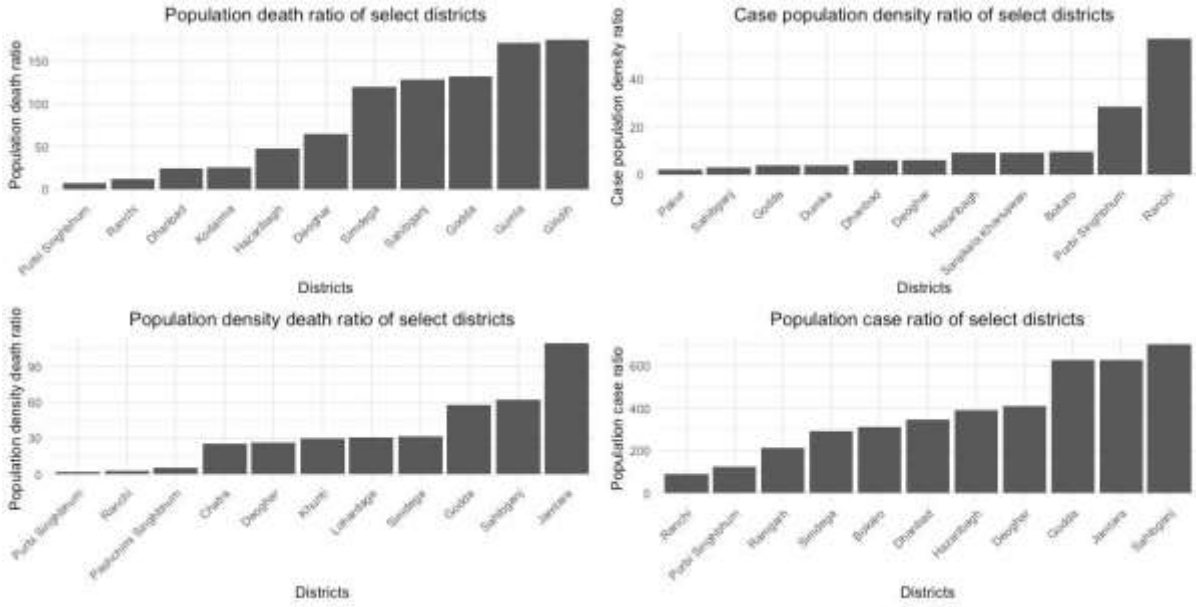
Sahibganj was one of the first aspirational districts that in collaboration with the Piramal Foundation started a dedicated campaign for the well-being of our senior citizens. This campaign was later adopted by the NITI Aayog under the flagship Surakshit Dada Dadi Nana Nani mission. They key elements of this program were:

1) Volunteers from school and college going youth were enlisted to be tagged to senior citizens from within their families or neighbourhoods
2) Volunteers were virtually trained on how to implement safety measures for senior citizens within their households and monitor their health using elementary questions
3) Volunteers were tasked with helping senior citizens in following safety protocols, help them in getting essential grocery supplies and monitor their vital statistics
4) Volunteers were supposed to act as buddies to senior citizens and report to the district team in case any symptoms came or difficulties came to notice

More than 15,000 elderly citizens of the district ultimately benefited from the Surakshit Dada Dadi Nana Nani Abhiyan.

Senior citizens being tested at an old age home.

6.0 Looking back



Sahibganj vis-a-vis other districts of Jharkhand.

Quantifying Sahibganj's triumph in numbers will be an injustice to the huge amount of unappreciated work put in by the thousands of government functionaries. However it is important to highlight our performance in numbers to emphasize the extraordinary sacrifices made by the people of Sahibganj. Table 3 highlights Sahibganj's performance relative to other districts in the state. Despite being vastly under-resourced Sahibganj performed remarkably well on four traditional indicators used for measuring pandemic performance.

Table 3: Sahibganj's rank on key COVID indicators

S.no	**Criteria**	**Sahibganj's Rank out of 24 districts**
1	Population to case ratio	5
2	Cases to population density ratio	3
3	Population to death ratio	6
4	Population density to death ratio	4

If there is anything that we learn from Sahibganj's response to the Corona Virus it is that with grit and determination of individuals, challenges can be met with suboptimal material resources. People both at home and abroad have often wondered how a country like India with so much diversity and so many systemic failures manages to perform administrative miracles like the general elections, census or the Kumbh Mela. Our response to the COVID-19 pandemic underscores the expansive capabilities of the District Administration in the country yet again. It is a testimony to the strength of the system that with a week's training our SHGs could perform tasks as disparate as screening and manufacturing masks. Our relentless pursuit of solutions to extensive problems show that with a comprehensive plan the skills of government servants can be translated into effective actions for complex problems.

Self help groups supplying masks and face shields.

References

1) MyMSME: List of Aspirational Districts, Viewed on 3rd February 2021 (https://my.msme.gov.in/MyMsme/List_of_AspirationalDistricts.aspx)
2) District wise skill gap study for the state of Jharkhand (2012-17, 2017-22), National Skill Development Corporation: 21-23.
3) The Santal Parganas Manual (1911), Government of Jharkhand, Vibhagiya Pustak Bikri Avam Prakashan.
4) Report of the COVID-19 Response Team, Department of Labour, Employment and Training, Government of Jharkhand (see Annexure 3).
5) District Factsheet Sahibganj Jharkhand, National Family Health Survey-4 (2015-16)
6) Shahi, A. (2020). "Hospital emptys in one stroke due to coronavirus rumor, patients run away from beds in Sahibganj Jharkhand", Dainik Jagran, Ranchi, 8 February. Available at: (https://www.google.com/amp/s/m.jagran.com/lite/jharkhand/ranchi-patients-left-hospital-ahead-coronavirus-rumors-in-sahibganj-jharkhand-sahibganj-news-20008280.html)
7) Report of the COVID-19 Response Team, Department of Labour, Employment and Training, Government of Jharkhand (see Annexure 3).
8) COVID-19 Bulletin Jharkhand", Department of Health, Government of Jharkhand.

Technology Interventions for Fighting COVID-19 in East Singhbhum

Dr. Giridhar Ramachandran*, Mala Advani, Ravi Shankar Shukla, IAS

Abstract

The paper shares best practices adopted by the District of East Singhbhum by way of agile technology interventions in fighting the COVID-19 pandemic. The paper lists the different interventions in both surveillance and testing that were adopted in collaboration with academic institutions and private players to improve efficiency and efficacy. These include developing an integrated data capture system, GPS tracking, SMS based alerts and online scheduling of COVID-19 tests – all of which were firsts in the state of Jharkhand and possibly in the country. The paper also shares learnings on why these interventions were able to succeed in short time.

Keywords: Technology Interventions, Agile, COVID-19, Academic Partnership

1.0 Background

The unprecedented occurrence of COVID-19 warranted unprecedented measures at various levels. The crisis that COVID-19 presented before humanity was not only a crisis of resources and responses but also that of anticipation because of the very novel characteristics of the virus. For a civil servant, the biggest challenge posed was that of failure to anticipate and fear to take quick decision in anticipation of a lurking failure. Very much like Claudius in Hamlet it presented a situation resonating the statement, "Diseases desperate grown, by desperate appliance are relieved, Or not at all." In fact, it was the direness of the situation and its unpredictability that made it inevitable to try too many things even at the risk of some errors. Response to such pandemic was bound to be multi-faceted and a district as an important unit, where strategy transitions into implementation of interventions are usually layered and may be time consuming, has the potential to narrate most dynamic interfaces in the context. The district as a unit is a place with spatio-temporal variation where policies decided at the level of Centre or the State must be implemented to achieve targeted outcomes and the scope of innovation lies in the ways and means to achieve these outcomes to the best of their effectiveness. This pandemic, being an unfortunate phase for humanity, provided the district as a unit, plenty of opportunities to innovate for better results at everything targeted. District as a unit here catalogues not only local administration but civil society, corporates, educational institutes etc. It is in this way that the pandemic made us experience how different segments of a district may align together when basic survival and larger interest of humanity connecting each other's fate is the cause.

The multi-faceted approach to fighting the pandemic involved quarantine, measures in public health delivery, scaling up of existing facilities and resources while venturing into

altogether virgin areas of governance ranging from counselling to food security, medical services to law and order, surveillance to COVID appropriate behaviour, availability of protective equipment's to enforcement of lockdown measures. On one hand there was a need of enforcement measures with iron hand to control the spread of infection and on the other hand was an inherent compulsion to extend felt support of social and physical security. It presented difficult choices for administrators in so far as while a strong and noncompromising administration was needed in times of such pandemic as large-scale measures like quarantines and lockdown were to be carried out with discipline at the same time the humanitarian approach could not be lost out of sight. The district of East Singhbhum, as a unit, strived to be agile in all these areas by virtue of the support of the populace and the willingness to carry out innovations. However, the best practices shared here are related to resilient and quick technology interventions made by the District in the fight against the pandemic. It presents a good testimony to the leveraging of the strengths of the various pillars of civil society like academia to leapfrog the technology divide and to ensure that the interventions achieve the desired effect with respect to efficiency and efficacy. The tech interventions discussed here are related to both surveillance and testing – the two important levers used by the district administration in containing the spread of infection and managing the COVID-19 situation.

2.0 From information silos to integrated views

The most plausible initial responses, to buy some time to both react as well as to respond to the virus, were drastic shotgun measures such as lockdowns and restriction upon movements. They were of help, especially in the very early stages of the new contagious disease, when uncertainty was maximal, to help isolating and tracing the infections, and buying some time for understanding the disease and the way it spreads. The long-lasting damages to the system, including an excessive price in terms of personal freedoms of such measures notwithstanding and without delving deep in the wisdom acquired in hindsight as to their effectiveness it is a fact that such restrictions were imposed. Later, the same was lifted in a phased manner leading to vast movement through all possible modes of transportation.

East Singhbhum district too witnessed an influx of stranded labour from various parts of the country. Being a cosmopolitan city, it usually witnesses 2500-3000 persons moving in and out of the district on regular days. Also, the district shares its borders with two states. Therefore, in the initial days of lockdown working people of all wage bands, students, patients, etc. returned to the district. The District also received a number of people from overseas who were heading home because of the pandemic. The key task this influx calls for is tracing and tracking these people and sample testing all the suspected ones from these. Tracing and testing of such suspected incoming people call for multiple activities and huge deployment of human resources.

Surveillance teams were created and were expected to keep an eye in their surroundings and identify people who had come from outside. For identifying such people, the members of surveillance teams were given charge area wise, where they were asked to connect with residential societies/ colonies and get regular information of incoming people to such residential areas. Also, such residential areas were made aware of their area's respective surveillance team whom they can contact in case of any new entrant from outside of the district.

Check posts became restrictive leading to local people being more alert about new people entering into their vicinity. A district-wide survey, to identify symptomatic people, was conducted. For this surveillance teams were deployed in urban areas and the strong and time-tested network of Booth Level Officers (BLOs) were employed in the same with the help of the health workers. In this phase of surveillance, what rose to be important was making surveillance more active and effective and simultaneously making people aware.

All of this meant recording large volumes of data at different touchpoints by different agencies. Adding to this complexity was the challenge of different competencies of individuals in performing this task.

Data recording mechanisms of local administration are basic with much less options for the analytics of the data due to the mode of collection and the format. The overall skill of human resource in district administration for data capturing and recording is elementary, succumbing to less evolved needs of government work at the district level. This pandemic provided an opportunity to real-time reporting and data visualization to play a functional role for district administration more than the state government even.

Initially, each block had a separate google sheet for data collection. The data collection efforts were not reflected real time and there was not much cross verification between the efforts of check posts and local surveillance teams. This quickly resulted in high levels of missing data related to individual traveller details (example - 64% data not having origin information, 40% not having type of quarantine home vs institutional, 19% data not displaying symptom status, 4% did not have phone numbers). Missing data reduced the usability of data to a great extent and increased the efforts while working with it. Additional issues included non-standardized forms of data entry leading to situations like Garbage-In-Garbage-Out. There was also the case of duplication of data because information was collected in silos. Lack of cross verification and validation of data could have increased chances of lost data, untracked entrants to the district and symptomatic entrants. Moreover, using this form of recording made report generation a manual, error prone and therefore cumbersome exercise.

It quickly became clear that there was a need for an integrated web-based data capture system that covered data collection at all possible touchpoints and ensured that information flow was mapped to people flow. From check posts to control rooms and from control rooms to surveillance teams and quarantine centres and medical teams, the data collection, reporting, and visualisation had to be real-time with minimal errors and repetition. Also, the data available across multiple windows for different stakeholders needed to be consistent.

The District Administration in partnership with XLRI (a leading business school) quickly developed an online portal that addressed these requirements (see Figure 1). In doing so, it was decided to adopt an agile approach given the rapidly evolving context of the pandemic. The system was initially tested for capturing data from containment zones that were created. The surveillance teams were provided a URL that they could access using their mobile phones to record data as and when they were capturing it from the containment zones, thereby expediting reporting and consequent actions. Simultaneously dashboards were also created to show the status of containment zones at any point in time. This included details like number of people surveyed in a containment zone, number of households, age profile, symptoms, co-morbidities, range of risk depending on direct contact with the positive case, etc.

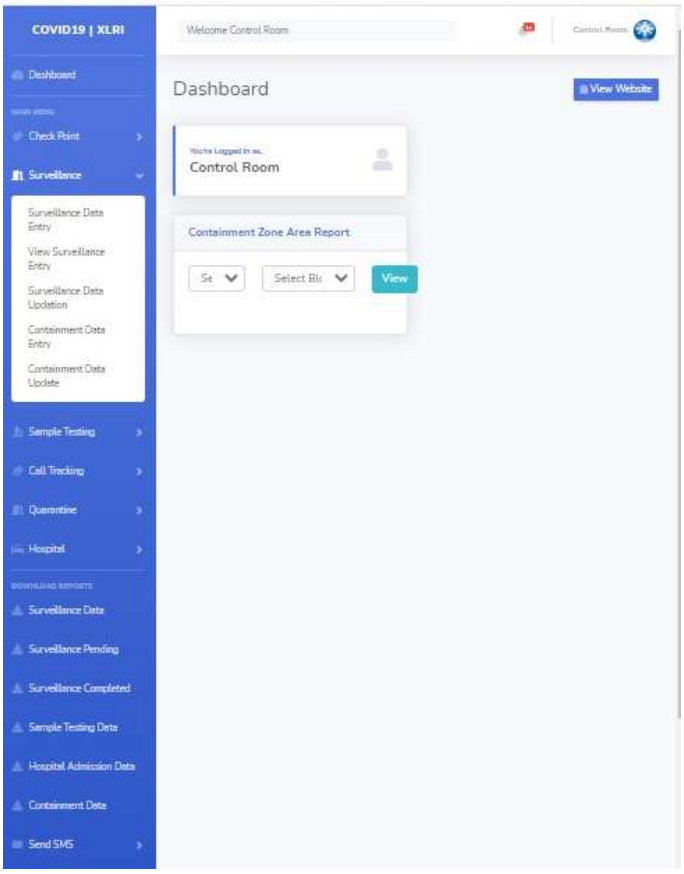


Figure 1 - Portal home page

The next phase of launch involved capturing data at check posts, by surveillance teams and quarantine centres and this is how it worked.

A person entering East Singhbhum would have to, in most cases, pass through a checkpost, where his/her basic information was collected digitally using the online portal. The railway station was also considered a checkpost to enter data of incoming passengers. At this point, basic details like name, age, address, origin of travel, etc. were collected of people who are going to stay in the district. For the vehicles which are passing by the checkposts to go to some other district, their vehicle number, mobile number, number of persons, origin and destination of travel were captured. Along with the basic details, the type of quarantining (home vs institutional) assigned to the individual was also recorded. This assignment was based on prevailing rules set by the State and District Administration (See Figure 2).

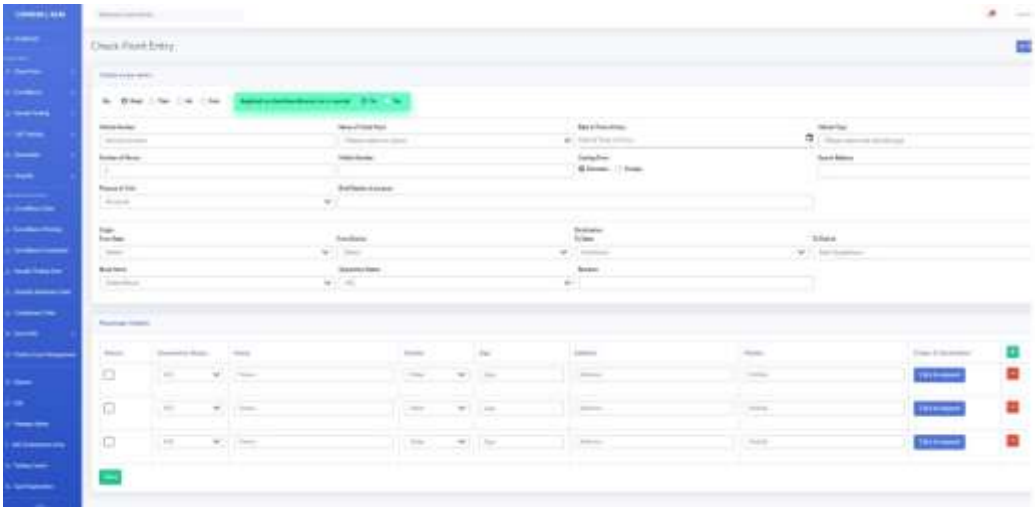


Figure 2 - Checkpost entry form

This data was then immediately available at the block control rooms (based on traveller destination address) for the respective teams to act upon. According to the quarantine type, their next action point is determined. People in home quarantine are supposed to be visited at their homes by surveillance teams, where they were made aware of the home quarantine directions, their symptoms were checked, their neighbours were made aware of the particular people being in home quarantine. The same details were also put up as a poster outside the traveller's house. To indicate closure of this activity in the system, a form had to be filled up by the surveillance team for each home quarantined individual visited consisting of a photograph of that poster, date and time of the visit, symptoms found, etc. The feature of uploading photograph of the poster pasted outside the home quarantined people, ensured visit of surveillance teams to the home quarantined people's households. This was a major requirement as in such a populous city, it was crucial that the surveillance teams have a hold on their allocated areas (see Figure 3).

Figure 3 - Surveillance updation form

As for an individual in institutional quarantine, they were directed to a particular quarantine centre depending on the vacancy and where they belonged to. At the quarantine centre, their record was retrieved and details like entry date and symptoms were added (see Figure 4). When the individual left the quarantine centre, their exit date was recorded (see Figure 5).

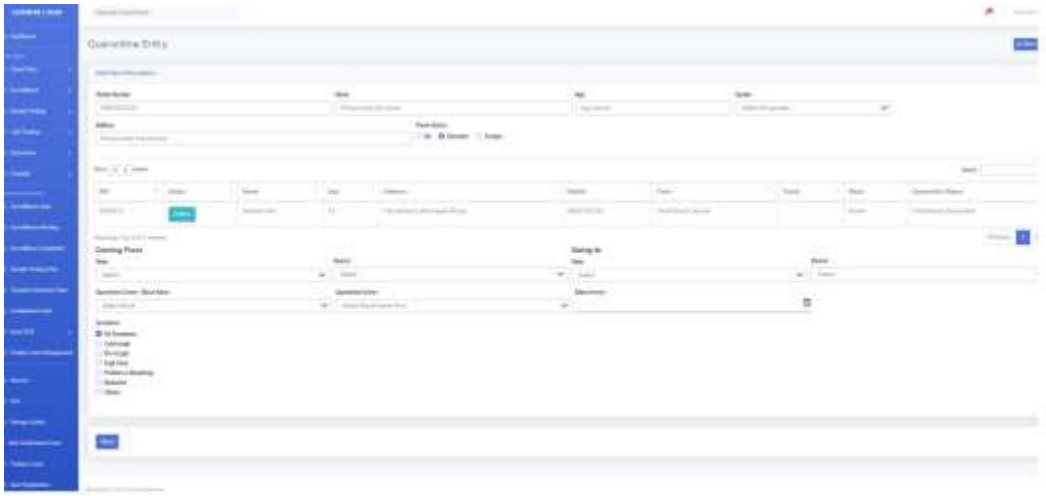


Figure 4 - Quarantine entry form

Figure 5 - Quarantine exit form

For those people institutionally quarantined, sample collection was to be done by medical teams depending on the symptoms found or simply the travel history of the person. Such a list was automatically populated at the medical team's window in the

portal listing the people they should take the samples. They could directly find such people in the portal and add the required information related to the sample collection and also input the results COVID-19 testing. They could always add their own fresh data to the portal as well.

The standard protocol included regularly calling individuals on home quarantine to keep a check on their medical condition and reminding them to adhere to rule of quarantine. While the services of a large BPO company were secured in the form of CSR to execute this, the system enabled the team to capture the data related to these calls, thereby augmenting the data already available with respect that individual on home quarantine (see Figure 6). In case a call could not be made, reasons were recorded and accordingly the next calling date was assigned for these individuals.

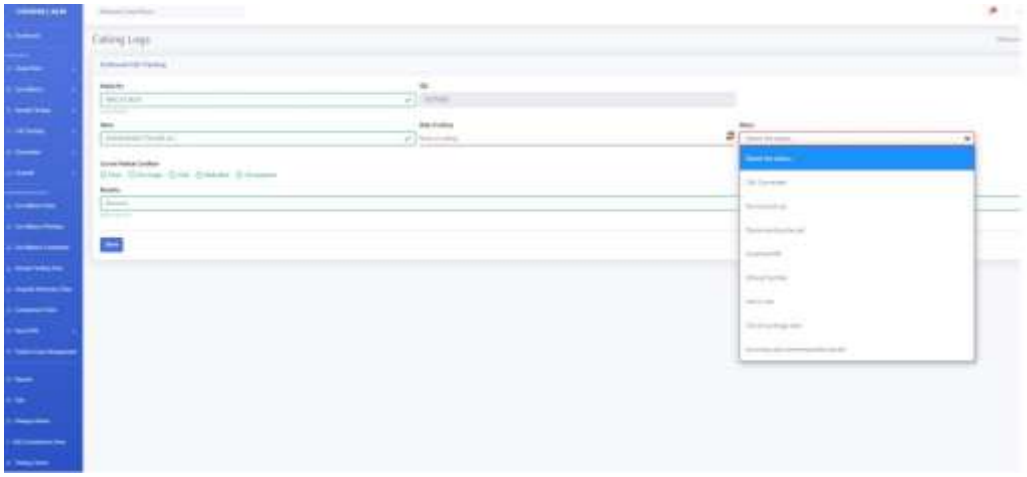


Figure 6 - Call update form

All the above-mentioned modules ensured that travellers were tracked right from when they entered the District to when they reached their homes thereby enabling surveillance teams to quickly reach them and contain the spread of the pandemic. The advantage of this integrated data capture system was that the District Administration and the Control Room could have a clear idea at any point in time on how many had entered the District, how many were in institutional quarantine and the status of pending surveillance visits at the different blocks. This data helped the Control Room team to follow up with the different blocks to maximize coverage.

