Responding to COVID in a Bustling Metropolis

Part 1 of our integrated healthcare response to a sudden surge in COVID-19 cases in Bengaluru

1. How it began

Bengaluru is one of the fastest growing economic and cultural centres in the country, with an extremely diverse demography.

In mid-March, when COVID-19 hit and a nation-wide lockdown was put in place, the city responded by quickly installing systems to screen, identify and trace suspected and presumptive cases while preparing its testing and treatment capacities.

In June, the situation changed dramatically. There was a huge surge in cases from around 380 on June 1 to around 4,500 on June 30. Within days, the entire

Fig. 1: Bengaluru City has 8 zones and 198 wards

public health system felt the strain. It was clear that we needed more people working with communities to build awareness and screen, needed both testing equipment and skilled lab technicians to significantly increase testing and doctors, nurses and attendants to care for people needing immediate medical attention to respond to this crisis.

2. All Hands on Deck

Bengaluru is our 'home.' This is where we started work, this is where we have both our own operations as well as a strong network of NGO partners. We also work closely with the Government of Karnataka on several issues.

But this was different.

The magnitude and complexity of the challenge and the speed of response that it demanded was mind-boggling. Bengaluru is a metropolis with a high density of population. Large slum clusters house diverse communities which are deeply vulnerable. COVID was a double whammy – there was fear of the disease itself, there was fear of stigmatization because of the disease and there was fear of loss of livelihood if anybody in the family or close community did test positive for the disease.

We had to quickly think through our response to a virus about which we knew little, which was spreading fast and had the potential to cause huge damage. It was immediately clear that a fully integrated response, from building community awareness to supporting frontline workers to increasing testing capability to supporting ICU facilities, would be required in the city and we would need to work on every front if we wanted to really help.

We would need to work directly with communities on safety measures and awareness, to build their confidence that there was help when needed and that they would be cared for. We also would have to build a 'care and support each other' environment in the communities and work to remove the fear of stigma. We would need to work closely with the healthcare system on testing

and treatment and with the local and State authorities to strengthen their hands significantly. All of these pieces would need to 'talk to each other' and ensure that all actions were parts of a closely linked chain.

We quickly learnt that we would need to respond to every context differently and as creatively as possible. Our work in Bommanahalli, for example, focuses on working closely with the public system and then using that to maximise the effectiveness of our work with the community. Our work in D. J. Halli is just the reverse, we work closely with community leaders and influencers and then get to the public system. A typical communication campaign, for example, would talk about washing hands and maintaining distance but we knew that we would have to do more – given the general fear, we would have to focus on a 'positive' message while making practical safety suggestions. A campaign that would also inform at the 'household level' what they should do if they had any symptoms and where help would be available. Hence, the 'smiley' campaign on WhatsApp in four languages!

The State government and the Bruhat Bengaluru Mahanagare Palike (BBMP) is at the forefront of the response in the city – we have worked closely with them to augment and strengthen their efforts. Partnerships have been absolutely vital – local community organizations, civil society organizations and individual volunteers have been the bedrock on which this response has rested.

We re-aligned our existing team; all our civil society partners did the same (almost all have close links with the community, but few had worked at this depth and intensity in health) as have all the government functionaries involved. This has been hard, continuous and totally selfless work by everybody involved which comes with a real fear of exposure to the virus. Within the first month, a group of us tested positive and had to be replaced by others – continuously available bench strength is critical in this work. It really is all hands on deck.

We attempt to capture the journey so far in the sections below.

3. Our Team

We organised ourselves in order to correspond to the size and complexity of the situation. The team was organised thematically – 1) Front-end, focussing on community level efforts such as awareness, screening, testing, contact tracing, local quarantining; 2) Intermediate, for supporting intermediate centres and processes for non-critical care and 3) Tertiary, for supporting responses for critical care. Within these themes, there were functions such as government liaison, testing, protocols and training, communication and campaigns, data and IT and frontline safety and care. The teams work closely with functionaries and stakeholders at all levels.

We also organized ourselves by 'areas' in the city, geographies that we focussed on, especially for frontline response. The idea is to have as much direct communication and link with the community or the agency in direct touch with the community as possible to enable a quicker response.

We now have around 1300 volunteers on the ground directly and through our partners, focussed mostly on vulnerable communities. This number is set to increase to around 2000 in the next couple of weeks.