The best utility of these technological inputs could have been ensured only when its usage would have trickled down to all levels of frontline workers, from the ones in control rooms to the ones at check posts. To enable this to happen seamlessly the following initiatives were taken.

- Training of computer operators at the check posts and block headquarters to use the portal (See Figure 7)
- Training of surveillance teams to use the different forms
- Visiting the different check posts in the District to understand specific requirements like the availability of power, internet, computing devices (See Figure 8)
- Developing a tab and mobile friendly system to reduce dependencies on power, availability of computers and increase real time data capturing.
- Developing and uploading training videos on how to record data in the portal to address issues like people moving in and out of teams.

Figure 7- Training on portal

Figure 8 Checkpost visits

The fact that all these efforts were matched by regular visit and interaction by senior officials of the district, and the members of civil society, with the staff manning the check posts added the much-needed human interface leveraging the desired level of inspiration and motivation coupled with monitoring.

3.0 Using coordinates for home quarantine monitoring

To make the home quarantine protocol stricter, a GPS-based tracking system was used. All travellers into the District were asked to download an app, provided by a third-party. This app created a geofencing of 500 metres around the traveller's household. This was then used to track their movement 24*7 thereafter for 14 days. If the travellers switched off their phone or moved outside the perimeter of geofencing, they were initially reprimanded and later penalized by filing an FIR against them at their local police station. This intervention augmented the existing efforts by the local surveillance teams in ensuring people did not violate home quarantine norms, thereby containing the possible spread of infection. Though, there were some limitations to the implementation of this technology, yet it served well as a psychological tool and in generating the awareness needed.

4.0 COVID-19 test reports on SMS

A breakthrough improvement in the interaction of district administration with public happened when COVID-19 reports were sent through SMS to people taking tests using government facilities. The team at the District's IDSP was tasked with collection of samples, entering data, collating results from the different labs and finally sharing the test results with the public. Such a heavy workload resulted in the IDSP witnessing huge crowds waiting to collect reports which was not a desirable situation during the pandemic. To enable better service delivery to the public and to reduce the workload of the staff at IDSP, the District Administration partnered with XLRI in developing an SMS based system for delivering test reports. The results from the labs which were collated by the IDSP team were uploaded in a server and automated SMS alerts were sent to public (see Figure 9) that had a link to view and download their test results (see Figure 10). This small tech intervention came as a huge relief to the public as well as the staff at IDSP. This was later adopted by the State to be deployed in all Districts.

Figure 9 - SMS alert sample

District Surveillance Unit
East Singhbhum Jamshedpur

Results of COVID-19

Name	: U[redacted]
Age	: 45
Sex	: M
Contact No	: 8[redacted]
Address Jamshedpur	: GALUDIH, GHATSILA
Sample send by	: GHATSILA
Come from	: RAMGHAR
Dt. of Arrival	: NA
Present Address	: Ghatsila
Date of sample collection	: 15/07/2020
Results	: Negative
Date of Result	: 30/07/2020
Remarks	:

District Surveillance Officer
East Singhbhum, Jamshedpur

PDF Report Generated on: 2020-07-31 19:21:21 IP: 117.223.213.70

Figure 10 - SMS report format sample

5.0 Scheduling COVID19 appointments online

As COVID testing was ramped up in the District, public were able to get themselves tested at designated centres. To ensure ease of operations, the District, in partnership with XLRI, designed and developed a system of scheduling appointments online. A web page was created, and people were intimated about the URL through newspapers and social media. People could go online and schedule their appointment to get their samples tested (see Figure 11). This intervention helped in dealing with uncertainty, lack of communication and also time constraints thereby tackling the initial inhibitions. On registering for the test, the public would receive a code as SMS on their registered mobile number. This code was used to validate and to upload and send the test report again as an SMS. Everybody knew the time window in which they should be at the testing centre. This ensured the influx of people to the testing facilities was streamlined and crowd management was easier.

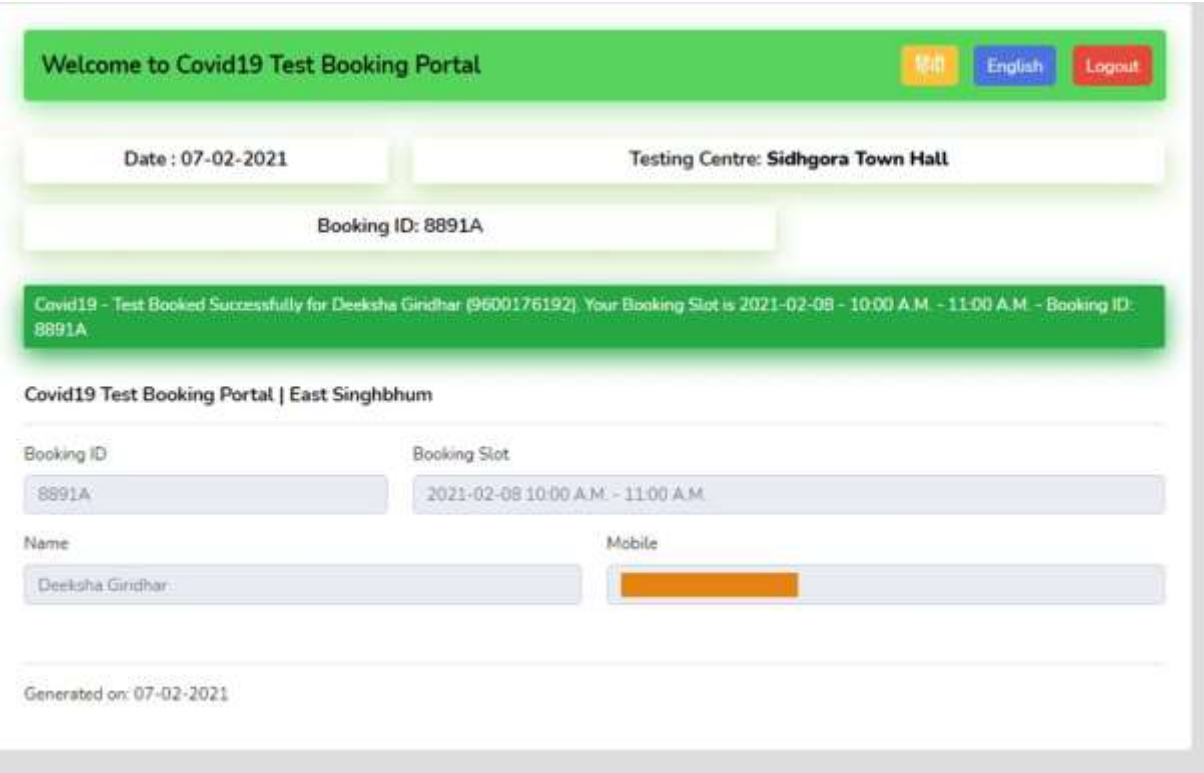


Figure 11 - Test booking form

6.0 Summary and key learnings

Change is never easily accepted and more so during a pandemic when everyone is looking for safety and assurance. The pandemic required the District to draw upon resources from different agencies. This meant the staff came with different levels of interest and competence in using technology. The District leadership as well as the team from XLRI employed multiple ways to motivate and train everyone to ensure the tech interventions could be fully leveraged.

Reporting coming out of a real-time data capture system ensured that the District leadership had an accurate picture of the efforts put in by the different teams and could take measures to improve the same. An integrated data capture also meant there were minimal differences between reporting by the different touch points thereby reducing misunderstanding and conflict. It was equally satisfactory for the administration in so much as it served the purpose neatly.

The use of SMS based alerts also helped the Administration in improving the perception among the public. Especially people in rural parts of the District now did not have to travel to the city to get to know the results and it also ended the overall uncertainty while reducing the human interface which was otherwise taxing upon the administration too.

An end-user-focused design meant that the portal was operable on phones and tabs as well and therefore helped in wider adoption by team members.

Tech interventions are generally thought of to be advanced, complex, and possibly difficult to implement in a short span of time. Additionally, there is always a reluctance to adapt to new methods. As discussed earlier, the failure to anticipate and failure to decide are likely to be accompanied together in such cases. The key to successfully leveraging technology is understanding the user's context and objectives and using them as inputs for developing the technology. This intervention has been a testament to the above statement. This intervention is also one of the ways how district level government machinery created for itself an opportunity out of a problem and used it to the best of its capacities to mitigate the spread of the pandemic and enhance its machinery's technological capabilities.

District Industrial Innovation Scheme
"Bettiah Model – Industrial Innovation start up zone, Chanpatia for COVID-19 returnees"

Kundan Kumar, IAS

Abstract

The government decided to implement complete lockdown throughout the country due to increasing numbers of COVID -19 cases. Closer of industrial establishments left workers outside from Bihar with no employment and livelihood. Returnee workers/labourers were kept in quarantine camps. During their stay in quarantine camp skill mapping was done. Bihar Government issued directions to form a "District level counselling committee" in order to enhance opportunities of employment in the state and implemented the "District Industrial Innovation Scheme" to provide means of employment or work to home coming workers at local level on war footing. There was an absolute need to create Innovation startup zone to address the economic problem faced by entrepreneurs and workers due to nationwide lockdown.

Keywords: Bettiah Model, Innovation, Worker, Scheme, Lockdown, Livelihood

1.0 Introduction

In mid-march 2020, due to increasing numbers of COVID-19 cases, Government decided to implement a complete lockdown throughout the country. Lockdown resulted in complete closer of all factories, shops, hotels, inns and other industrial establishments. As we are well aware of the fact that lots of workers from Bihar are working in other states for the livelihood. Closer of industrial establishments left workers outside from Bihar with no employment and livelihood. As a result more than eighty thousand workers came back in West Champaran district.

Government welcomed and facilitated the return of all workers to their home by running many programs in a large scale and arranged buses/trains etc. for their safe and swift movement to the native districts. At the state level detailed plan was formulated during various meetings and video conferencing to return the workers. These workers were coming from regions/state many of which were declared red zone due to high numbers of COVID cases. This could have led to the spread of infections in other areas of the state. So the directions from the state level in various meetings via video conferencing were given to keep these workers in quarantine camp at panchayat/block level, after fourteen days. Quarantine camps were established in all blocks. Workers returning to the district were thermally screened, tested for the coronavirus and sent to institutional quarantine. Those who felt unwell were treated as well before they were sent back to home. Now the challenge was to provide a livelihood to all those who are coming to the district.

2.0 District industrial Innovation scheme

Returnee workers/laborers were kept in quarantine camps. During their stay in quarantine camp skill mapping was done (Exhibit 1). Meanwhile, Industries Department; Bihar Government issued directions vide Memo No. 1914 dated 17/06/2020 to form "District level counselling committee" in order to enhance opportunities of employment in the state. District Registration and Counselling Centre (in short DRCC) were chosen as working office. After that vide Circular No.- 1928 dated 18/06/2020 government implemented "District Industrial Innovation Scheme" to provide means of employment or work to homecoming workers at local level on war footing.

In the same order the scope of the 'Bihar Industrial Investment Promotion Policy' has been extended by many amendments. The scheme encouraged establishments of micro and small units like embroidery centers, weaving, sewing, paver block manufacturing, carpentry etc. with various forward and backward linkages. The responsibility to establish such units was given to district administration.

Since then district administration has always been striving to provide employment to homecoming workers. Chief Secretary, Bihar continuously reviewed the scheme through various video conferences. Directions were given to contact the owners of factories, employers of home coming workers and make them aware about the facilities Bihar government is giving to establish factories, so that they can also establish their unit in Bihar, which ultimately will provide employment to local workers. Group counselling was done at quarantine centers in order to trace owner/manager/supervisors of homecoming workers. They were contacted after preparing the list.

3.0 Effort by District Administration

In this regard campaign by State Government and District Administration encouraged many entrepreneurs from other states to make investments and establish their units in Bihar. District administration contacted many investors and entrepreneurs. Many of them showed enthusiasm to establish their units in West Champaran. District consultant committee meeting was called on 27.06.2020 for the first time which was attended by more than entrepreneurs related to the textile & apparel sector, footwear , jacket and bag & wood craft manufacturing from Ludhiana, Surat, Gandhinagar, Noida, Delhi, Amritsar etc. Detailed discussion was done on the future work plan. It was decided to make West Champaran a textile hub in which all apparels including saree, lahnga, kurti, and socks will be manufactured. This will not only give employment to homecoming workers but also boost the economy of entire district along with state.

Again on 31.07.2020 District Magistrate called a virtual meeting with the entrepreneurs in which government policy on industries and work plan was discussed in detail. All the participants gave assurance to establish their units in West Champaran. During counseling in quarantine camp "Udayami Mitra Mandali" was formed in which entrepreneurs, expert in the area of textile and apparel manufacturing, footwear manufacturing, paver block manufacturing, sanitary pad manufacturing, cricket bat manufacturing etc. were made members and it was assured that they remain in contact even after they leave the quarantine centre. District level officers were deputed as single point of contact (further to be referred as SPOC) for each entrepreneur to facilitate them to expedite their plan of action. Beside district administration monitored and coordinated the whole work plan through the district level consultant committee.

4.0 Detailed discussion on plan of action

On 17.08.2020 more than 50 participants from different parts of the country like Surat, Ludhiana, Jaipur, Amritsar, Chandigarh, Bahadurgarh etc. attended the meeting and discussed extensively on detailed information regarding procurement and cost of machines, their use, from where they will be purchase raw materials, their market, supply chain etc. The cost and purchase of raw materials and their marketing was also discussed in detail.

5.0 Outcomes &Availability of loan

Two important points were raised during the discussion by entrepreneurs. The first one being availability of loan and second is the site for setting up the manufacturing unit. After discussion with the representative of banks present in the meeting it was decided to make available and approve the loan in a convenient manner and according to the rules and also to cover the scheme run by the government like PMEGP etc. to disburse the loan. District administration continuously discussed each case with representatives of the banks through SPOC and resolved the issues related to loan disbursement, assuring that loan was disbursed to the entrepreneurs. State government also continuously helped in providing loans to the returnee workers. Almost all the banks in West Champaran showed their enthusiasm in this cause.

6.0 Availability of sites for unit establishment

On 17.08.2020 more than fifty representatives were present in the meeting. One by one everyone shared their knowledge about their skill and the scope of the work, their plan of action, establishment of manufacturing unit, purchasing point of raw materials, backward & forward linkage etc. They mainly requested District Administration for availability of sites and operational area. They said that they do not have enough land to establish manufacturing units and the size of the machines are also very big, which demands 24X7 supply of electricity. If some of them have lands they are not good enough to operate and establish manufacturing units. Some of them are devoid of connectivity and some of them

do not have proper electricity. They suggested that it will be very helpful if the manufacturing units are established at one place in form of clusters. The manufacturing at places like Ludhiana, Surat etc. is done in the same manner. It helps in better cooperation and coordination between two sisters industries. If the fabric manufacturing, collar manufacturing, button manufacturing, embroidery, and stitching is available at the same place it will help improve the manufacturing and enhance marketing of the products also. In a nut shell they demanded one site with shade for all manufacturing units with the facility of electricity, drinking water, toilet etc., which also embodiment the idea of industrial hub.

General Manager, District Industry Centre, present in the meeting told that he has surveyed the district with the other members of the district consultant committee in this regard. They have surveyed the godowns of Food Corporation of India situated at Chanpatia. Two godowns one with the capacity of 5000mt and another with the capacity of 10000mt are not in use and are vacant measuring around one hundred thousand sq ft. These two godowns can be used as a site for quick establishments of manufacturing units. Other members of the committee also suggested that the place is suitable for establishing manufacturing units. Chanpatia, Krishi Bajar Samiti comes under Nagar Panchayat and is situated near main road. There will be no problem with the electricity and road connectivity.

Executive Director, BIADA expressed pleasure on this and gave assurance that concerned departments will be requested to give permission to use both the godowns of 5000mt and 10000mt capacity. He also assured that work will start soon, and thus the dream seen in this way seemed to come true.

7.0 Establishment of Chanpatia Start-up Zone

According to the suggestion given by the Executive Director, BIADA all the interested entrepreneurs gave applications for the allotment of shade in Krishi Bazar Samiti, Chanpatia according to their requirements. All the applications were sent to BIADA for departmental consent. BIADA after the required formalities gave permission for the shade allotment.

After the allotment, entrepreneurs themselves fenced their allotted area to set up their manufacturing unit. All the new establishments were duly registered under the industrial rules and GST. As mentioned earlier uninterrupted power supply is necessary requirement for industrial setup. It was assured through the Executive Engineer, electricity, Bettiah by providing them single phase electricity connection. Temporary toilets have also been arranged for the workers working there.

8.0 Production and Publicity

Currently at Chanpatia startup zone eleven units of apparel and textile are functional. Beside that thirty nine entrepreneurs have been allotted shades at the startup zones that are on way to establish their units in the zone. Though twenty five out of thirty nine entrepreneurs have already started production from their private or rented buildings. One big manufacturing unit from cotton to fabric is also in the process to be established.

District administration is helping publicize their products and create brand value. Packaging box for shirts, tags, button manufacturing are some of the examples. With the help of district administration entrepreneurs are making efforts to export their products in other states and countries. Such efforts have resulted in export of 40000 track suits to Leh-Ladhakh, 5000 jackets to Spain, 5000 track suits to Qatar, 5000 sarees, 200 lahanga, 50000 lowers, 20000 leggings, 10000 unit jeans and approximately 180000 dupattas has been sold in local market. 4000 units' of dupatta has been sold via Amazon platform. More than 7000 sweaters and jackets have also been sold by the manufacturers. (Exhibit 3).

Till now manufacturers at the startup zone have received orders of the value of almost thirty five millions from local market, other states and other countries. Many of the manufacturers have received advance money also. On 31st December 2020 honorable Chief Minister, Bihar Sri Nitish Kumar visited the startup zone and appreciated a lot the model and ordered to concerned departments to replicate the model in all districts of Bihar (Exhibit 4). After that, teams headed by GM- DICs of all the districts have visited the startup zone and studied the model.

9.0 Conclusion: The need of Innovation startup zone

There was an absolute need to create an Innovation startup zone to address the economic problem faced by entrepreneurs and workers due to the nationwide lockdown to prevent spread of COVID-19. Many of the entrepreneurs/workers who lost their work and came back were highly skilled. Formation of startup zone gave them opportunity to show their technically correct skills and talent. The establishment of startup zone is more or less is based on the fine knowledge of homecoming workers/entrepreneurs and with the help of district administration it has been a success story.

Exhibit-1: An excerpt from the list of migrant workers. A total of 88577 migrant workers returned to the West Champaran district during lockdown

Reg. No	Name	Block	From State	From Dist.	Profession	Worker Type	Quarantine Center	registered On	Health Status
221588905	RAJU MUKHIYA	YOGAPATTI	PUNJAB	MOGA	Migrant Worker	Unskilled workers engaged in construction	Home Quarantine	08.07.2020	Asymptomatic
221588878	NANDALAL YADAV	BAGHA-I (SIDHAW)	HIMACHAL PRADESH	SHIMLA	Migrant Worker	Unskilled workers engaged in construction	GOVT. BUNIYADI VIDYALAY,PATILAR	08.07.2020	Asymptomatic

221588874	BADRI RAUT	CHANPATIA	MAHARASHTRA	AKOLA	Migrant Worker	Masons Helper	BUNIYADI SCHOOL AWARAIYA	08.07.2020	Asymptomatic
221588851	BHUNESHWAR MUKHIYA	YOGAPATTI	PUNJAB	MOGA	Migrant Worker	Unskilled workers engaged in construction	Home Quarantine	08.07.2020	Asymptomatic
221588836	AWADH NAT	CHANPATIA	TELANGANA	HYDERABAD	Migrant Worker	Masons Helper	BUNIYADI SCHOOL AWARAIYA	08.07.2020	Asymptomatic
221588815	MUSAFIR MUKHIYA	YOGAPATTI	PUNJAB	MOGA	Migrant Worker	Unskilled workers engaged in construction	Home Quarantine	08.07.2020	Asymptomatic
221588805	RAVISH YADAV	BAGHA-I (SIDHAW)	CHANDIGARH	CHANDIGARH	Migrant Worker	Unskilled workers engaged in construction	GOVT. BUNIYADI VIDYALAY,PATILAR	08.07.2020	Asymptomatic
221588801	BHIKHARI MAHATO	YOGAPATTI	PUNJAB	LUDHIANA	Migrant Worker	Unskilled workers engaged in construction	Home Quarantine	08.07.2020	Asymptomatic
221588774	VINOD PRASAD CHAURASIYA	CHANPATIA	PUNJAB	AMRITSAR	Migrant Worker	Masons Helper	BUNIYADI SCHOOL AWARAIYA	08.07.2020	Asymptomatic
221588757	BIRENDRA KUMAR RAM	YOGAPATTI	GUJARAT	JAMNAGAR	Migrant Worker	Unskilled workers engaged in construction	Home Quarantine	08.07.2020	Asymptomatic
221588728	RAMAKANT KUMAR	BAGHA-I (SIDHAW)	CHANDIGARH	CHANDIGARH	Migrant Worker	Unskilled workers engaged in construction	GOVT. BUNIYADI VIDYALAY,PATILAR	08.07.2020	Asymptomatic
221588711	PAWAN RAUT	CHANPATIA	RAJASTHAN	BIKANER	Migrant Worker	Masons Helper	BUNIYADI SCHOOL AWARAIYA	08.07.2020	Asymptomatic
221588698	RAMSHISH RAM	YOGAPATTI	PUNJAB	JALANDHAR	Migrant Worker	Unskilled workers engaged in construction	Home Quarantine	08.07.2020	Asymptomatic
221588682	CHANDESHVAR GOND	BAGHA-I (SIDHAW)	KARNATAKA	KOPPAL	Migrant Worker	Unskilled workers engaged in construction	GOVT. BUNIYADI VIDYALAY,PATILAR	08.07.2020	Asymptomatic
221588669	BHOLA KUMAR	YOGAPATTI	PUNJAB	LUDHIANA	Migrant Worker	Unskilled workers engaged in construction	Home Quarantine	08.07.2020	Asymptomatic
221588656	SHABHU MAJHI	YOGAPATTI	UTTARAKHAND	RUDRA PRAYAG	Migrant Worker	Unskilled workers engaged in construction	Home Quarantine	08.07.2020	Asymptomatic
221588628	JULUS ALAM	YOGAPATTI	PUNJAB	LUDHIANA	Migrant Worker	Unskilled workers engaged in construction	Home Quarantine	08.07.2020	Asymptomatic
221588625	MOHAN DAS	BAGHA-I (SIDHAW)	CHANDIGARH	CHANDIGARH	Migrant Worker	Temporary unskilled worker engaged in construction	GOVT. BUNIYADI VIDYALAY,PATILAR	08.07.2020	Asymptomatic
221588610	GULAB PASVAN	YOGAPATTI	PUNJAB	LUDHIANA	Migrant Worker	Unskilled workers engaged in construction	Home Quarantine	08.07.2020	Asymptomatic
221588600	JITENDRA PASAWAN	YOGAPATTI	HARYANA	PANIPAT	Migrant Worker	Carpenter	Home Quarantine	08.07.2020	Asymptomatic
221588586	BITU PASVAN	YOGAPATTI	PUNJAB	LUDHIANA	Migrant Worker	Unskilled workers engaged in construction	Home Quarantine	08.07.2020	Asymptomatic

221588580	SUDHIR SAH	BAGHA-I (SIDHAW)	KARNATAKA	KOPPAL	Migrant Worker	Temporary unskilled worker engaged in construction	GOVT. BUNIYADI VIDYALAY,PATILAR	08.07.2020	Asymptomatic
221588574	DHARMENDRA PASWAN	YOGAPATTI	HARYANA	PANIPAT	Migrant Worker	Car Repair	Home Quarantine	08.07.2020	Asymptomatic
221588539	HARISHANKAR RAM	YOGAPATTI	HARYANA	PANIPAT	Migrant Worker	Car Repair	Home Quarantine	08.07.2020	Asymptomatic
221588510	JITENDRA YADAV	BAGHA-I (SIDHAW)	KARNATAKA	KOPPAL	Migrant Worker	Unskilled workers engaged in construction	GOVT. BUNIYADI VIDYALAY,PATILAR	08.07.2020	Asymptomatic
221588505	UPENDRA SAH	YOGAPATTI	HARYANA	AMBALA	Migrant Worker	Unskilled workers engaged in construction	Home Quarantine	08.07.2020	Asymptomatic
221588495	SANTOSH MANJHI	YOGAPATTI	UTTARAKHAND	UTTAR KASHI	Migrant Worker	Unskilled workers engaged in construction	Home Quarantine	08.07.2020	Asymptomatic
221588493	ANSHUWALI KUMAR	YOGAPATTI	HARYANA	PANIPAT	Migrant Worker	Car Repair	Home Quarantine	08.07.2020	Asymptomatic

Exhibit 2: Migrant workers coming back to West Champaran during lockdown

Exhibit 3: Details of products, manufactured unit and advance orders

Sl. no.	Name of entrepreneur	Type of industry	Products	Total produce	Advance orders
1	ARCHANA KUMARI KUSHWAHA	Readymade garments	Embroidery on lehnga and saree		3000 piece saree and 200 piece lehnga from local market
2	ARUN KUMAR	Readymade garments	Embroidery on lehnga and saree		2000 piece saree from local market
3	MD SHOAIB TAHIR	Readymade garments	Jeans, shirt, jacket etc	Jeans – 10000	Tracksuit- 40000 piece from Ladakh 1000 piece from local market

					5000 piece from Spain Miscellaneous items worth 3 million from Purnia.
4	FEROZ KAISAR	Readymade garments	Ladies dupatta	5000 dupatta everyday	Mosquito net – 5000 pieces from Muzaffarpur market
5	RAKESH PANDIT	Readymade garments	Shirt pant etc		5000 shirt and 1500 pants from local market
6	SURAJ PRASAD YADAV	Paver block	Paver block and bricks	2 million paver blocks	2 million paver blocks supplied to Zila Parishad West Champaran.
7	SHIVENDRA NATH PANDEY	Sanitary Pad	Sanitry Pad		Unit has been established, work is under process.
8	ABLUSH MIYA	Cricket Bat	Cricket Bat		Work under process
9	RATNESH KUMAR GUPTA	Footwear	Slippers, etc		Unit has been established. Work under process
10	MRITYUNJAYA	Readymade garments	Shirt, lower etc	500 shirt 700 lower everyday	20000piece lower supplied in local market
11	NEYAZUDDIN ANSARI	Readymade garments	Shirt, pants etc		Order of 1200 school uniform
12	IDRIS ANSARI	Readymade garments	Leggings , track suit etc	3000 piece leggings everyday	
13	DEEPAK KUMAR	Oven bag	Oven bag	6500 piece everyday.	
14	UPENDRA KUMAR	Baba scrubber	Scrubber for utensils	1500piece everyday	
15	AMIL HUSSAIN	Safia textile	Sarree and suit	5000 saree till now	2000 saree from local market

Exhibit 4: On 31.12.2020 Honorable Chief Minister, Bihar inspected Chanpatia startup zone and gave many important instructions. On the same day manufacturers sold products of value of almost 7.38 million rupee.

BBMP COVID-19 War Room

B H Anil Kumar, IAS, Hephsiba Rani Korlapati, IAS

Abstract

In the context of the COVID-19 pandemic, the resources of public health and integration of public health with Urban Planning and Management has come into discussion. Bengaluru city has leveraged technological solutions at the COVID-19 War Room, where a robust system was put in place to enable data integration and strategic decision-making with a clear aim to reduce the number of case fatalities in the Metropolitan city of Bengaluru. This case study summarises the War Room Strategies and the 4 Quadrants identified by Bengaluru COVID-19 War Room for effective management of the pandemic through aggressive and smart technology interventions.

Keywords: Public Health, Data Management, War Room, Technology, Smart Cities

1.0 BBMP COVID-19 War Room

BBMP War Room is a Strategic Operations Command Centre (SOCC) for Comprehensive City-level planning, Coordination, and Monitoring of the entire COVID-19 pandemic situation for the Metropolitan City of Bengaluru. The BBMP COVID-19 War Room was started on 22.03.2020 – as the first War Room in the country to fight against COVID-19. The BBMP COVID-19 War Room was inaugurated by the Worshipful Mayor and Commissioner, Bruhat Bengaluru Mahanagara Palike (BBMP), Bengaluru. The Hon'ble Chief Minister of Karnataka visited the BBMP COVID-19 War Room on 24.03.2020 along with other Ministers and Senior Officials of the State Government of Karnataka.

The War Room began with the objective to develop a clear plan and process to chalk out containment plans and implementation strategies to avoid community transmission and also to make a daily contingency plan to compensate and augment facilities that may be exhausted in a very short time. It was also equipped to map all the resources available in the city to combat the pandemic both government and private sectors. It was also meant to act as a clear channel of communication for disseminating information to the citizens and also seek the cooperation of Community Based Organisations (CBOs) in the War against the pandemic.

BBMP COVID-19 War Room was set up by B H Anil Kumar, IAS, Commissioner BBMP, the executive head of the Bruhat Bengaluru Mahanagara Palike (City Corporation). This is the first War Room in the country and also, the first time the word 'War Room' was used in the country to call the Control and Command Centre for COVID-19 Crisis Management. This call for urgent and coordinated action had generated a big impact that in less than a month

after the establishment of the War Room at BBMP, at least 5 states and 15 cities across the country have gone ahead to establish War Rooms for COVID-19 pandemic Management.

With a population close to 13 million spread across 310 square miles, Bengaluru city is popularly known as the Silicon Valley of India and has been a pioneer in technology-led citizen-centric administration. However, the pandemic threw challenges like never before. Public Health is still a grey area between the State Government and Local Government. With public health assuming a planetary dimension, the unchartered territories got exposed, the fault lines were bare, which needed immediate strategic treatment.

It was at this juncture, in the absence of an Integrated Control Command Centre at Bengaluru, with the shore not in sight and limited time and resources at hand, the City Administration took the bold call to set up the BBMP COVID-19 War Room. It took off to chalk out ways and strategies to save lives of the common people, with a definite focus on the poor citizens of the city who had lesser access to health facilities, both in terms of awareness/behaviors and amenities and build resilience in such a manner wherein the city shall have the ability to absorb, recover and prepare for future shocks (economic, social or environmental).

To put it simply, it was to build the key resilient aspects of data integration for dynamic decision-making at the War Room, establish a city-wide surveillance and sensor network, AI-based proactive incident detection and intelligence to identify the threat, absorb disturbance and reorganize during change, and build long term sustainability, access resources, and climate impact solutions or benchmarking to build a Tokyo city through the pandemic times.

2.0 How it unfolded?

Immediately after the establishment of a Strategic Operations Command Centre or the War Room, the Smart Cities Mission has identified the BBMP COVID-19 War Room as a Model War Room for leveraging technology and evolve data governance systems across the country as the cities were at the forefront of the fight against COVID-19 each with their own unique challenges. Bengaluru certainly presented a large data set with 1 percent of the country's population and a thriving ground for public-private and academic coordination. Assessing these inherent advantages, appreciating the lead taken by the City administration and capitalizing on these strongholds, the Mission Director, SCM Mr. Kunal Kumar, IAS has given the necessary direction, streamlined the way ahead, and helped the Bengaluru War Room team to evolve as a Vanguard for the 100 Smart Cities.

Secretary, MoHUA, and Commissioner, BBMP have interacted and identified the way ahead for the management and effective delivery of the BBMP COVID-19 War Room. The Model War Room Operational Framework Document has been prepared by Bengaluru Smart City Limited with the technical support of Smart Cities Mission, MoHUA, New Delhi for the adoption of technologies and integration of systems. The document on Emergency Response War Room for Smart Cities is shared with 100 Smart Cities for adoption and replication

Targeting Preparedness and planning for augmentation of facilities in the worst-case scenario for the next 9 months was a dynamic exercise attempted by the team at the BBMP COVID-19 War Room. Professors from the Indian Institute of Science, Bengaluru on the advisory board have been engaged since the beginning for consultation and collaboration towards Data Modelling.

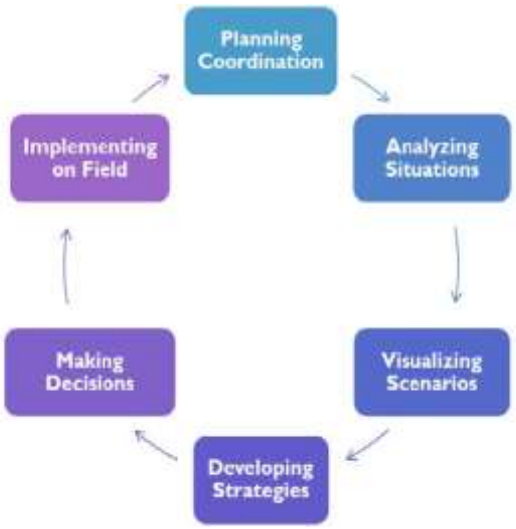
In the initial days of the pandemic management, the team identified and made methodical efforts about immediate, medium-term, and long-term goals to fight COVID-19 and build resilience in the city for the future.

3.0 Strategy, Approach, and Process

In the beginning, a strategy was put in place at the Bengaluru COVID-19 War Room. **The Four Quadrants of War Room** were identified as the essential elements and guiding blocks for the War Room. **The Four Quadrants are – Information (Q1), Communication (Q2), Management (Q3), and Preparedness (Q4)**. This is an original heuristics model first identified and laid out by Kunal Kumar, IAS, Mission Director, Smart Cites Mission & Joint Secretary, Government of India, and implemented for COVID-19 Crisis Management at Bengaluru City.

Identification of these Four Quadrants was critical to the entire Crisis Management as this defined the way ahead for the entire exercise that was being carried out at Bengaluru. It shall be noted that these quadrants are very comprehensive and mutually inclusive. The complementarity of these quadrants defines the scope and nature of the integration of decision-making at the War Room.

Bengaluru city has adopted **'The Leaving No Case Untraced Approach'** for COVID-19 Crisis Management. This included Identification of Positive Cases, Aggressive Contact Tracing, Visualization of scenarios case by case, and using Simulation Models to understand the spread of the pandemic. In this connection, the city administration has decided to shift all the Primary and Secondary Contacts to mandatory Institutional Quarantine on the date of identification of a Fresh COVID-19 Positive case. This Approach was identified jointly by B H Anil Kumar, IAS, Commissioner, Bengaluru and Lead, Strategic Operations Command Centre at COVID-19 War Room and Hephsiba R Korlapati, IAS, Special Officer, BBMP War Room, & Managing Director, Bengaluru Smart City.



A **Process Cycle** was identified to implement the approach and was put in place for implementation before the end of March 2020. The process cycle has 6 major steps. They are:

1. Planning and Coordination
2. Analyzing Situations
3. Visualizing Scenarios
4. Developing Strategies
5. Making Decisions
6. Implementing on field

These six steps / sub-processes are highly dynamic and are keys to Strategic Management. This Process Cycle was defined by Hephsiba R Korlapati, IAS, Special Officer, BBMP War Room, & Managing Director, Bengaluru Smart City. The first one is Planning and Coordination. Very early in March 2020, it was identified that Agile Planning coupled with Data Preparedness is critical to get ahead of the curve. With Planning and Coordination as the keys to crisis management, Ideation and Implementation was carried out under the leadership of the Lead SOCC. Situations are analyzed, critical areas/challenges are identified. Quick decision making and smart resource management follow and the process repeated incessantly.

Inter-departmental Coordination was also crucial because the decisions require multi-stakeholder collaboration and implementation involves several departments like Police Department for various tasks like contact tracing, home quarantine tasks, testing, ILI & SARI surveillance, public places surveillance, outreach to households at risk, IEC activities, etc. This not only requires massive deployment of manpower on the field but also consistent efforts to coordinate and implement all the tasks.

Tools and Strategies are deployed to overcome the challenges and mostly, Spatial mapping tools and temporal analysis methods are used at the BBMP COVID-19 War Room. Decision-making by the Lead, SOCC along with timelines helped in carrying out the implementation process. The process has been collaborative and highly inclusive to ensure no gaps are left in times of planning and execution. Newer challenges or scenarios which emerge after decisions are implemented on the field are also factored in and the process has been very adaptive during the implementation.

The above three – S**trategy, Approach, and Process Cycle** were discussed, approved, and adapted by the end of March for the city of Bengaluru after due deliberations with all the concerned, and implementation ensued.

4.0 Major Deliverables

The entire exercise is one of Public Health and has a wide panorama of issues to deal with owing to a limited understanding of the nature of the spread of the pandemic and the lack of medicine/vaccination to cure the affected cases. It is also appreciated that this is a very typical administrative and governance exercise, and, therefore, has been aligned to achieve the outcomes from the beginning itself. In line with the Strategy and Approach identified above, the Decision Support System structure was evolved.

Table 1: Decision Support System structure

Key Quadrants	Strategies	Appropriate Tools	Major Outcomes
Information Communication Management Predictive Modelling	Various Datasets and analysis Data Integration Data Visualization Source Reporting Online Registration Simulation	Dashboard Webpage GIS Mapping Apps – BBMP Contains, Sahaaya Sethuve, BBMP IQMS Google Forms Tele-Consultation	Situational analysis City to City timelines Pace of Progression Real-time Information Predictive Modelling Strategic Planning and Decision-making

Accordingly, challenges are identified and the structure for the decision support system was followed to implement the decisions taken by the Lead SOCC. Few Challenges encountered, strategies identified, tools deployed and outcomes thus far are as shown in table 1.

Table 2: Challenges encountered, strategies identified, tools deployed and outcomes

#	Challenge	Strategy	Tool	Outcome
1)	Identifying Quarantined People Phase -I (March 2020)	Stamping	Training for field teams to do stamping Training for RWAs to monitor	No team member had to be quarantined on suspicion of being COVID positive. RWAs were co -operative and ensured strict compliance with home-quarantine.
2)	Containment Zone Monitoring	Seal down of CZs, Quick Declaration of Containment Zones, Daily monitoring	BBMP Contain App, Heatmaps, Google Forms, Drones, CCTVs, Simulation	Strict enforcement and close monitoring to reduce overall spread. Ground-truthing to identify and declare as a Containment Zone and return of a zone to normalcy.
3)	The crisis with maximum numbers in the State in Bengaluru city by mid-March	To Monitor case by case at the micro-level and granular analysis by age, gender, source of transmission, and location	Google Forms GIS mapping IVRS Statistical Tools Simulation models	Monitored 22,000 quarantined people who were inbound travelers to Bengaluru city for 14 days and made all efforts to reach out to citizen groups, RWAs, etc. to inform the public.
4)	Migrant labour stranded without adequate food	Reach out to CREDAI, local organizations, every construction site	Hunger Helpline Application for updating on food distribution Sahaaya Sethuve app	The public can inform or call directly. Distribution of food to over 1,60,000 persons approximately on daily during the lockdown period and monitoring mechanism for the same.
5)	Facilities and resource availability	Spatial mapping of all resources	ARC GIS Platform	Quick Response; TJ-Haj Bhavan help for emergent situations;

		and availability		Preparation for the worst-case scenario.
6)	Public Grievances	Reach out to citizens in multiple languages – to the last citizen – leaving no one behind	Sahaaya Sethuve App BBMP Contains App Call Center Control Room TeleHealth Helpline	Reached out to all citizens through all forms of media.
7)	Information Dissemination	Real-time Information Dissemination through all forms of media	Dashboard, Situation Reports with Analysis, Daily Bulletins, Weekly Bulletins, Social Media Sentiment Analysis	Having identified the Leaving No Citizen Uninformed Approach, the city administration has issued Daily Bulletin for over 300 days in a row and reached out to the citizens through Advisories and IEC material.
8)	Internal Communication	To keep all field staff informed and trained	Virtual Learning, Issue Advisories , Training Modules.	Safety of healthcare workers Preparedness of all field staff
9)	BBMP IQMS	Quarantine Center Management	BBMP IQMS App developed and deployed at Quarantine Centers	Data updated on Health of Quarantine Persons, Facility Management Inter-departmental coordination
10)	Panic/ Stress Management	Communicate effectively	Sentiment Analysis through Social Media	Reached out to maximum citizens, prevent panic, and give correct information
11)	Identifying Quarantined People Phase -II (May 2020)	Stamping	Training for field teams to do stamping Training for RWAs to monitor	No team member had to be quarantined on suspicion of being COVID positive RWAs were co-operative and ensured strict compliance of home-quarantine

12)	Monitoring Home Quarantined People – Unlock 1.0 (June 2020)	Stamping	Training for field teams to do stamping Training for RWAs to monitor	No team member had to be quara ntined on suspicion of being COVID positive RWAs were co -operative and ensured strict compliance of home-quarantine
13)	Sanitation / Solid Waste Management	Seal down of CZs, Spraying, Fogging, Disinfectin g Public Places, Markets	Drones, CCTVs, Attendance monitoring, GPS tracking, Power Sprayers, Jetting machines	Mass Sanitization and Daily monitoring to reduce overall spread
14)	Essential Goods and Supplies	To map demand, stalls and shops, Ration Card Holders, to improve overall health	Hunger Helpline, Home delivery of groceries, Distribution through Fair Price Shops	Delivery at doorstep Essential needs are met during complete seal down Nutrition and Immunity for major population / vulnerable groups
15)	Local Health Facilities	Identify Ward-wise Health Volunteers, Online Registratio n, Virtual Training	Fever Clinic Monitoring Telemedicine / Teleconsultation at ward level, Chatbots	Gives actual situation report from wards at micro - level

The major deliverables included Data integration for decision-making, building Information – Bulletins and Dashboards, issuing Situation Reports with Analysis, Virtual Learning and Training Modules, providing access for self-reporting by the public on grievances, development of appropriate tools, and application for registration of NGOs / Volunteers, monitoring containment zones, issuing Advisories, Chatbot / Telemedicine, and Predictive Modelling with help of data analysis team, et al.

Therefore, it was clear at the outset, itself that, if the War Room is fully operational and is improved constantly, the keys of Preparedness to handle Crisis Management and building resilience at the local level is possible. Data Modelling and Data Dissemination only get better with the analysis of Data Sets and Data Interpretation. Data management and

integration have become effective with the quick intervention of the Smart Cities Mission (SCM) of the Ministry of Housing and Urban Affairs, Government of India, in its endeavour to help cities leverage technologies for handling the cities in the fight against the COVID-19 pandemic.

5.0 The Breakthroughs

It is pertinent to record here the 4 breakthrough events corresponding to the 4 quadrants of the BBMP COVID-19 War Room are described in the following paragraphs to give a complete understanding of the nature of functioning of BBMP COVID-19 War Room and also, the importance of conceptual depth while implementing strategic decisions for crisis management:

1. Information (Q1): Index Application
2. Communication (Q2): Dashboards, Bulletins, SOPs, Advisories
3. Management (Q3): SOP for Containment Zones, Seal down of Markets
4. Preparedness (Q4): The Case of Padarayanapura

5.1 Information (Q1): Index Application

Information or Data is vast and endless. Given COVID-19, data sets ranged from – Mapping of positive, tested but result awaited, quarantined households on GIS and extensive information of households in 50/100/ 200 m radius of such cases, to Mapping of areas with high incidences of COVID – to strategize process of curtailing lockdown (lockdown can be removed from low vulnerability areas first, followed by the highly vulnerable ones), to Mapping of all facilities – quarantine, isolation, blood-banks, vehicle depots, taxi stands, hospitals, dispensaries, path labs, key essential service locations, etc. and Crowdsourcing / Mapping of areas running low on resources – like groceries, essential daily use goods (FMCG), medicines, etc.

The data sets also included Mapping of all available vacated buildings which could be used as temporary shelters for informal sector workers stranded outside their house, Mapping of all available PG accommodations, and Hostels which could be used as an option for mass quarantine in case all facilities are exhausted, Mapping & Tie-up with markets in the city to get regular updates on availability/ shortage of essential goods.