4. Our Approach

There are seven key elements in our integrated healthcare response. In each of these elements, we are focusing on a targeted approach, utilising existing capacity to its maximum.
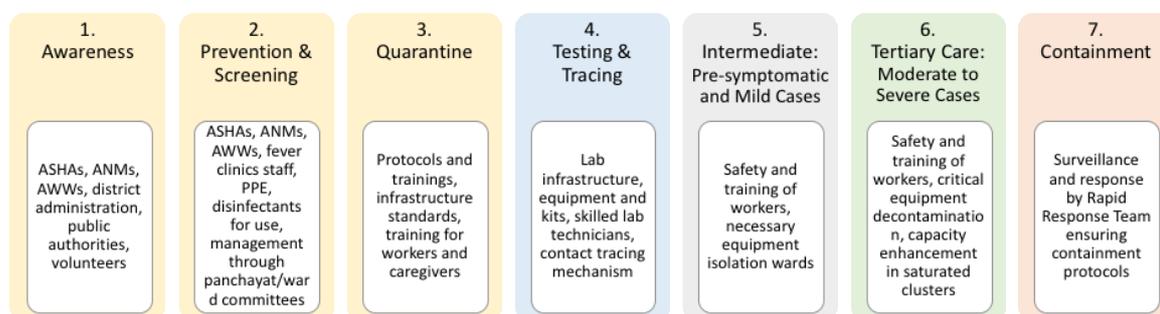
1. Awareness	2. Prevention & Screening	3. Quarantine	4. Testing & Tracing	5. Intermediate: Pre-symptomatic and Mild Cases	6. Tertiary Care: Moderate to Severe Cases	7. Containment
ASHAs, ANMs, AWWs, district administration, public authorities, volunteers	ASHAs, ANMs, AWWs, fever clinics staff, PPE, disinfectants for use, management through panchayat/ward committees	Protocols and trainings, infrastructure standards, training for workers and caregivers	Lab infrastructure, equipment and kits, skilled lab technicians, contact tracing mechanism	Safety and training of workers, necessary equipment isolation wards	Safety and training of workers, critical equipment decontamination, capacity enhancement in saturated clusters	Surveillance and response by Rapid Response Team ensuring containment protocols

Fig. 2: Key elements of integrated healthcare response framework

These elements are organized at different levels such as at wards, zone, city (Fig. 3) as following:

- We are supporting capacity development for building awareness, taking collective preventive measures, screening, quarantining and tracing primary contacts of those who tested positive at a ward or booth-level in coordination with the respective ward/booth committee.
- For enhancing testing capacities, we are working to build capacities across levels – activating the PHC network at a ward level as first-point-of-care centre including testing and helping better utilise existing resources in laboratories of large institutions to enhance the overall testing capacity.
- For setting up intermediate centres for non-critical care, considering capacity for each zone.
- For building tertiary capacities in government or community-oriented hospitals, considering the overall case load.

We are also working on creating training modules around protocols for treatment and testing in collaboration with our knowledge partners such as CMC, Vellore and NCBS, Bengaluru; creatives for communication and helping manage data for informed decision making at state level.
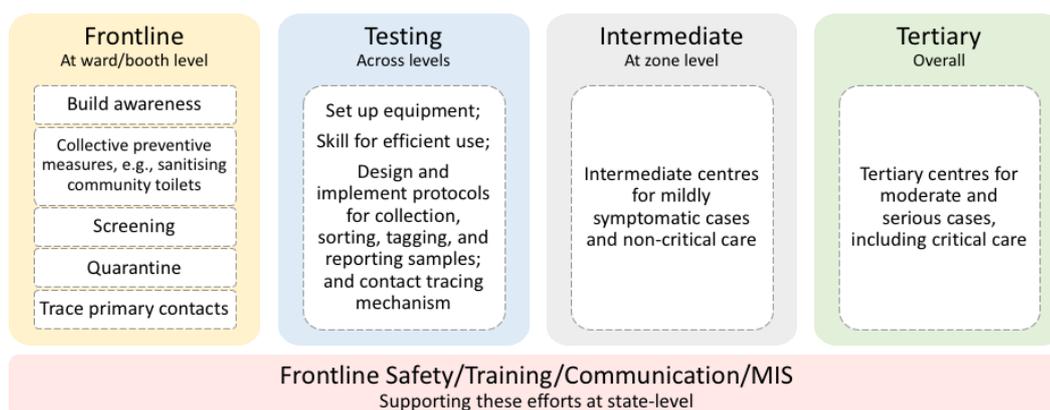
Frontline At ward/booth level	Testing Across levels	Intermediate At zone level	Tertiary Overall
Build awareness	Set up equipment; Skill for efficient use; Design and implement protocols for collection, sorting, tagging, and reporting samples; and contact tracing mechanism	Intermediate centres for mildly symptomatic cases and non-critical care	Tertiary centres for moderate and serious cases, including critical care
Collective preventive measures, e.g., sanitising community toilets			
Screening			
Quarantine			
Trace primary contacts			