The Mapping of vulnerable populations by door-to-door survey of all households – people over 65 years, cancer patients, diabetics, pregnant women, etc. and Mapping of human resources - paramedics, nurses, doctors, people on duty, police, municipal staff, etc. was also crucial information. Information on: a. availability of masks, PPEs, ventilators, hospital quarantine/ isolation beds, medicines, medical personnel; b. alarms raised by the city government to upper tiers of Government - their status with a focus especially on pending

cases. Data was also collated and reported about Self-declaration of symptoms from people, Travel History, Suspected Patients, People not adhering to lockdown protocol, Excessive charges, Hoarding, Cleanliness and Sanitization Request, Report Homeless or migrant worker, Linking doctors who have their chambers and are not attached to large hospitals and so on in the initial months from March to May.

All this only meant availability to many sets of data and unending information. However, in connection with the spike in cases in June 2020, there was a real challenge and the War Room has come up with decentralized zonal-level monitoring as a strategy to tackle the spike and attend to the cases in a quick time.

5.2 Index Application

BBMP COVID-19 War Room developed an application called Index Application, the nucleus of the data universe which helps to access the information on COVID-19 Positive Cases from the ICMR portal, provides the user interface to the Zonal Command Centres (ZCCs), and all field teams for action and implementation of tasks, and has significantly reduced the time taken from 24 hours to real-time for monitoring at the BBMP.

BBMP COVID-19 War Room has identified the need to establish the Zonal Command Centres to ensure a seamless flow of information and immediately by the Order of Commissioner, BBMP ZCCs were established at the Zonal Offices of BBMP and made fully functional on a war-footing basis.

Following this, for a smooth transition of information to the zones for action, the Index Application creates a database of COVID-19 Positive Cases and provides this information to the multiple use cases in real-time for action and with integration enhances the real-time monitoring of the situation. This application is an interface **for the complete Patient Management System, from accessing the information on COVID-19 Positive Cases for action by the zones, including shifting of the patient to either hospital or CCC based on symptoms, to arranging ambulances, tracking patient lifecycle, etc.**

This application is a local solution conceptualized, custom-made, developed, and implemented at Bengaluru since July 1st, 2020. It is a mobile application and web-based solution based on the Microsoft Power platform built in collaboration with PwC India by the BBMP COVID-19 War Room, Bengaluru. The tool was designed on the directions and guidelines issued by Commissioner, BBMP, and conceptualized by the Special Officer, BBMP COVID-19 War Room in the third week of June. The app was custom-made for BBMP with inputs from the Actual Users monitoring various tasks related to the COVID-19 crisis management.

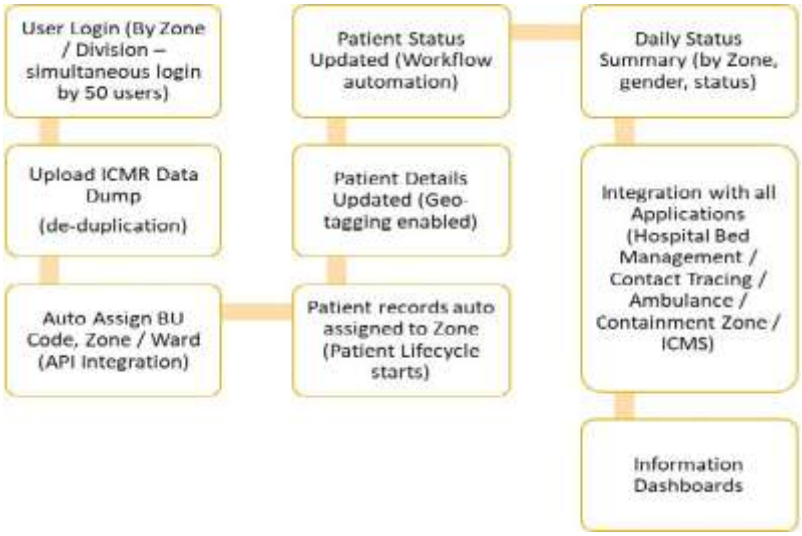
The main objectives and outcomes of the Index Application are:

- To improve efficiency in terms of cutting time delays and processes to cut down the number of case fatalities in the city of Bengaluru. The immediate target was to reduce the time in the stage after upload of Positive Cases on the ICMR portal from the average existing 24 hours period to less than 1 hour or real-time for downloading and automatically affecting 3 major activities:
  a) De-duplication of the Cases;
  b) Assign the Unique Code or BU (Bengaluru Urban) number as popularly known;
  c) Identify the Wards and Zones and real-time updation on the Zonal Interface for immediate action or next processes.
- Integration with all other Applications.
- Provides Dashboard to view the Analysis/insights on a real-time basis.
- Preparation of Contingency Plans – Actionable and Comprehensive Strategies.
- Generate reports daily / in real-time for monitoring of situation and management.
- Make them compatible for use by BBMP Zonal teams for conducting subsequent workflows seamlessly along with a dashboard depicting the localized information.

The overall effectiveness of the application has increased manifold with the integration of Index Application with Google API. This helps in identifying zones and wards as per the ICMR address on a real-time basis, thereby saving time, reducing manual intervention and process in a big way. The Auto-population of zones and wards is critical for management in the case of metropolitan cities with big numbers and accuracy or validation of this is a key to the containment of the spread of the pandemic in a larger context. The Index Application draws references from the SOPs outlined by the State Government of Karnataka to handle patients based on different symptoms and age criteria.

5.2.1 Application Flow

The important steps involved in the flow are:

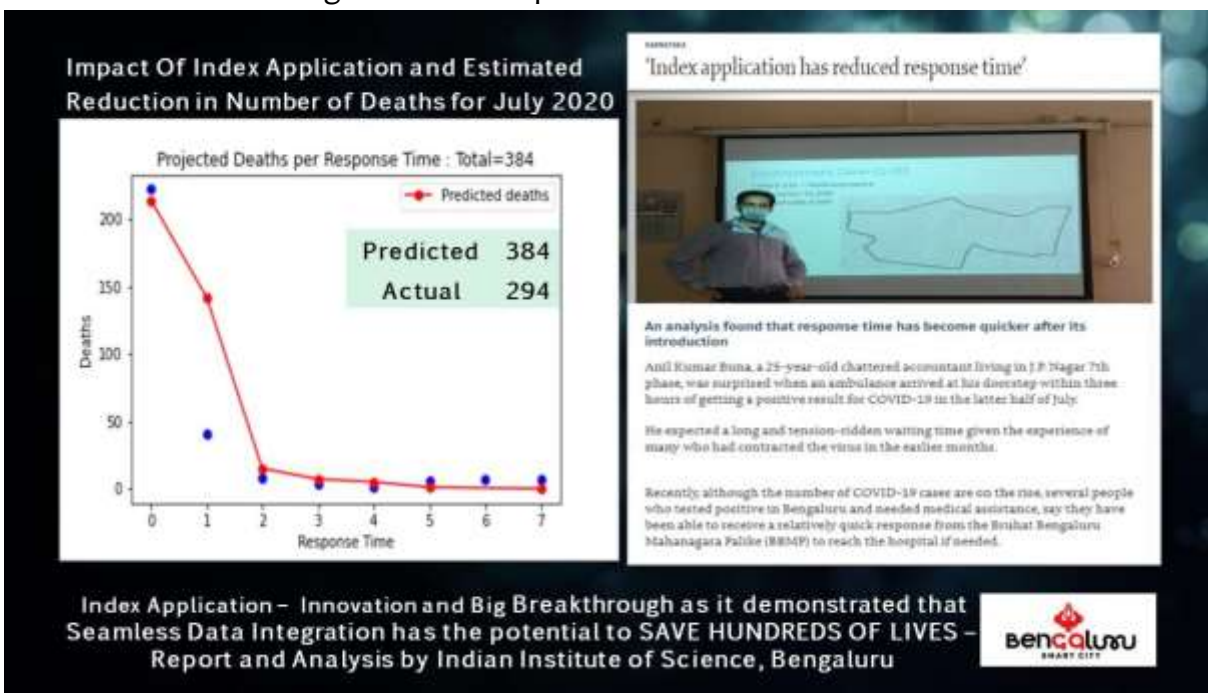


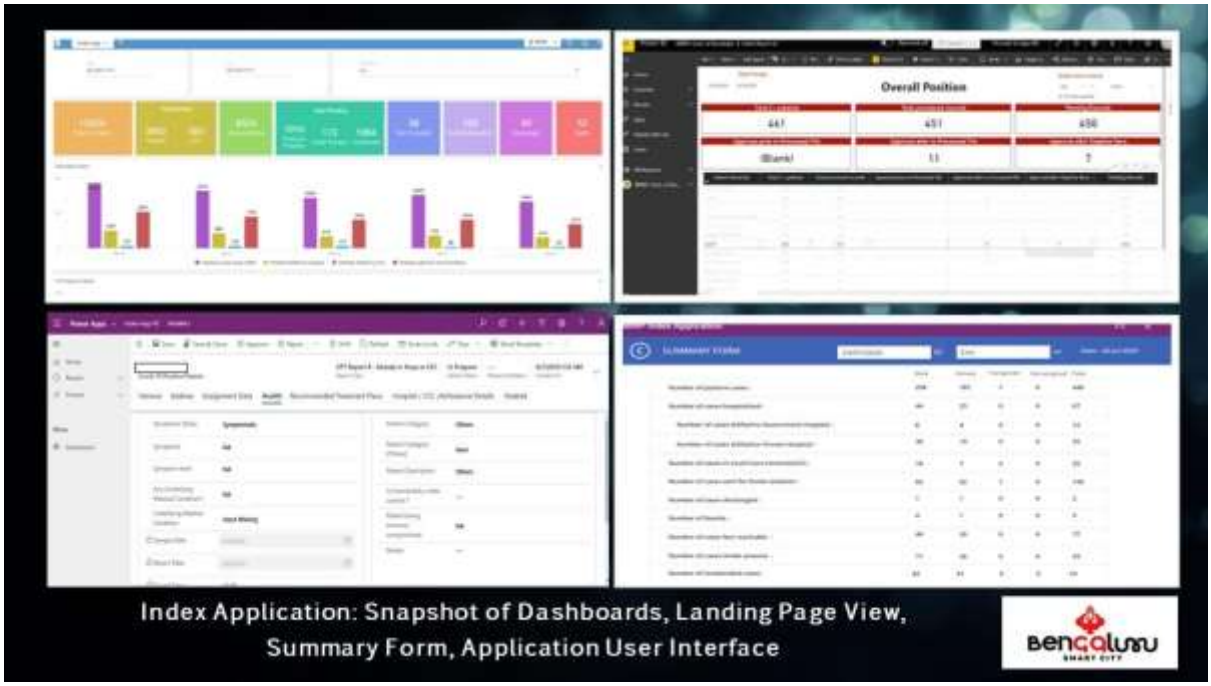
5.2.3 Impact of Index Application:

The Application, owing to the high effectiveness and user-friendly interface, has already been expanded and replicated for the entire state of Karnataka (which has over 65 million population) and other cities across the country.

The outcomes of the Index Application have been analyzed by the Indian Institute of Science, Bengaluru. It was evident that the Response time has become quicker and delays have decreased uniformly across all categories after the introduction of the Index Application. There are significant gains across all categories and delays longer than 3 days have been eliminated almost completely. **This resulted in a critical outcome in the case of the vulnerable categories of senior patients and patients with comorbidities, as this quick response has the key to make the difference between life and death.**

The Data Analysis Team of BBMP COVID-19 War Room constituting of IISc Professors in a report have also observed that, estimating the number of deaths from case-load in July-August period, using response time distribution from June, that for July while all other factors remained the same, the actual number of deaths recorded were less by 25% than the predicted numbers. The Index Application is a big breakthrough as it demonstrated that Seamless Data Integration has the potential to save hundreds of lives.





The efforts of the BBMP COVID-19 War Room in collaboration with the technology partners at BBMP COVID-19 War Room and Bengaluru Smart City Limited, by operationalizing the Index Application which is functional for over 7 months now has been effective in raising timely alerts by agile planning and taking corrective measures to control the spread of the pandemic at Bengaluru.

5.3 Communication (Q2): Dashboards, Bulletins, SOPs, Advisories

For Communication, **'The Leaving No Citizen Uninformed Approach'** was identified. Built on the first quadrant of Information, the Communication quadrant is an essential one to keep all the stakeholders Informed. The non-negotiables identified for this quadrant are: Pro-active Approach, Timely Dissemination, Clarity, Correctness, Convincing, Citizen-friendly / People-centric, and an Outcomes-based Approach.

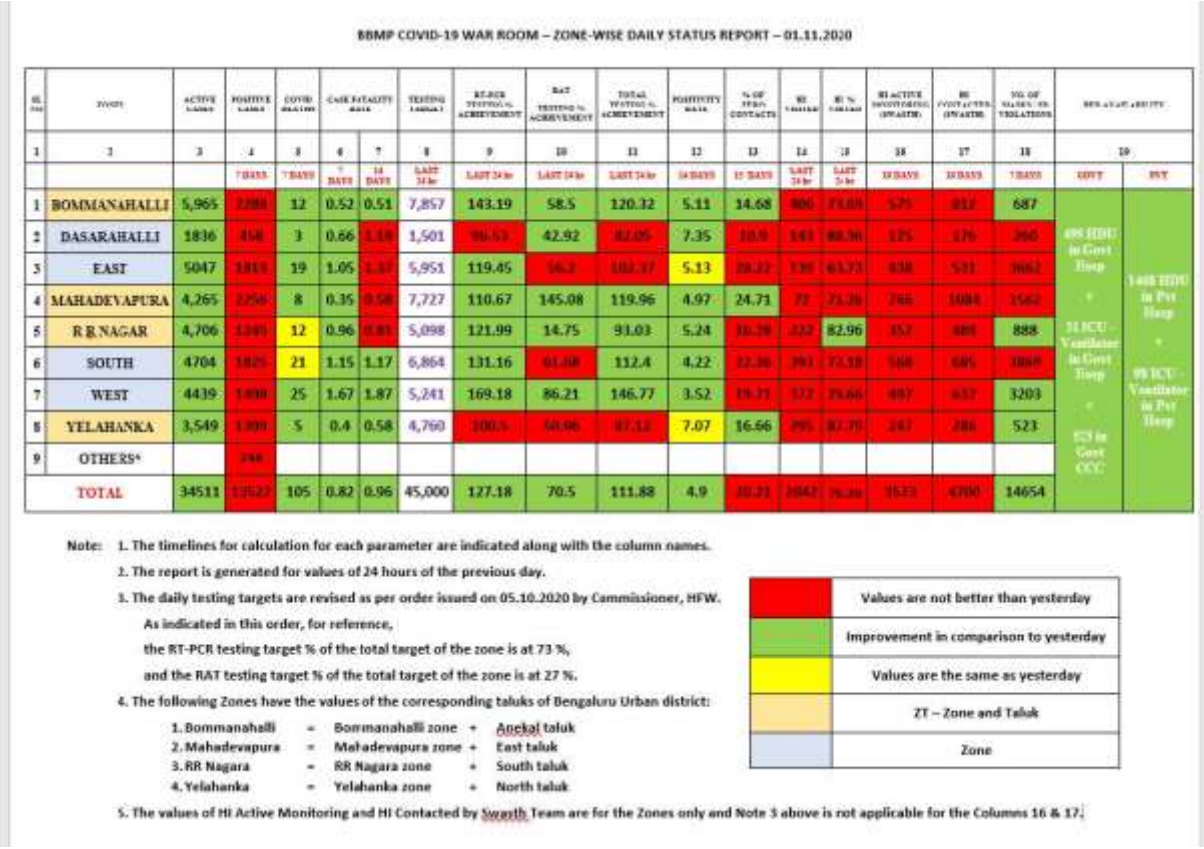
The quadrant of Communication has been viewed under 2 major areas: Internal and External Communication.

Internal Communication is to ensure the information available is communicated with field teams back and forth to achieve a seamless interface between field-level teams and decision-makers. Continuous review of strategies on sealing, behavioural change, community mobilization to fight the pandemic was put in place by mid-April 2020.

From the beginning, the War Room set benchmarks for all tasks and even behavioural change as well. The rigorous brainstorming sessions during the weekends to review the weekly scenarios, identify immediate tasks, new challenges and attend to resolve them with coordination and focus on saving lives of citizens became a routine by the end of April. Thus, every Saturday and Sunday was a brain-storming session to prepare for the week

ahead of us. Planning was more than a table-top exercise and implementation was meticulous too.

Internal Communication has become extremely critical and daily review of situation at the zonal level by the Chief Secretary of the State has raised the delivery and outputs in a big way. The picture shows how parameters were viewed at a microscopic level and assessed by the senior most officers. Internally, all team members were on board with the fact that we ought to work with multiple people, multiple teams – officers, staff and also, to stay steady for the long haul and stay agile at work.



BBMP COVID-19 WAR ROOM – ZONE-WISE DAILY STATUS REPORT – 01.11.2020

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
			7 DAYS	7 DAYS	7 DAYS	14 DAYS	LAST 24 hr	LAST 24 hr	LAST 24 hr	LAST 24 hr	14 DAYS	15 DAYS	LAST 24 hr	LAST 24 hr	10 DAYS	10 DAYS	7 DAYS	GOVT	PVT
1	BOMMANAHALLI	5,965	2280	12	0.52	0.51	7,857	143.19	58.5	120.32	5.11	14.68	800	71.03	575	812	687	498 HDU in Govt Hosp + 214 ICU - Ventilator in Govt Hosp + 823 in Govt CCC	1408 HDU in Pvt Hosp + 99 ICU - Ventilator in Pvt Hosp
2	DASARAHALLI	1836	458	3	0.66	1.19	1,501	96.53	42.92	82.05	7.35	10.9	141	88.36	125	176	260		
3	EAST	5047	1819	19	1.05	1.37	5,951	119.45	56.3	102.37	5.13	20.22	739	61.73	438	531	3062		
4	MAHADEVAPURA	4,265	2250	8	0.35	0.58	7,727	110.67	145.08	119.96	4.97	24.71	77	71.26	766	1084	1562		
5	R R NAGAR	4,706	1249	12	0.96	0.83	5,098	121.99	14.75	91.03	5.24	31.79	222	82.96	157	881	888		
6	SOUTH	4704	1825	21	1.15	1.17	6,864	131.16	61.68	112.4	4.22	22.36	391	72.33	568	685	1868		
7	WEST	4439	1498	25	1.67	1.87	5,241	169.18	86.21	146.77	3.52	19.71	172	79.66	497	637	3203		
8	YELAHANKA	3,549	1300	5	0.4	0.58	4,760	100.5	50.98	87.13	7.07	16.66	295	82.79	247	286	523		
9	OTHERS*		248																
	TOTAL	34511	13027	105	0.82	0.96	45,000	127.18	70.5	111.88	4.9	20.21	3043	76.26	3573	4700	14654		

Note: 1. The timelines for calculation for each parameter are indicated along with the column names.
2. The report is generated for values of 24 hours of the previous day.
3. The daily testing targets are revised as per order issued on 05.10.2020 by Commissioner, HFW.
As indicated in this order, for reference,
the RT-PCR testing target % of the total target of the zone is at 73 %,
and the RAT testing target % of the total target of the zone is at 27 %.
4. The following Zones have the values of the corresponding taluks of Bengaluru Urban district:
1. Bommanahalli – Bommanahalli zone + Anekal taluk
2. Mahadevapura – Mahadevapura zone + East taluk
3. RR Nagara – RR Nagara zone + South taluk
4. Yelahanka – Yelahanka zone + North taluk
5. The values of HI Active Monitoring and HI Contacted by Swasth Team are for the Zones only and Note 3 above is not applicable for the Columns 16 & 17.

	Values are not better than yesterday
	Improvement in comparison to yesterday
	Values are the same as yesterday
	ZT – Zone and Taluk
	Zone

At a time where there was hardly any window to ideate and implement, the constant guidance, ground-truthing, brainstorming with, and mentoring by Senior Officers has helped immensely to work on critical tasks and deliver the outcomes. The layout at the War Room was also kept safe and sanitized round-the-clock in view of the health of the team members. Marking has been done on ground to ensure there is SOCIAL DISTANCING and no crowding during the work time. Easily, the first of its kind arrangements were made at the War Room to fight the pandemic and quick decision making enabled to embed these designs and execution happened on a war-footing in matter of hours to make the BBMP COVID-19 War Room, model in all respects.

External Communication is communication to the citizens. Identifying the importance to keep citizens informed and ensuring data transparency, BBMP COVID-19 War Room has created an official platform, a webpage, and a dashboard to communicate valid authentic information with the citizens by way of Daily Bulletins. Constant efforts towards active citizen engagement and reach-out by BBMP – via Social Media platforms, Virtual Discussions with RWAs, NGOs, Sports and Film personalities, CREDAI, etc. became the order of the day.

The two tables indicate the layers and strategies adopted by BBMP for Communication; ways and means for effective outcomes.

5.3.1 War Room Bulletin

The BBMP COVID-19 Daily Bulletin is a comprehensive information bulletin of the information about the pandemic in the BBMP and Bengaluru Urban district. It gives information about the daily progression of Positive, Active, Recovered, and Death Cases of the City, of the City vis-à-vis the State of Karnataka. The analysis also includes spatial spread over wards and zones of BBMP through maps (made daily and included in the bulletin), the cross-dimensional age-gender analysis, the number of contacts traced (primary and secondary), and information over different timelines – ranging from last 24

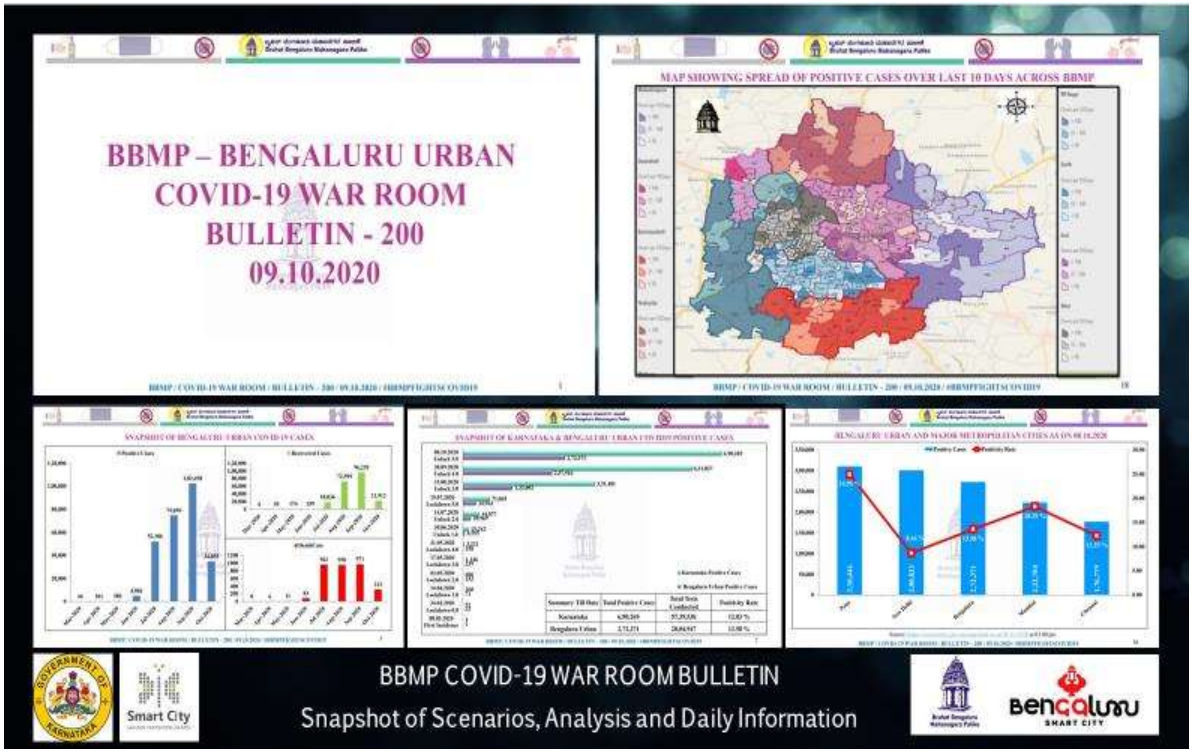
hours to last 10 days to scenarios over different months since March and the complete timeline of COVID-19.

The bulletin has improved consistently and the graphs depict the testing numbers, the progression of testing over time, positivity rate over time, the screening at Fever Clinics, containment zones and the active ones, the recovery rates, and so on.

The graphs of city-to-city comparisons, the comparison of states across our country, and the world are also part of the bulletin. The links for the status of Bed Availability at Hospitals, FAQs, and other COVID related information is also provided for the public to access.

The bulletin is also distinct for the kind of inclusivity of ideas and processes of inputs and feedback received from Resident Welfare Associations, Social Media platforms, and the public at large. It also draws heavily from the suggestions of Public Health experts and Academia, mainly the Indian Institute of Science.

This activity for public dissemination of information was initiated in the 4th week of March 2020 and is being issued daily in English and Kannada, too. On 09.10.2020, the 200th Bulletin was issued by BBMP COVID-19 War Room.



The administration has taken all steps to ensure citizens are reached and constant civic engagement is a clear goal identified at the War Room. It is a matter of fact that the BBMP Daily Bulletin has a reach of over 4 million readers on an average day and this has been one

of the most informative bulletins being released daily by metropolitan cities of this size not only in the country but across the globe.

The bulletin demonstrates the Communication aspect of the 4 quadrants of the War Room and is issued by the Commissioner, BBMP, and Special Officer, BBMP COVID-19 War Room / Managing Director, Bengaluru Smart City to keep our citizens informed, ensure data transparency, and integrate data seamlessly to save lives and fight this war against COVID-19 at Bengaluru.

5.4 Management (Q3): SOP for Containment Zones and Seal down of Markets

The approach to contain the pandemic also includes quick identification and Declaration of Containment Zones and ensuring proper Seal Down. A detailed note on the Standard Operating Procedures for monitoring Containment Zones and the notification issued about the Seal down of the City market, popularly called as K.R. Market are described as examples of third quadrant Management.

The concept of Seal Down was first introduced in the second week of April by B H Anil Kumar, IAS, Commissioner, Bengaluru and Lead, Strategic Operations Command Center at COVID-19 War Room during the visit to Padarayanapura. This is a cluster Containment Zone that accounts for over 12 percent of Total Positive Cases in BBMP as of 10.06.2020.

The Data Analysis Team of BBMP COVID-19 War Room has devised the Adaptive Stratified Random Sampling Method (ASRSM) for carrying out the tests at Cluster Containment Zones and thereby analyze the spread by granular analysis of test results and mapping test results. This has been done to identify if there is any spread of the virus amongst the community, how to contain the spread in each scenario, and identity / identify the probable dates on which the Containment Zones would return to normal and understanding the Spatio-temporal plateaus of growth with the occurrence of each case has been followed at Bengaluru city.

5.4.1 SOP for Containment Zones in BBMP

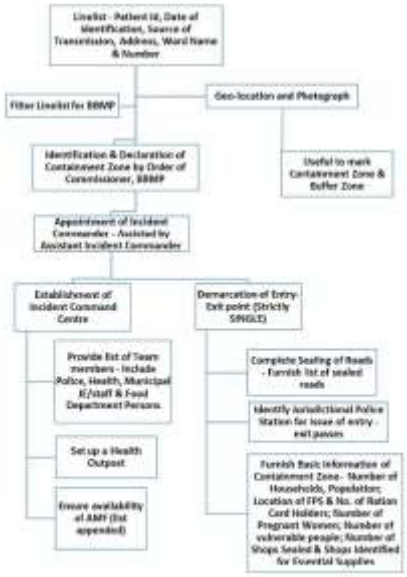
A document was issued on 17.04.2020 to elaborate and lay down the SOP to be followed in the Containment Zones of Bruhat Bengaluru Mahanagara Palike. Containment Zones are to be identified given COVID-19 Positive cases and Clusters are to be identified for Containment where there is an aggregation of epidemiologically linked COVID-19 cases in a limited area, to prevent the further spread of infection.

The codes used for Containment Zone Identification represent the following:

- "A" is an area of 100 Meters radius with road / physical perimeter all around the house (Independent House / Villa) of COVID-19 Positive person.

- "AP" is an Apartment complex – the particular tower/block which has the residence of COVID-19 Positive person.
- "S" is a Slum area (notified or otherwise), an area of 100 meters around the house with a road / physical perimeter which has the residence of COVID-19 Positive person.
- "CL" is an aggregation of COVID – 19 Positive Cases grouped which are epidemiologically linked.

The chart appended here is the sequence of activities that get initiated after the line list of positive patients is received from the Office of the Commissioner of Health. The chart is a ready-reference about activities that are to be done to initiate the Containment Zones along with the offices/personnel, their roles, and responsibilities. It is to be followed strictly without any delay on the date of issue of State Patient Id. The Containment Zone – Activity Flow Chart is depicted here:



5.4.2 Major Tasks: Roles and Monitoring of Containment Zones

The following actions shall be taken immediately after the identification and declaration of the Containment Zone:

A. Crisis Management Team

- **Incident Commander** of Crisis Management Team: He / She will be responsible for the overall management of the Containment Zone and Buffer Zone as per the Order of Commissioner BBMP
- There will be an Assistant Incident Commander to assist the Incident Commander.
- Incident Command Centre (ICC) would be the Ward Office of BBMP.
- The Assured Minimum Facilities at the ICC are Identity Card, Proper lighting, Electricity, Torchlight, Barricades, Traffic Baton stick, Furniture, Reflective jackets, Fan, Mosquito coils, Toilet, Signages, Drinking Water, Food, CCTV/PTZ camera

(Monitoring & storage of the footages for 28 days), First Aid Kits, Mask, Sanitizers, Laptop, etc.

- Zonal Joint Commissioner of the respective zones shall ensure that all necessary logistics support from engineering, solid waste management, health, and revenue teams of BBMP are provided to the Incident Commander.
- Incident Commander shall ensure marking of the outer limit of Containment Zone with White Paint / any conspicuous way to facilitate the Police in barricading for effective Perimeter Control.

B. Health: Activities and Monitoring

- Major activities about the Health department are Surveillance, Contact Tracing, Samples Collection, Testing, and setting up a Health Outpost.
- **Health Authorities** shall identify and list persons requiring special needs (Pregnancies, Cardiac Disease, and another serious ailment) in Containment Zone with the help of **Resident Welfare Association** for the Building / Area placed under Containment Zone.
- **The reporting shall be daily on the status of the following:**

  1. No. of Houses covered under Active Surveillance (of Primary and Secondary Contacts)
  2. No. of Houses screened – General Screening
  3. No of people symptomatic with SARI and ILI symptoms
  4. No of people with other symptoms resembling COVID-19
  5. Contact Tracing:
     a) Number of Primary Contacts shifted to institutional quarantine
     b) Number of Secondary Contacts subjected to Home quarantine
     c) In the case of Slum, the number of Secondary Contacts shifted to institutional quarantine
- Testing Swab Samples collected
- No of RAT (Rapid Antibody tests conducted) and the Results (Negative/Positive)
- Health Outpost with necessary field staff for health screening along with intensive Information, Education & Communication campaign.

C. Police: Activities and Monitoring

- Police Authorities will have to **cordon off all roads and Seal down completely** by barricading and not entail any person to come in/do out of Containment Zone for any purpose.
- There will be **only one entry and exit** for each Containment Zone. No Private Vehicle would be allowed inside or outside the Containment Zone.
- Police to undertake **complete curfew management**.
- Police of local jurisdiction shall issue entry and exit passes for essential services and medical emergencies.
- There shall be a restriction on the movement of persons even inside the Containment Zone.

- **The reporting shall be daily about the status of the following:**
    1. Barricading Intact / Damaged
    2. Number of private vehicles (Entered and Exited)
    3. Any emergency passes issued with the name of the person, phone number, reason for entry, and valid up to.
    4. Status of CCTV Camera - Functioning and Storage
    5. Maintenance of registers

D. Municipal Services: Activities and Monitoring

1. Solid Waste Management

- SWM AE/JE to ensure daily Waste management that is inclusive of Bio-Medical Waste Management and ensure spraying of disinfectants in the Containment Zone.
- Power Sprayers, Drone Sprays, and Jetting Machines, etc. shall be deployed extensively in the Containment Zones for effective and continuous mass sanitization of the area.

2. Essentials

- Given the restriction of movement of persons residing in the Containment Zone both inside as well as outside the Containment Zone, it is imperative to ensure that the essential commodities are made available at their doorstep.
- Assistant Incident Commander to ensure the provision of drinking water in case of shortage by coordinating with BWSSB.
- To ensure house to house provisioning of essential supplies like Milk, Newspaper, Vegetables, Groceries, Bread Products, Meat, etc.
- Food Packets and Ration kits to be provided for the needy in the Containment Zone.
- Provision of Rations by Fair Price Shops at the doorstep of the ration cardholder.

E. Miscellaneous

- Zonal Joint Commissioner, BBMP shall make food arrangements and provide triple-layered masks, gloves, and sanitizers for the Safety of the staff deployed in the Containment Zone.
- Personnel deployed in the Containment Zone other than Police Personnel shall be provided with a compulsory Identity Card for easy identification of such persons in the Containment Zone.
- BBMP to enlist service providers like plumber, electrician, gas agency to facilitate any inconveniences.
- BBMP to ensure mass IEC activities like a loudspeaker announcement, distribution of pamphlets and posters, engagement of electronic, print, and social media for creating awareness on social distancing, signs, and symptoms of the disease, inculcation of healthy habits, nutrition, etc.

5.4.3 Buffer Zone Management

- Buffer Zone is defined as an area in a radius of 5 km around the Containment Zone.
- Intensive Buffer Zone will be 1 km radius where house to house screening will be done by health authorities.
- Health authorities will conduct active surveillance and social distancing measures in the Buffer Zone.
- Surveillance by Health Team to find Influenza-Like Illness and Severe Acute Respiratory Illness and managing the same through Fever Clinic or Isolation depending on the case.
- The Incident Commander of the Containment Zone will be responsible for the management of the Buffer Zone as well.
- Social Distancing measures in the area around Containment Zone in the buffer zone must be strictly enforced by Police and no public function/gathering is to be allowed in the buffer zone and use of masks to be enforced.

5.4.4 Seal down of Markets

Following the identification and mapping of Containment Zones of COVID-19 Positive cases and the nature of activities in such zones, it was identified that the Clusters of economic activity had high interactions and therefore, if there is an aggregation of epidemiologically linked COVID-19 cases in a limited area, to prevent the further spread of infection, more stringent action was initiated by mid-2020.

A specific case was of the increasing number of cases in and around the Sri Krishna Rajendra (SKR) Market area in BBMP jurisdiction and as per the directions of the Hon'ble Chief Minister of Karnataka on 22.06.2020, a detailed inspection was carried out by the Commissioner BBMP along with the Officials of the Police department to identify the areas for Sealing Down and demarcate the boundary of the areas.

After spatial understanding of the area, it was observed that because of the heavy footfall and high economic activity, it is extremely difficult to maintain Physical Distancing and monitor the movement of the people and vehicles in the market area. Given the narrow road width and the congestion along with the mixed land-use (commercial and residential), it has been identified that strict sealing down is necessary for effective monitoring and enforcement of national directives to control the spread of the pandemic.

Following the inspection of S.K.R. Market, Kalasipalyam market, and detailed deliberations, the area enclosed within the following perimeter are notified for Sealing Down:

KR Market

Town Hall Circle – JC Road – AM Road – Kalasipalyam Main Road – KR Market Junction – Service Road – Thagarupet road (2nd main road) – Tipu Sultan Palace road – Thagarupet road (4th main road) – Bhashyam road – Srinivas Mandiram road – Kilari road – Anjaneya temple street – Sankalpet road – SJP road

***Map of the Sealed Down Area is annexed along with the notification for seal down of the markets for the depiction of the exact perimeter demarcation. The notification also specified the activities shall be strictly closed down in the above Sealed Area:**

- All shops and establishments in the SKR market and Kalasipalyam market shall be closed.
- Closure of Commercial establishments and all types of business activities in the above-sealed zone.
- Hotels, restaurants, road-side vendors shall be closed.
- The local shops and grocery vendors should not be allowed to operate inside the above-sealed zone.
- Religious places in the above-sealed zone.
- Liquor Shops shall be closed.
- Flower market and shops shall be closed.

The above restrictions shall not apply to the opening/functioning of establishments catering to essential supplies like Milk, Newspaper, Vegetables, Groceries, Bread Products, Meat, etc. along with the local Fair Price Shops / Ration Shops. The exemption from the

restrictions is also applicable for the SSLC Exam Centres, Hospitals, Medical Establishments, Clinics respectively.

Zonal Joint Commissioner of the respective zones shall ensure that all necessary logistics support from engineering, solid waste management, health, and revenue teams of BBMP are provided to the concerned teams working on the field in the Sealed Down area. They shall ensure marking of the outer limit of Sealed Down Area with Information Boards / any conspicuous way to facilitate the Police in barricading for effective Perimeter Control.

BBMP Joint Commissioner and ward level teams to ensure mass IEC activities like a loudspeaker announcement, distribution of pamphlets and posters, engagement of electronic, print, and social media for creating awareness on physical distancing, signs, and symptoms of the disease, inculcation of healthy habits, nutrition, etc.

Various tasks like containment zones, contact tracing, testing, ILI & SARI surveillance, home / institutional quarantine, etc. have been assigned to the task leaders and the teams to monitor and ensure necessary measures are put in place for the control of the pandemic. The activities of these teams shall be carried out and facilitated in the Sealed Down areas more closely to ensure there is no further spread in the said zone. The National Directives about Face Coverings / Physical Distancing / No spitting / No urinating in Public Places shall be followed as a matter of Social Responsibility and for Personal Safety and shall be strictly enforced in this fight against the COVID-19 pandemic.

All the above instructions shall be strictly enforced within the demarcated perimeter of the Seal Down area by the concerned without any delay with immediate effect on the date of issue of the notification till further orders.

5.5 Preparedness (Q4): The Case of Padarayapura

Scenario Analysis of Cluster Containment Zones was a new means to get ahead of the virus. This meant a total convergence of Information, Communication, Management the 3 quadrants most comprehensively to visualize scenarios and attempt AI based modelling converging into the quadrant of Preparedness. The case of Padarayanapura was seen a breakthrough and many learnings here, helped to prepare for the worst-case scenarios.

5.5.1 Profile of the Place : Padarayanapura – Ward 135 – Containment Zone, Cluster – 03
The summary of the case of Padarayanapura can be glimpsed in the images at the end of this discussion on quadrant 4.

5.5.2 Ground-truthing and observations made:

1. The roads in the Containment Zone have been closed, sealed and movement of people seemed almost nil.

2. The Incident Commander briefed on the locations of households, streets, and major landmarks in the zone.
3. Aggressive Testing has been identified as part of the surveillance activities and to carry out the same, mobilization of manpower and logistics is critical. The identification of people with Co-morbidity, Pregnant Women, and Senior Citizens is to be prioritized and vehicles shall be arranged to reach the nearest point for pickup of these people. It may be noted that it was already proposed that for testing, due to limitations in terms of capacities/facilities and time involved for the entire process to be completed, it is necessary to have a stratified adaptive random sampling method over the spatial profile of this Containment Zone.
4. The density of the Padarayanapura Containment Zone is one of the highest amongst the Cluster Containment Zones. Home Quarantine has to be very strict and necessary manpower shall be deployed.
5. It is observed that almost every house has 2 floors above the ground floor and there is less evidence of compound walls between houses which is indicative of thick density and congestion in the area.
6. There shall be only one entry-exit point for a Containment Zone and Seal down / Barricading has to be in place throughout the period. It is observed that the Seal down is not in place at two locations and permanent measures along with police picket at all porous or temporary points is an immediate action required for effective containment. The police patrol vehicles should have a GPS monitoring mechanism and be on the move all round the clock.
7. The area has people of low-income groups predominantly. The supply of rations and provisions at the doorstep is very essential.
8. The persons with co-morbidity were given pulse oximeters and the health condition was monitored closely.
9. BBMP Contains App shall be made popular for posting complaints, grievance redressal, and seeking services concerning the emergency. The 3 officials identified for daily reporting shall be prompt and give the status report without fail. This shall be monitored at the War Room and updated duly to Commissioner BBMP.
10. The residents are dependent on the daily income sources. This issue shall be looked at because the extension of the date for the Containment Zone to return to normal is directly impacting the livelihoods of the people and will also have a direct impact on the immunity of the people.
11. The local shops and grocery vendors should not be allowed to operate inside the containment zone because it will be difficult to maintain Social Distancing given the narrow road width and the density of people in the cluster.
12. The majority of the population belongs to the Muslim religion and therefore, the factor of the Ramzan festival and eating habits can be kept in mind while identifying the ways and means for the welfare of the residents. The local Maulvis and religious

leaders shall be briefed on the entire process and were taken into confidence completely.

13. The numbers indicate a high incidence of COVID-19 cases in the age groups between 20-30 and 30-40. The gender factor seems incidental in the entire zone owing to the immediate relative/family member being the affected ones. The age groups indicated here are more mobile and have to be closely watched. Home Quarantine is mandatory and shall be monitored thoroughly. Stamping of the Home Quarantine People of these age groups is required and should be made mandatory.
14. Waste Collection and removal seems to be a major issue. The residents shall leave garbage outside their houses in closed covers and the same shall be picked and disposed of safely as per the norms for disposal of Bio-medical Waste Management. The number of manpower engaged for the SWM duties in this Containment Zone was proposed to be doubled and there can be financial incentives for the SWM workers because of the health risk and follow-up of protocols in Containment Zones. The number of SWM vehicles and auto-tippers shall be increased to ensure waste does not lie on the roads and is collected timely.
15. CCTVs to be installed for monitoring of all streets round the clock. Live feed with video analytics is very important for effective lockdown management.
16. Ambulance to be stationed at the Containment Zone for any emergency.
17. No houseless persons or ragpickers can be allowed. If any person is found, shall be shifted immediately to Night Shelters.
18. Buffer Zone Management is very critical to the process of Containment and given the spatial profile of this area and the periphery adjoining this cluster, a detailed SOP for Intensive Buffer Zone Management of this cluster was issued and implemented.
19. IEC and Counselling are important to reach out and help the citizens to be informed. The Urdu language is an effective medium for information dissemination. Auto-rickshaws were used for announcements and patrolling.
20. Tele-Medicine / Tele-Healthline options were used extensively throughout the period for this cluster.
21. Local individual volunteers were identified and take them into confidence for carrying out some important tasks.
22. All staff on the duty were given essential protective gear and all essential equipment for the discharge of their responsibilities. The staff was deployed to work on rotation in 3 shifts to ensure there is no breakdown or fatigue.

5.5.3 Immediate Issues:

- Identification of strategies for containment in Clusters declared in BBMP
- Identification of methods for Testing in Padarayanapura
- Simulating Scenarios based on data analysis

5.5.4 Discussion and Action Points:

a. It was identified that the team shall work on the following:
    i. In a Containment Zone, how to sample individuals effectively for COVID-19 testing from within the zone;
    ii. And how to declare (confidently), after seeing test results so far, that there are no more COVID-19 infections.
b. IISc has carried out an exercise to identify the appropriate methods for Random Sampling in the Containment Zones using a structured application. The proposed Adaptive Stratified Random Sampling Method (ASRSM), which dynamically integrates new test results to decide on the next samples was demonstrated to Commissioner, BBMP and the various parameters along with weightage for each variable was explained.
c. The major outcomes were: high mobility in certain age groups has a strong correlation with the incidence of COVID-19, and there is clustering within the Padarayanapura cluster.
d. The data analyzed included the COVID-19 Positive Cases identified from the Institutional Quarantine Centres and also from the Random Sampling that was carried out over the last week of May.
e. It may be noted that in Padarayanapura out of 400 odd samples tested by this method in the last week, 7 turned out to be Positive Cases. Co-morbidity and vulnerable persons were identified and tested during the week.
f. The method adopted a dynamic mode of stratification with weightage to different criteria. Mobility and movement in public places – shops, streets, etc., Social Mixing (an exponentially weighted distance-based distribution, with a single exponent parameter alpha), age and gender profiling, presence of co-morbid conditions, amongst others were main variables.
g. A certain kind of clustering within this Containment Zone has been observed. While few streets are totally clear, few streets have a clustering of cases. This aspect is being given higher weightage in the adaptive model.
h. The average number of cases spread by one person in this Containment Zone is FOUR. The reproduction ratio which is the average number of secondary cases per primary case is being looked at.
i. The simulation models for Padarayanapura Cluster were presented and other findings also include: Epidemic evolution in small communities can exhibit strange phenomena with the dispersion of incidence over time, Bottlenecks, Linger-and-escape phenomenon; Stratified sampling based on individuals' attributes can be significantly better than uniform sampling; Attribute choices need to be made carefully, e.g., the same building numbers or point locations will not score high on risk on different days and temporary plateaus of growth, unlike homogenous population epidemic models.

j. Analyzing the positivity and recovery timelines, the team is also looking at 2 critical parameters: Incubation Period and Serial Interval – the time taken for onset of symptoms in the Primary and Secondary Cases.
k. Commissioner BBMP has asked the team to identify the Data-driven containment zone boundaries where the boundaries of the containment zone are identified based on the predicted spread dynamics.
l. The process of integration of new test results as part of ASRSM shall be continued and deliberated with new findings as they emerge.

Following the issues identified and the action points above, there was a detailed discussion on Data Collection, Identification of New Factors under Adaptive Stratified Random Sampling Method, New Approaches and Proposals for Testing Identification of methods for Testing in Padarayanapura and thereby Data Analysis and Simulating Scenarios for planning and controlling the spread of the pandemic were taken.

5.5.5 Discussion and Action Points

a. Analysis of Disease spread modeling:

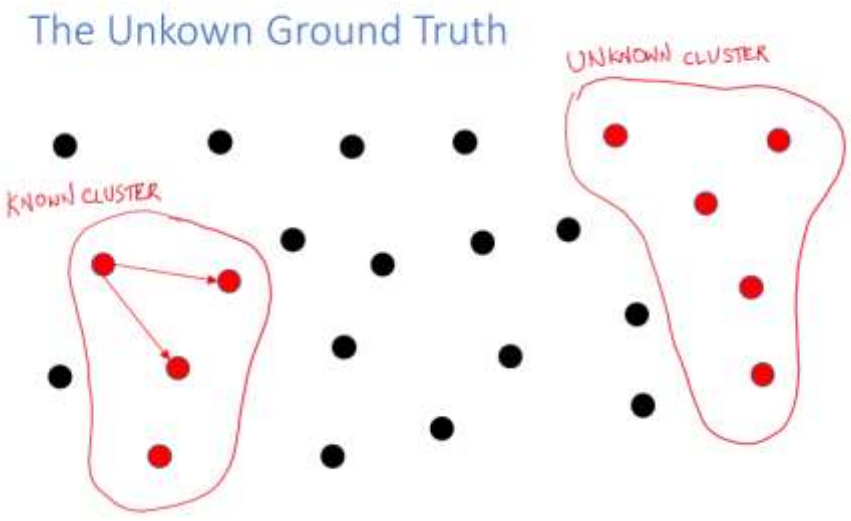
a. Disease progression
b. Contact graph
c. Augmentation of available data
d. Information format for Contact Tracing

b. Questions reviewed:

a. Does the appearance of symptoms depend on the age
b. Do asymptomatic patients spread less
c. In what fraction of (b) above, the symptoms appear eventually

c. Objectives of Testing: a review

a. Containment – within a Containment Zone or Cluster / through Contact Testing
b. Discovery / New Epidemic Clusters / through Random Sampling

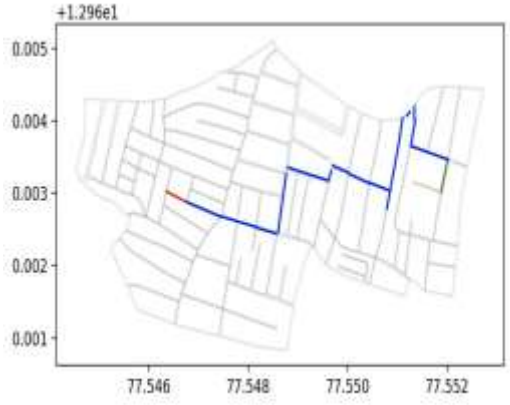


5.5.6 Contact Tracing

a. Finds out about the contact graph from patients/ Move along the contact graph to find the infections.
b. Generalized contact tracing: Simply augment the known graph with guesses from a model / Use the known cases to see where the infection will spread in the future / Accounting for unknown cases: *Time-rewind and predict forward*.

5.5.7 Model for Filling the Missing Edges

Distance-based interaction with street distance (not Euclidean distance) People live along streets/ The number of contacts of a person learned from contact tracing data / The distance parameter roughly tuned to the CT data / a street-based interaction model was identified.



5.5.8 Anti-Contact Tracing for Discovery

- Contact tracing is good for catching infections in a known cluster / But it may be wasteful if we are looking for new clusters / If we test a person, we need not sample his/her "contacts" / since they may have similar results.
- Anti-Contact Tracing: (a new strategy under investigation)
    - Sample adaptively avoiding contacts of a tested person/ will require asking a sampled person for his regular contacts
    - Sample by skipping neighbouring houses
    - Samples from crowded places such as markets, wine shops, medical establishments, etc. - can be combined with samples from houses.

5.5.9 Areas of Immediate Concern

- The timing of interventions matters the most. A strategy that is good now need not remain good later. "**Agile Planning and Data Preparedness is the key to get ahead of the curve.**"
- It is important to conclude thorough testing for a particular area before expanding the scope, for instance, markets, temples, hotels, hospitals, all medical establishments, containment zones, Quarantine Centres, etc.

- Public messaging can stress more on the role of masks – masks are known to significantly reduce the chances of transmission. It is quoted in academic papers that there is an 80% less chance of getting infected with a mask and wearing masks to cover both nose and mouth is important.
- People are highly infective for 2-3 days at least before they develop symptoms – Don't wait for people to be sick before being cautious with interaction.

6. Way ahead that was identified for Padarayanapura: Summary

1. More comprehensive contact tracing and clinical data are needed to enhance:
    - Does the appearance of symptoms depend on age? (this has been demonstrated all over - older people and those with co-morbidities show symptoms more often)
    - How much of the epidemic is driven by spread from asymptomatic individuals.
2. Generalized contact tracing for containment
    - Contact tracing is used to quickly detect all connected infections and isolate them
    - Contact tracing info can be refined using statistical models to provide better-stratified testing strategies.
3. Anti-contact tracing for discovery
    - When searching for a new cluster, more exploratory testing is required
    - Testing of contacts can be optimized – don't test too early, a test based on the effect on decisions to be taken
    - An "Anti-contact tracing" approach can be followed where contacts of previous samples are avoided.
4. Pooling strategies for efficient testing
    - Better algorithms can be designed to pool samples into groups, e.g., stratified pooling strategies can be used - Such algorithms can reduce the overall number of tests.
    - Samples across different households/locations can be combined intelligently to discover new clusters.
5. The summary of the case of Padarayanapura can be glimpsed in the images here.

Padarayanapura Profile

Population	32578
Male	16808
Female	15770
Households	6254
Date of Seal Down	9th April 2020
Date of Identification as Containment Zone	19th April 2020
Date of CZ to return to Normal (in case of no incidence of Fresh COVID-19 Positive cases)	09.06.2020

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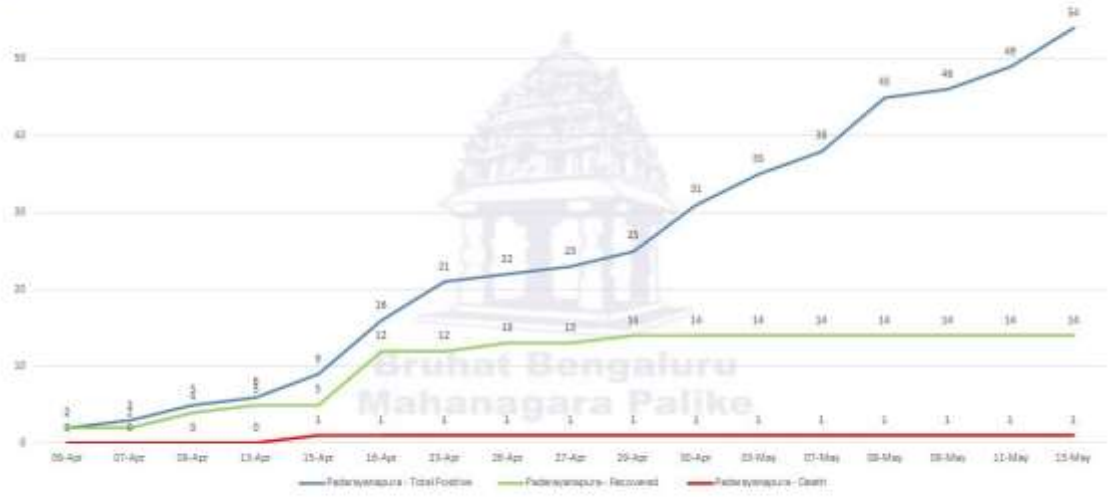
Profile of COVID-19 Positive cases over time



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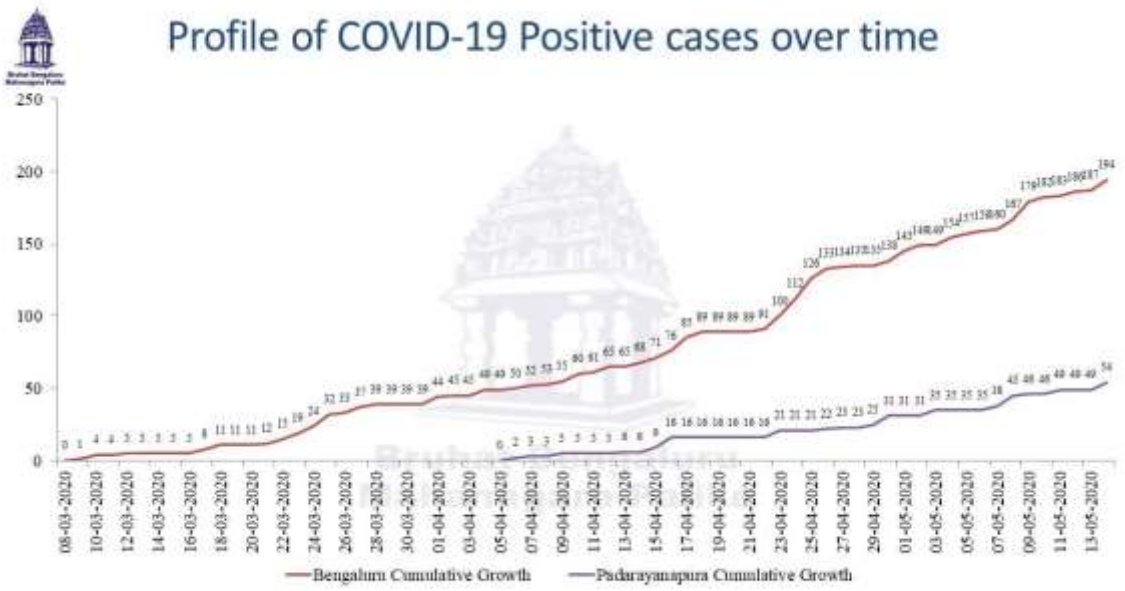

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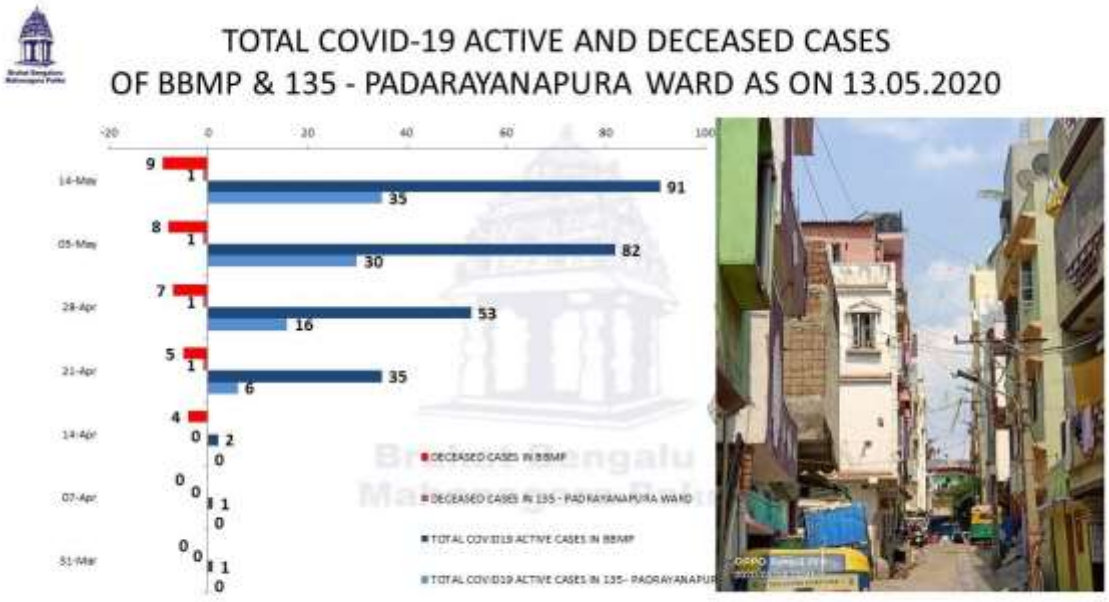

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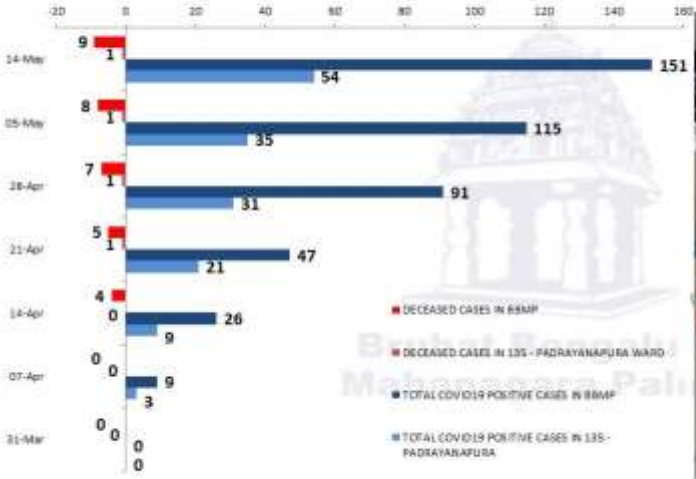
TOTAL COVID-19 CONFIRMED AND DECEASED CASES OF BBMP & 135 - PADARAYANAPURA WARD SINCE 09.04.2020



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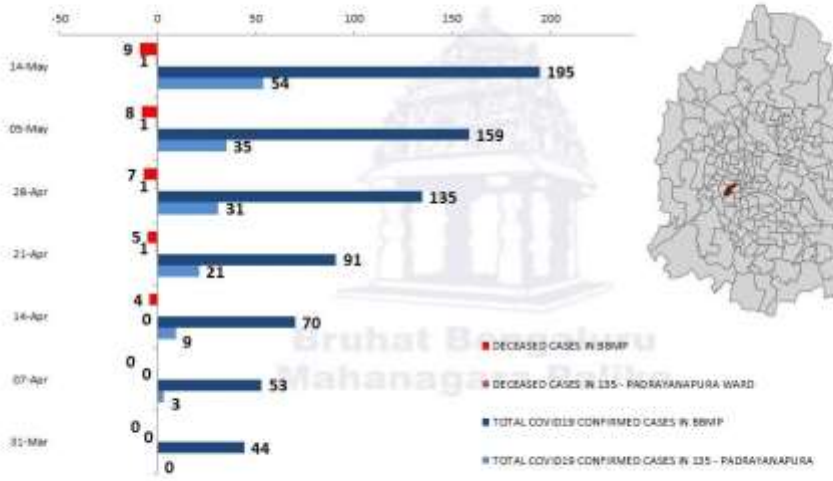
TOTAL COVID-19 CONFIRMED AND DECEASED CASES OF BBMP & 135 - PADARAYANAPURA WARD SINCE INCEPTION



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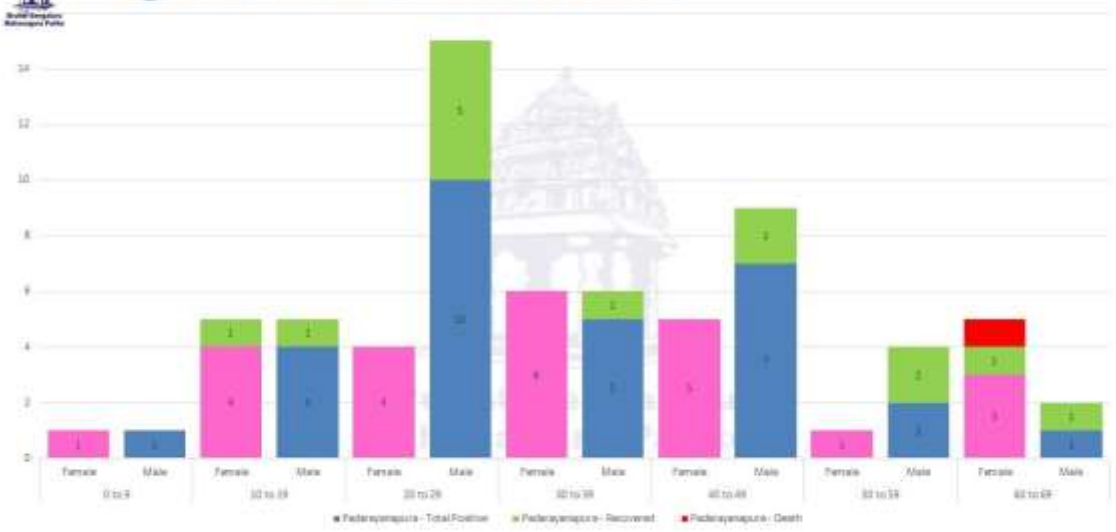
Age and Gender Profile of Cases



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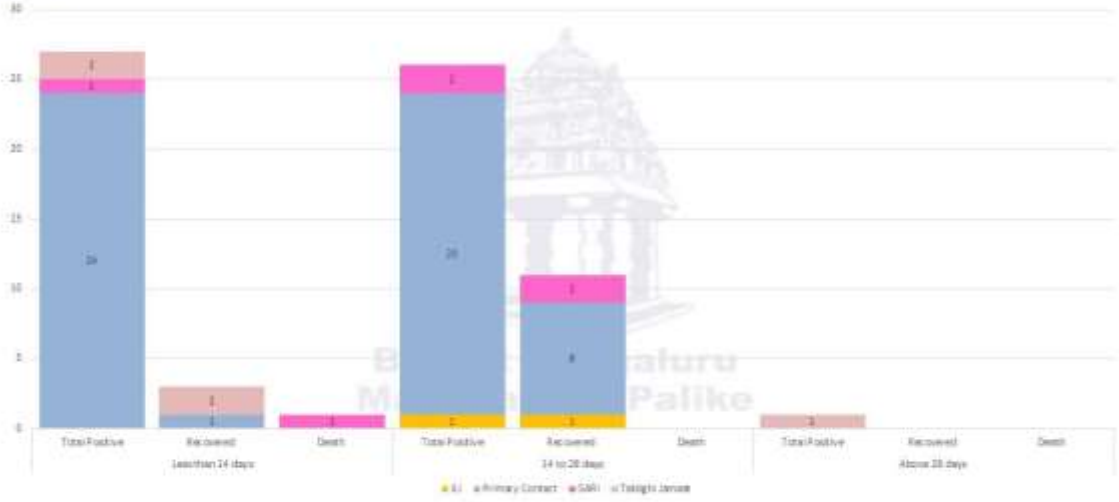
Source of Transmission



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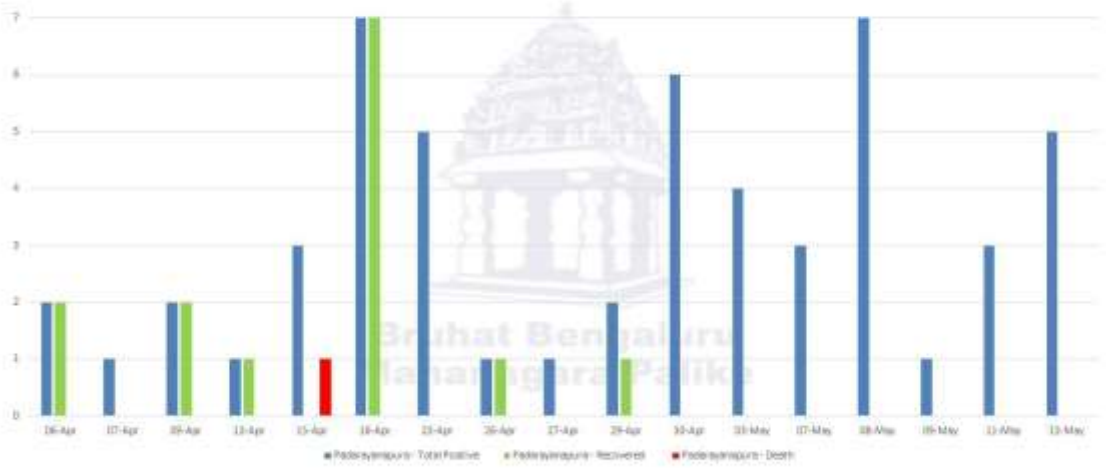
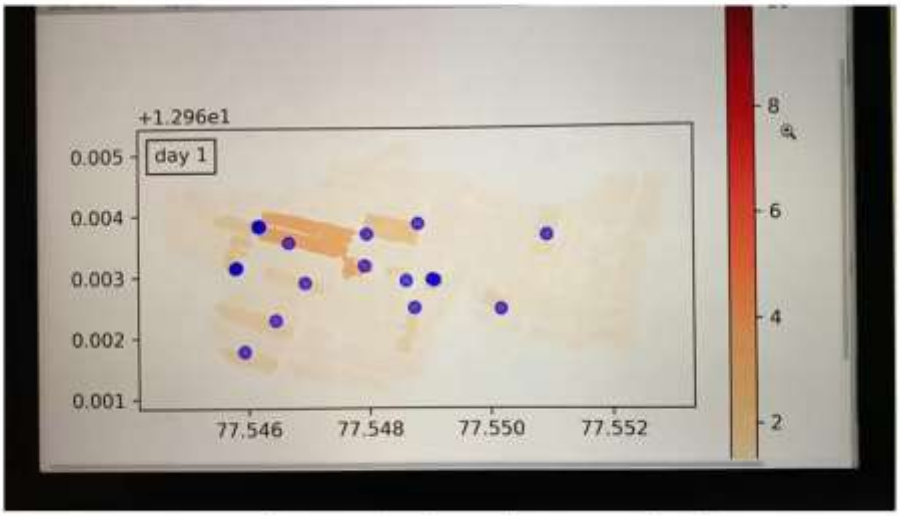
COVID-19 Positive cases of Padarayanapura over time



BBMP COVID WAR ROOM / Padarayanapura Cluster / 14.05.2020 / Smart Cities Mission / #BBMPfightsCOVID19

Spatial Profiling and Mobility Patterns in Padarayanapura



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Spatial View of COVID-19 Positive Cases of Padarayanapura

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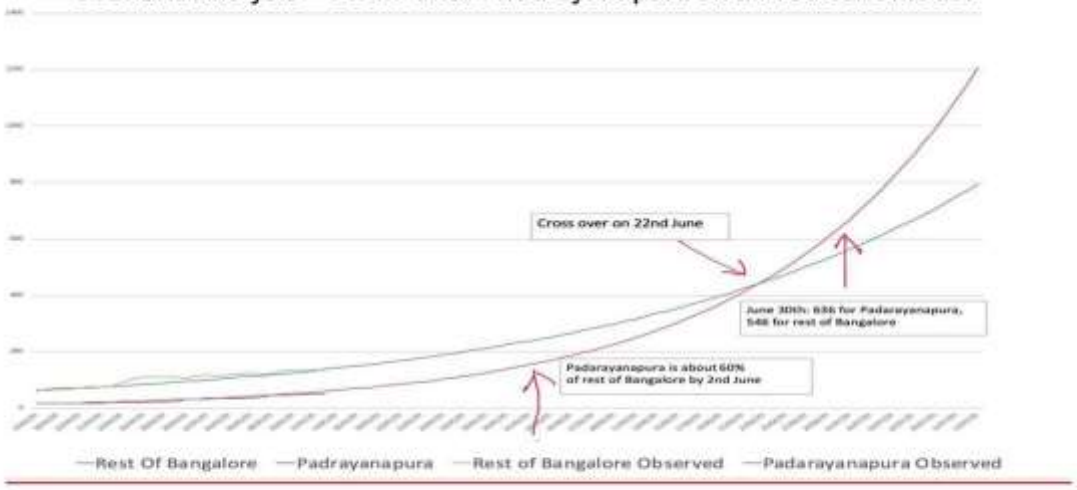
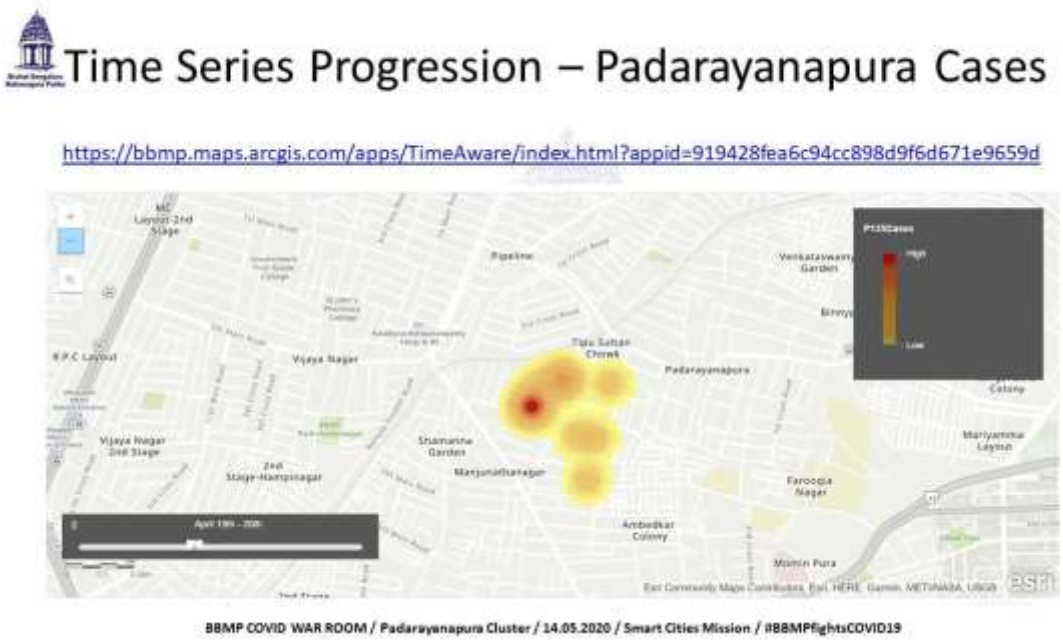
Scenario Analysis – BBMP With Padarayanapura on a Predictive Model





7. Impact and major milestones of BBMP COVID-19 war room

The benefits and impacts of the BBMP COVID-19 War Room are:

- **Reduction in Deaths and Saving Lives:** The innovation of the Index Application – which is a big breakthrough as it demonstrated that Seamless Data Integration has the potential to SAVE HUNDREDS OF LIVES.

- **Cohesive Monitoring:** The War Room with all modern facilities enabled proactive monitoring and decision making related to various COVID patients, suspect patients, and monitoring of quarantine locations. In terms of physical infrastructure, from a non-existent one to a fully functional Model War Room, the common video walls enabled situational awareness as it gave the teams real-time inputs of the true ground situation and enabled them to carry out necessary responses in a more informed manner. The real-time round-the-clock monitoring of video from CCTV cameras and integration with the Police department not only helped during times of monitoring movement of migrant labour, distribution of essential supplies but also reducing the impact of the spread through effective contact tracing and monitoring the lockdown situations. Thus, it helped in overall incident resolution in the city.

- **Collaborative Operations and Management:** Since, the War Room was used for monitoring, controlling, and managing various systems from a single facility, it led to better collaboration and coordination among various agencies dealing with COVID 19. The officials from various departments/ agencies were available (either physically or virtually) at the War Room, and coordinated among each other for improved working and decision making. The War Room has provided facilities for

the deployment of web, application, data, and analytics to provide shared real-time dashboards, business intelligence, monitoring, and resource utilization. The War Room has enabled collaborative operations and facilitated data sharing, rich MIS, What-if Analysis, etc. across disparate systems, leading to coordinated decisions by city administrators.

- **Optimized Costs:** War Room was established as a common facility for monitoring, operating, and managing various systems and hosting of their backend systems. It has the necessary wherewithal – operator consoles, video walls, printers, connectivity, and other ICT hardware, software, and network infrastructure including servers, storage, firewall, work stations, networking components, UPS, etc. Having a common facility and ICT platform for different components helped in optimizing the costs of implementation as well as operations.

- **Long-term Benefits:** As BBMP and the Government of Karnataka continue the measures to follow the directives issued by the Ministry of Home Affairs concerning Sanitation at Public Places, ensuring human health is a key consideration for city planning and reviewing the resources available and identifying the existing gaps in Public Health Sector is pertinent. The pandemic was the test of this century, challenging us to attempt to review and ramp up our capacities at all levels and build resilience in the cities. And Bengaluru Smart City Limited has identified and demonstrated that by leveraging technology and establishing systems that speak with each other seamlessly, coordination, and strategic planning can be achieved in crisis situations.

- Public health planning includes urban and spatial planning sectors including planners, city managers, health professionals, and others towards developing Bengaluru city planned and built with a focus on human and environmental health. Many cities face health threats linked to urban and territorial planning. Infectious diseases thrive in overcrowded cities or slum areas, or where there is inadequate access to clean water, sanitation, and hygiene facilities; living in unhealthy environments killed 12.6 million people in 2012 and air pollution killed 7 million people in 2016. However only 1 in 10 cities worldwide meet standards for healthy air, and Bengaluru being one of the 25 most populous cities on the planet with close to 13 million population it is important to integrate Public Health with all the stakeholders concerned.

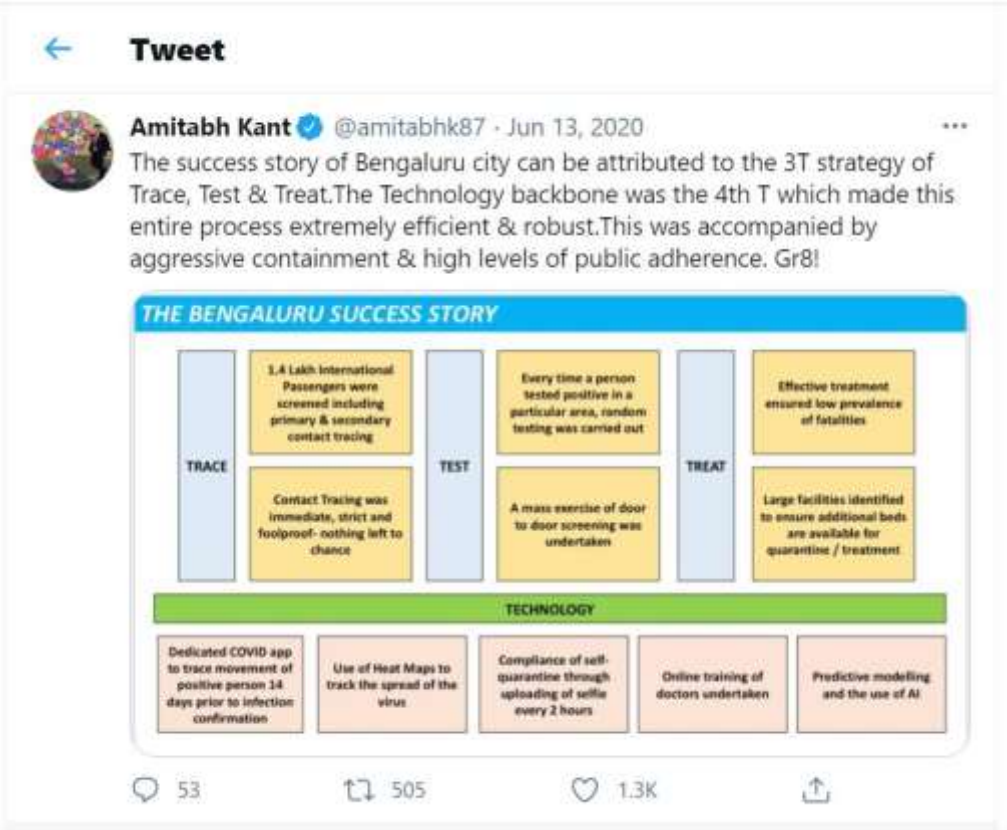
- It is to underline the words of Dr. Maria Neira, WHO Director, Department of Environment, Climate Change and Health **"If the purpose of urban planning is not for human health, then what is it for?"** and **make adequate planning for physical and mental health and wellbeing."**

- Investments in health-based urban and territorial planning must secure long-term health and wellbeing legacies for a growing proportion of populations and meeting the demands of the future as well. This paper presents an opportunity and ushers in the hope to build transformative urban areas, especially as the world begins to build back with a greater consciousness of the links between space and health.

8. Other milestones

- World Economic Forum & Smart Cities Mission, MoHUA have published several reports on the use of technology & ways to build resilient cities with specific case-study of BBMP COVID-19 War Room. Smart Cities Mission has been an incredible platform for leveraging the strength of partnerships in governance and crisis management as Bengaluru Smart City collaborated with technology partners virtually and provided the data analysis and management necessary for strategic decision making. The attempts of Bengaluru as a fore-runner in leveraging technology were appreciated by all across the national and international platforms.

- In the words of Amitabh Kant, CEO, Niti Aayog, Government of India, "**The success story of Bengaluru city can be attributed to the 3T strategy of Trace, Test & Treat. The Technology backbone was the 4th T which made this entire process extremely efficient & robust. This was accompanied by aggressive containment & high levels of public adherence.**"



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- Secretary, MoHUA mentioned the War Rooms & Preparedness of Bengaluru in fighting COVID-19 at New Delhi on 04.06.2020. "Containment zone mapping & Predictive modeling initiated by Bengaluru are a model for all the cities & many cities are following this" remarked Secretary, MoHUA.

- The Ministry of Housing and Urban Affairs has applauded the efforts behind the Index Application and the recent experience in handling this crisis by the use of technology as remarkable and highly useful for other cities in view of peer learning and leveraging smart technologies for managing the pandemic situation better.

- It is also one of the finest examples of how during a time when office spaces became less relevant, hierarchies diffused, and all the stakeholders – Public, Private, and Academia made concerted efforts to ensure the city overcame the crisis and put up a system in place in the least time possible through impeccable collaboration. The City administration kept abreast of the Ministry of Health and Family Welfare, Government of India, and Government of Karnataka and ensured seamless coordination through smart interventions in this fight against the COVID-19 pandemic.
- The entire exercise presented a classic case of application of Technological Interface for Public Health from micro-level management to macro-scale perspectives.

- It is rightly said, "Data is not oil, but data is like water, essential for life and data integration has the potential to save lives, especially in a pandemic."

References

1) https://www.mohfw.gov.in/
2) https://COVID19.bbmpgov.in/
3) https://COVID19.bbmpgov.in/pages/faqs
4) https://COVID19.bbmpgov.in/pages/advisories
5) https://bbmp.gov.in/warroombulletin.html
6) https://pib.gov.in/PressReleseDetail.aspx?PRID=1611592
7) https://smartnet.niua.org/content/1c9dd36b-e182-4ced-815b-2af63967393c
8) https://smartnet.niua.org/sites/default/files/bbmp.pdf
9) https://blrsmartcity.karnataka.gov.in/info-2/BBMP+COVID19+War+Room/en
10) http://www3.weforum.org/docs/WEF_Technology_and_Data_Governance_in_Smart_Cities_India_2020.pdf
11) https://www.deccanherald.com/city/top-bengaluru-stories/world-economic-forum-acknowledges-bbmp-COVID-19-war-rooms-tech-use-931998.html
12) https://twitter.com/amitabhk87/status/1271800527420968960?s=08
13) https://www.who.int/publications/i/item/strengthening-preparedness-for-COVID-19-in-cities-and-urban-settings
14) https://smartnet.niua.org/sites/default/files/resources/indian_smart_cities_-_COVID 19_response_vfinal.pdf
15) https://www.karnataka.com/govt/bbmp-COVID-19-treatment-guidelines/
16) https://www.mohfw.gov.in/pdf/Containmentplan02042020.pdf
17) https://www.mohfw.gov.in/pdf/PreparednessandresponsetoCOVID19inUrbansettlements.pdf
18) http://swachhbharaturban.gov.in/sbmdocumentfile.aspx?DOCTYPE=9999&DOCID=16&id=4qwykd6kaq0tu5pp
19) https://www2.deloitte.com/content/dam/Deloitte/in/Documents/public-sector/in-gps-IndiaSmartCitiesCOVID19Response_11Jun_Print-noexp.pdf
https://www.youtube.com/watch?v=_EcVf4SjhVs&feature=emb_imp_woyt

Madhya Pradesh Response to COVID-19: Strategy Paper

Girish Sharma, IAS

Abstract

This case study captures the specific response actions taken to combat the pandemic in the state of Madhya Pradesh. The key short, medium and, long term response strategies to combat the COVID 19 pandemic in the state of Madhya Pradesh.

Keywords: Pandemic, Response, Strategy, Madhya Pradesh

1.0 Introduction

This strategy paper is a derivative of the Document – "Response Actions to COVID-19: Madhya Pradesh Experience" by Atal Bihari Vajpayee Institute of Good Governance and Policy Analysis, Bhopal. The document presents an account of the impact and subsequent action response of COVID-19 in the state of Madhya Pradesh by covering events right from the advent of the pandemic to mid-December 2020. The key actions detailed in the document are further segmented into short, medium and, long term strategies, and have been presented in this paper.

The short-term response lists down effective strategies for dissemination of relief to those vulnerable due to the lockdown; Districts as a unit of planning and as an agent of change; village based RRT and risk communication campaigns. The medium- and long-term strategies include socio-economic recovery schemes and possible steps to improve the public health system while looking at new sectors for expansion of growth. This paper supplemented a more granular and detailed report covering various themes and subthemes relating to COVID-19 response action in the state of Madhya Pradesh.

2.0 Short term strategies

The effects of the pandemic can only be contained by following a sustained and gradual path of growth, all while making efforts to improve the short-term situation. During the short term, the following approach may be adopted for dissemination of relief to those who are immediately vulnerable.

2.1 Population with Disabilities: The pandemic is intensifying the inequalities experienced by over 27 million Indians with disabilities. In Madhya Pradesh alone, there are around 6 lakh people with disability in mobilization, hearing, and visual imparity. In terms of fatalities, they are among the hardest hit. While persons with disabilities are less likely to access education, healthcare, and income opportunities or participate in the community. During the lockdown, therapies, and treatments for people with a disability, especially children born with disabilities such as autism and cerebral palsy, were impacted. Further, according to the 2011 census, two-third of the disabled population is engaged in agriculture or cultivation highlighting the need to understand disability-specific requirements, daily

living activities, and take appropriate and timely measures to ensure their protection and safety during risk situations.

Section 8 of the Rights of Persons with Disabilities Act, 2016 guarantees equal protection and security for persons with disabilities in these situations. Disaster Management Authorities at District/State/National level should mandatorily include persons with disabilities in disaster management activities and keep them duly informed about these (1).

a. State Commissioner for PwDs

- The State Commissioners for PwDs should be declared as the State Nodal authority in respect of persons with disabilities.
- They should be the overall in-charge to resolve disability specific issues during the crisis period.
- They will coordinate with State Disaster Management Authority, Health, Police and other line Departments as well as District Collectors and district level officers dealing with persons with disabilities.
- They will be responsible to ensure that all information about COVID 19, public restriction plans, services offered are available in local language in accessible formats.

b. District Officer dealing with empowerment of PwDs

- The District Officer dealing with empowerment of PwDs should be declared as the District Nodal authority in respect of persons with disabilities.
- He should have a list of PwDs in the District and monitor their requirements periodically and should have a separate list of persons with severe disabilities who need high support in the locality.
- He will be responsible for resolving the issue within the resources available and if necessary may take the help of Non-Governmental Organisations and Civil Society Organisations/Resident Welfare Associations.

c. General Action Points

- All information about COVID 19, services offered and precautions to be taken should be available in simple and local language in accessible formats; i.e. in Braille and audible tapes for persons with visual impairment, video-graphic material with sub-titles and sign language interpretation for persons with hearing impairment and through accessible web sites.
- Sign language interpreters who work in emergency and health settings should be given the same health and safety protection as other health care workers dealing with COVID19.

- All persons responsible for handling emergency response services should be trained on the rights of persons with disabilities, and on risks associated with additional problems for persons having specific impairments.
- Relevant information on support to persons with disabilities should be a part of all awareness campaigns
- During quarantine, essential support services, personal assistance, and physical and communication accessibility should be ensured e.g. blind persons, persons with intellectual/ mental disability (psycho-social) are dependent on care giver support. Similarly persons with disabilities may seek assistance for rectification of fault in their wheelchair and other assistive devices.
- Caregivers of persons with disabilities should be allowed to reach Persons with disabilities by exempting them from restrictions during lockdown or providing passes in a simplified manner on priority.
- To ensure continuation of support services for persons with disabilities with minimum human contact, due publicity needs to be given to ensuring personal protective equipments for caregivers.
- The Resident Welfare Associations should be sensitized about the need of persons with disabilities so as to allow entry of maid, caregiver and other support providers to their residence after following due sanitizing procedure.
- Persons with disabilities should be given access to essential food, water, medicine, and, to the extent possible, such items should be delivered at their residence or place where they have been quarantined.
- The States/UTs may consider reserving specific opening hours in retail provision stores including super markets for persons with disabilities and older persons for ensuring easy availability of their daily requirements.
- Peer-support networks may be set up to facilitate support during quarantine for PwDs ;
- Additional protective measures should be taken for persons with disabilities based on their impairment who need to be given travel pass during the emergency period and should also be sensitized for their personal safety and protection.
- Persons with disabilities should be given priority in treatment, instead they should be given priority. Special care should be taken in respect of children and women with disabilities.
- Employees with blindness and other severe disabilities in both public and private sector should be exempted from essential services work during the period as they can be easily catch infection.
- On line counselling mechanism should be developed to de stress persons with disabilities as well as their families to cope with the quarantine period.
- 24X7 Helpline Number at State Level be set up exclusively for Divyangjan with facilities of sign language interpretation and video calling.
- The States/UTs may consider involving Organisation of Persons with Disabilities in preparation and dissemination of information material on COVID 19 for use of PwDs.

2.2 Elderly population: It is important to note that older adults are at a higher risk of COVID-19 infection due to their decreased immunity and body reserve, as well as multiple associated co-morbidities like diabetes, hypertension, chronic kidney disease, and chronic obstructive pulmonary disease. Also, the infection course tends to be more severe in the case of elder lies resulting in higher mortality. However, according to WHO COVID-19, transmission among the elderly population can be reduced by taking appropriate measures. Accordingly, MoHFW also released a health advisory for the elderly population and the instructions to hospitals and care units (2).

Do's	**Don't**
1. Stay at home. Avoid meeting visitors at home. If meeting is essential, maintain a distance of one meter. 2. Wash your hands and face at regular intervals with soap and water. 3. Sneeze and cough either into your elbow or into tissue paper / handkerchief . After coughing or sneezing dispose of the tissue paper/ wash your handkerchief. 4. Ensure proper nutrition through home cooked fresh hot meals, hydrate frequently and take fresh juices to boost immunity. 5. Exercise and meditate. 6. Take your daily prescribed medicines regularly. 7. Talk to your family members (not staying with you), relatives, friends via call or video conferencing, take help from family members if needed 8. Postpone your elective surgeries (if any) like cataract surgery or total knee replacement 9. Clean the frequently touched surfaces with disinfectant regularly. 10. Monitor your health. If you develop fever, cough and/or breathing difficulty immediately contact nearest health care facility and follow the medical advice rendered	1. Do not cough or sneeze into your bare hands or without covering your face. 2. Don't go near your contacts if you are suffering from fever and cough. 3. Don't touch your eyes, face, nose and tongue. 4. Don't go near affected/ sick people. 5. Don't self-medicate. 6. Don't shake hands or hug your friends and near ones. 7. Do not go to hospital for routine checkup or follow up. As far as possible make tele-consultation with your healthcare provider. 8. Don't go to crowded places like parks, markets and religious places. 9. Don't go out unless it is absolutely essential

2.3 Population of Migrant Labour: With factories and workplaces shut down due to lockdown, millions of migrant workers had to deal with the loss of income, food shortages, and uncertainty about their future. The tremendous suffering and hardships that they faced during their journey back home, many on foot, reflects the chronic problem of a lack of social security nets for workers. The massive loss of livelihoods, increasing incidents of hunger, and distressed demand for labour allows for commensurate public policy actions in a guaranteed form of employment.

The state effectively addressed the need for migratory workers who travelled through the state boundary and is the first to complete the registration of migratory workers returning from 10 different states to their home state Madhya Pradesh. In the duration of 11 days with the use of *RojgarSetu*, about 1.3 million migrant workers and their family members returned to their hometown during COVID-19 nationwide lockdown. Importantly, all these migratory workers were given employment under Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGS) soon after their return.

2.4 Child population: The government should sustain life-saving maternal, new-born, and child health services by meeting the urgent needs posed by COVID 19 while carrying forward critical health interventions, like funding for nutrition and immunization programs, that ensure children survive and thrive. Risk factors for violence, exploitation, and abuse also rise for children living under restricted movement and socioeconomic decline. Special measures such as creating taskforces, guidelines, and implementation should be administered with due diligence to address multiple issues. There should also be a provision to conduct in-depth studies for after effects of the pandemic on children's vulnerability with special reference to orphan children.

2.5 Mental Health: Although the COVID-19 crisis is, in the first instance, a physical health crisis, it also has the seeds of a mental health crisis. Psychological distress in the face of this pandemic is widespread, with some populations significantly affected. Good mental health is critical to the functioning of society at the best of times. Mental health services are, therefore, an essential part of all government responses to COVID-19.

In the short term, the ministry established 24x7 Mental Health Rehabilitation Helpline - 'KIRAN,' Dial -Toll-Free Number 1800-599-0019 to combat the mental health issues. Composite Regional Centre (CRC) for Persons with Disabilities *Divyangjanis* also a response service modality set under the Ministry of Social Justice & Empowerment, Government of India. Apart from undertaking center-based and camp-based rehabilitation related activities, it also functions as a resource center for persons with disabilities.

The primary aim of CRC is to create resources and infrastructure required for developing services for persons with disabilities, including human resource development and research. The Centre is for facilitating capability at local levels rather than letting it centralize in urban areas. Emphasis is given to early intervention (3).

2.6 Districts as units of planning and management: Each state created their own pandemic management plan and team to deal with the preventive and curative measures required to combat the pandemic. Madhya Pradesh not only expanded the Indian government IITT strategy but also adopted innovative approaches using local resources for identification, isolation, testing, and treatment. Districts also followed similar protocols based on the local environment.

To ensure effective coordination of various partners and stakeholders outlined above at the country, state, and district level, the state government established integrated incident management teams/ task forces at the various groups, as required. These teams ensured regular communication between groundwork force /COVID warriors', managers at different geographical groups of the response, and close operational coordination with district governments, partners across all sectors, and services at all levels. More specific details of the coordinating mechanisms are given below, grouped by partner type and breadth of activity.

Planning and action of Government-state/district and government partnership during COVID was of urgency. Role of multidisciplinary coordination cell was to include health, finance, education, transport, travel and tourism, public works, water and sanitation, environment, social protection, and agriculture through National Disaster Management or other crisis management authorities. Additionally, including critical functionaries such as Health care providers and Sanitation workers, Police (law and order), etc was also a mammoth task. It was followed by the Role / Public-Private Partnerships of Influencing stakeholders such as Media, Civil Society, NGOs, Corporate Houses, and Community Influencers.

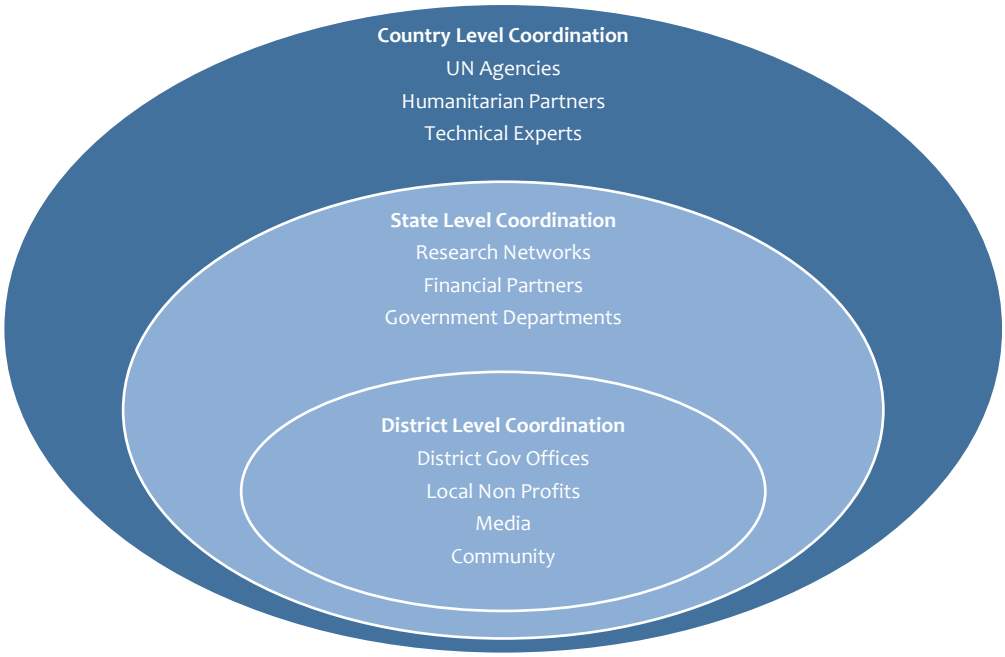

Figure 1: Stakeholder engagement at different levels

As part of the Identification Mechanism for tracing the contacts, mechanism for drafting the contacts active screening process, 85 Rapid Response Teams (RRT), and 19 Special Response Teams (SRT) were formed and given the responsibilities of contact tracing and monitoring quarantine centres. The state government identified the emerging hotspots, clusters, and outbreak areas through rigorous contact tracing and testing of all high-risk first contacts.

All travellers, national and international, were screened at the entry point, i.e., bus stands, railway stations, airports, etc. As described in the infographic, a standard procedure was devised to ensure the synchronization of contact tracing efforts by healthcare teams, government medical college teams, and the police. The state leveraged the digital platforms available for close coordination between these groups. The strategy has enabled them to successfully conduct a contact tracing exercise for nearly all confirmed cases, taking samples for the tests of around 99.4% of the first identified contacts. SARTHAK App was used for contact tracing and active surveillance. It also helped the Rapid Response Team (RRT) list contacts of suspects/laboratory-confirmed cases in contact tracing. Health workers follow-up high-risk contacts for 14 days using contact tracing from District Surveillance Officer with RRT maps to determine the potential spread of the disease. If the residential address of the contact is beyond that district, the district IDSP will inform the concerned District IDSP/State IDSP. The Supervisory officer, in whose jurisdiction the laboratory-confirmed case/suspect case falls, shall inform the Control Room about all the contacts and their residential addresses. The control room will in turn inform the supervisory officers of concerned sectors for surveillance of the contacts. If the residential address of the contact is beyond the allotted sect/ location, the district IDSP will inform the concerned Supervisory officer/ concerned District DSP/ state IDSP, ass mentioned in the infographic (4).

Strength was focused on ‘fever clinics’, which were activated across the state as a potent modality for passive surveillance. These clinics were established as the first contact for the suspected COVID-19 patients, set up to address patients suffering from SARI or ILI. Importantly, variations had to be considered: some sections of the population are weaker than others. Due to an altered immune system during pregnancies, the chances of complications due to COVID-19 are higher in pregnant women. Village Health Nutrition Days (VHNDs) are being organized regularly except in containment areas, for providing Antenatal care (ANC) services. Women who are health service providers and link workers were made aware of infection prevention practices like hand washing, masks, and social distancing.

A directive to district collectors was issued in collaboration with the Railway department, to make arrangements for passengers' screening upon their arrival at railway stations that come under their jurisdiction. Passengers who show symptoms of COVID-19 will have to

undergo institutional quarantine for 14 days. The districts had to strictly follow the given algorithm.

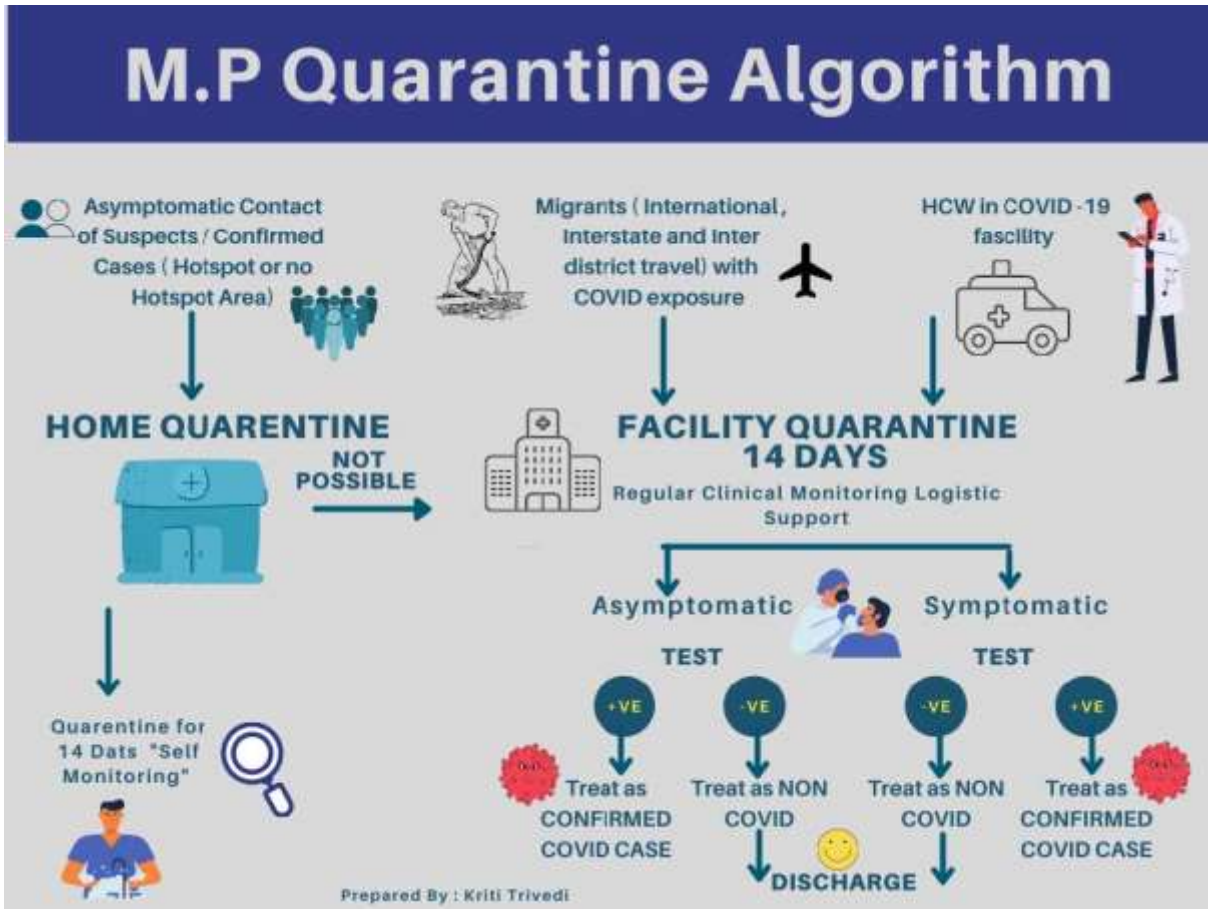

Figure 2: M.P Quarantine Algorithm

According to a statement by the Indian Council of Medical Research (ICMR) on April 1, 2020, 126 total government laboratories were approved and supported (provided diagnostic kits or reagents). By April, four funded labs were established in Madhya Pradesh: The All India Institute of Medical Sciences, Bhopal; National Institute for Research on Tribal Health, Jabalpur; Mahatma Gandhi Memorial Medical College, Indore; and Gandhi Medical College, Bhopal.

By June 2020, Madhya Pradesh had increased the number of COVID-19 testing labs from 20 to 78 within 24 days. The state government increased its capacity by installing 58 TruNat machines in the districts without any lab. These devices were installed in district hospitals for testing of COVID-19 suspects (5).

The state went into a door-to-door survey with a KILL CORONA campaign from July 1 to July 15. Approximately 2.5 million households, more than 12 million, were surveyed in MP for possible SARI/ILI cases. As a result of the active search, the state identified close to 12,000 people with COVID-19 type symptoms by July 13. The state also managed to reduce

the time taken to process results. For scenarios wherein sending samples to a laboratory within the state would take more time, both in terms of sending these and waiting for the results to arrive, the samples were sent outside the state to GOI laboratories in Delhi, Pune, Vishakhapatnam etc. This process expedited the results to 24 hours from 5-7 days, which has been the constant aim for all results (6).

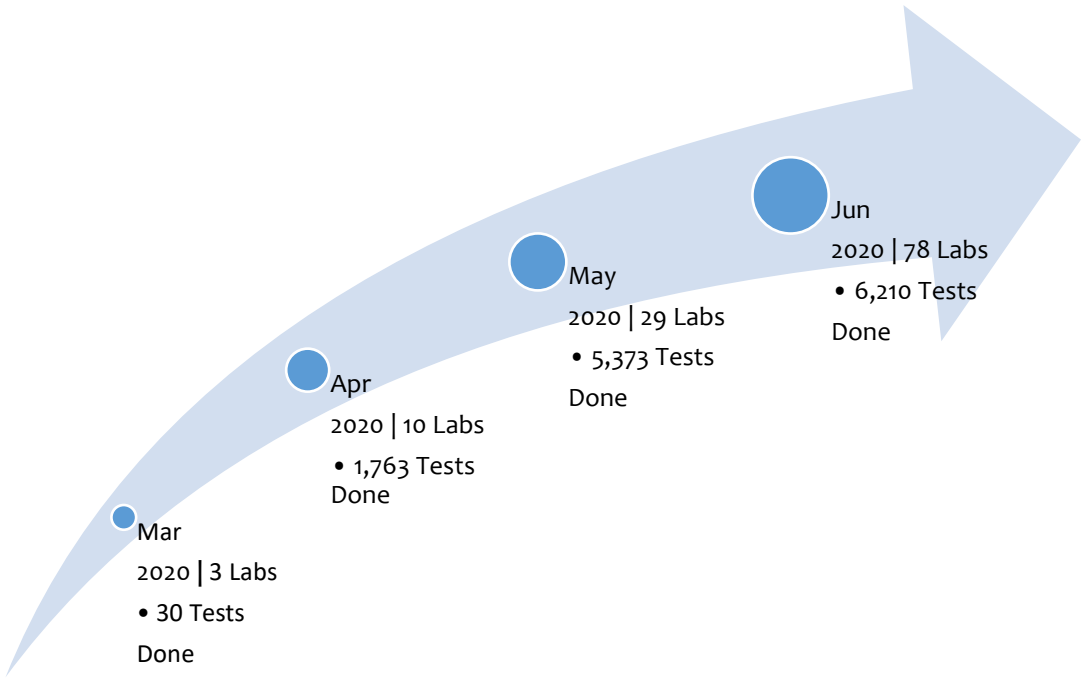

Figure 3: Expansion of Testing Units as on June 2020

2.7 Supporting Frontline Health Response & Providing Technical Support at the village level: Strengthening primary health care (PHC) coverage based on active engagement within PHC teams and adequate incentives to PHC teams; The Accredited Social Health Activists or ASHA workers were hired on contract by state governments and have emerged as perhaps the most critical frontline workers in managing the pandemic and strengthening public health provision. They have been performing door-to-door COVID-19 surveys, documentation, creating awareness in communities, and ensuring timely treatment. The comprehensive role of health staff in the time of pandemic is as follows:

1. Provide information on (i) preventive and control measures including social distancing (ii) addressing myths and misconceptions;
2. Support DSO on (i) contact tracing as per SOPs (ii) implementing home quarantine, home care, and supportive services for HRG and probable cases urban/ rural areas and (iii)address psychosocial care and stigma and discrimination;
3. Reporting and feedback
4. Team safety and prevention
5. Supportive supervision Health – ANM (Under the guidance of DSO/MO) Health – ASHA, CHV (in urban areas) and ICDS - AWW (Under the guidance of ASHA Facilitator and CDPO)

I. Community awareness through interpersonal communication (a) uptake of preventive and control measures including social distancing (b) addressing myths and misconceptions;
II. Support ANM/Supervisor in the house to house surveillance, including (a) identification of HRG and probable cases (b) ensure uptake of medical services in urban and rural areas and (c) psychosocial care and stigma and discrimination
III. Reporting and feedback
IV. Personal safety and precautions
V. Use of COVID 19 IEC materials

2.8 Technical Support provided to ASHA: These workers were trained in the following aspects (7).

- Understanding COVID- 19, Communication for Response, and Containment Measures. Roles and Responsibilities of the Health Workers/ ICDS Workers
- Prevention: Safe Practices in the Community a. Preventive services: ASHA/ANM/FLW to communicate for preparedness in the face of a COVID-19 outbreak at the community level
- Supportive Public Health Services: Community and Households a. Control services (Home quarantine, home care, stigma and discrimination, and supportive services for HRG) (5 mins) b. Handling myths and misconceptions; reporting and feedback through cluster containment, community transmission at the epidemic stage c. Effective use of IEC materials on COVID-19
- Community Surveillance
- Managing Stigma and Discrimination.
- Communication, Personal Safety for Health, ICDS Personnel
- Special Communication Needs in Urban

3.0 Medium- and long-term strategies

3.1 Population with disabilities: Although the government took multiple initiatives for the inclusiveness of the people with disabilities. It should be reinforced that for COVID 19, response and recovery programs should be guided according to the 4 key principles:

1) Combining mainstreamed and disability-specific measures across the response.
2) They are ensuring that information, facilities, services, and programs are accessible.
3) Meaningful consultation with active participation of persons with disabilities and their representative organizations.
4) Establishing accountability and committing to investments that support disability inclusive outcomes. Including persons with disabilities in the COVID19 response and recovery will better serve everyone and is a vital part of achieving the central promise of the 2030 Agenda—to leave no one behind.

3.2 Population of migrant labour: The Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), despite its various challenges, has been a time-tested successful program for providing a minimum of 100 days (in a financial year) of wage employment to every household whose adult members volunteer to do unskilled manual work in the rural areas. The demand for providing employment guarantees to both rural and urban workers has been a critical point of the policy discussion and needs detailed government attention. This also poses an opportunity for extending the scope of MGNREGS in public works, such as accomplishing the targets of public programs such as Swachh Bharat Abhiyan, Pradhan Mantri Awas Yojana (PMAY), etc. Further, there is a need for detailed skill mapping of laborers in the unorganized sector and provide them with better opportunities and living conditions.

3.3 Population facing Gender Based Violence: Much worryingly, COVID-19 induced restrictions have confined women and young girls in their homes, increasing domestic violence risk. The available support system to respond to violence against women and girls has also been disrupted during this period. The figures of violence against women and child sexual abuse increased as reported during the lockdown and thereafter. 60 To mitigate this, a response against gender-based violence should not be a missing agenda in pandemic preparedness plan.

3.4 Child Population: Disruptions to society have a heavy impact on children: on their safety, their well-being, their future. Only by working together can we keep millions of girls and boys – including those facing poverty, exclusion, or violence, and those upended by the humanitarian crisis – healthy, safe, and learning. This includes long term and sustainable strategies for inclusion of destitute and orphan children into programs that benefit them and ensure their survival as valuable resources for the society.

3.5 Restructuring Educational Settings: The government of India has acknowledged the issues and issued guidelines for online learning. The COVID-19 has made us realize that providing and enabling additional economic support for availing the ICTs to unprivileged and marginalized students is the need at this hour. Systematic intervention is critical to mitigating the gap in learners' access to ICTs.

3.6 Restructuring Educational Settings: The state must be expanded to fully fund mental health support activities for all communities. Policies must support and care for those affected by mental health conditions and protect their human rights and dignity. As we recover from COVID, we need to ensure widespread availability of mental health care and psychosocial support and build mental health services for the future, overcoming the long-standing underinvestment in this area.

3.7 Occupational health hazards: The protection plan of health staff and frontline workers including sanitation, police personnel and administration should be in place with essential budget provision. The staff must be adequately trained to respond to such emergency situations. Access and support of MCH services & clinically vulnerable population: The maternal and child health cannot be compromised under any circumstances like pandemic. There must be safety guidelines for client, caretaker and service providers. During the course of the pandemic the clinically ill population like transplant recipients, people with

cancers and adults on dialysis or with chronic kidney disease experiences suffered due to lack of regular health check-ups arising from fear, hesitation, and lack of confidence on access, care support.

3.8 Grapevine communication: There are many reasons why some people believed in hoaxes and conspiracy theories, as some social media users (interest groups) are better than others at providing exciting and believable accounts about the pandemic. This led to misinformation and disagreements around COVID messaging. It is typical for evolving messaging about pandemics to seem contradictory and confusing to the public. It is essential to explain the continual learning process about health risks and response mechanisms. It has led to the wastage of many public and private resources to control the messaging or the damages caused by the misinformation circulated. However, we need some stringent guidelines and protocols for information dissemination as part of lessons learned from COVID-19 media management. Given the importance of such informal channels of networking, one can also argue why the government should embrace such system, to disseminate information that is correct. At the same time, the regulation of such channels is necessary.

References

1) Ministry of social Justice and Empowerment. PIB Delhi. 27 March 2020
2) Health Advisory for Elderly Population of India during COVID-19 https://www.mohfw.gov.in/pdf/AdvisoryforElderlyPopulation.pdf
3) http://www.crcbhopal.nic.in/
4) Response to COVID-19 Madhya Pradesh By CDRI
5) http://timesofindia.indiatimes.com/articleshow/76480160.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst
6) https://www.firstpost.com/india/kill-corona-campaign-in-mp-can-help-fight-COVID-19-but-will-it-reverse-spike-in-bhopal-gwalior-chambal-belt-8627671.html
7) COVID-19 FACILITATOR GUIDE Response and Containment Measures Training toolkit for ANM, ASHA, AWW; ROLE OF THE FRONTLINE WORKER : https://www.mohfw.gov.in/pdf/FacilitatorGuideCOVID19_27%20March.pdf