Frontline Safety/Training/Communication/MIS
Supporting these efforts at state-level

Fig. 3: Organising of our integrated healthcare response

All this is being done ensuring strong linkages between each of these elements, irrespective of the starting point – our collaboration could be with government or NGO partners working in the area or directly with community-based organisations.

Another important factor enabling such a wide and differentiated response to be implemented swiftly is continuous communication between members within the team and with our stakeholders with a strong emphasis on cross-learning and quick replication of ideas that work.

5. On-going Efforts

Frontline Work, Focused on Dense Slum Clusters

We have focussed our frontline work in dense slum clusters with a high probability of an outbreak. Currently, we are present in around 50 wards covering 8 such slum clusters across the city - Hebbal, DJ Halli, Mahadevapura, Koramangala, KR Market, Majestic, RR Nagar and Bommanahalli.

In areas where there was some mobilisation within the community and awareness around COVID-19, we focussed on enabling BBMP and our NGO partners in strengthening existing frontline systems with equipment and training. In areas where there was very little engagement with the community, we focussed on identifying local leaders, building their capacities to mobilise the community and build awareness; identifying local NGOs and bringing in our existing partners to facilitate testing, screening, contact tracing, quarantining and treatment. Overall, the key aspects of the support include:

a. Build awareness and mobilise community to develop confidence in the government frontline system and follow precautionary measures, especially when one develops symptoms or tests positive but is asymptomatic or pre-symptomatic

b. Equip and develop capacities of frontline workers and booth-level committees to build awareness, conduct screening, trace contacts and quarantine; provide adequate N-95 masks and PPE kits and train them use and dispose it as per safety protocols

c. Prioritise protection of vulnerable populations like those >60 years, those with HIV, Cancer, TB, pregnant women and others with low immunity

d. Enable high levels of testing to quickly identify cases and for tracing and containment

e. Arrange quarantine facilities close to their locality - this could be put in place by having each ward set up a quarantine facility in available spaces like schools and *choultries*

f. Avail dry rations for families of those infected in vulnerable pockets

g. Activate local COVID Care Centres with oxygenated beds probably in the nearest PHC - people tend to come forward for treatment if the facility is familiar and nearby

h. Ambulance services prioritised in these areas, with tight hospital linkages

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__Frontline work, amidst fear__

Three weeks ago, we started working in DJ Halli, in the East Zone. Misinformation and mistrust were high. Most people refused to wear masks, avoided getting tested for the fear of consequences if they were positive for COVID-19.

We did not have any existing NGO partner working here so we started exploring other options. Three Masjid federations, all their imams, maulvis and associated youth came together to form the frontline for information. They circulated posters, WhatsApp messages, small videos, wall paintings on this - they announced messages after every Azaan to remind people of precautionary measures to be taken for COVID-19.

Preventive measures were practical and possible given life in the area - using a cloth mask which could be washed before reuse, keeping a bowl of soap water to frequently wash hands - hence were readily brought into practice. We also invited Dr. Carol of Baptist Hospital, whom the community knew and trusted, to give training on the medical aspects of COVID.

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> *This worked. People have now started responding to frontline workers for testing and screening processes. The network of government frontline system is also now active here.*
>
> *Recently, we invited our partner Mercy Mission to open two field booths to test, screen people in this area and brought on board Sama Foundation with their 40 dynamic female volunteers to work here in 2 wards. We are now in process of planning a joint response with all stakeholders – Baptist Hospital, Mercy Mission, DJ Halli Masjid Federation, Sama Foundation, local PHCs, Anganwadi workers, ASHAs and BBMP link workers – in the locality for COVID care.*

Enhancing Testing Capacity

To be able to track the virus, we need to increase rate of testing significantly. The testing capacity depends on multiple factors such as availability of space, equipment and other lab items, skilled technicians to be able to use them, appropriately designed protocols for collecting samples, sorting, tagging and reporting them in place and so on. We have collaborated at all possible levels to develop this capacity in the city. For instance,

a. We are installing 5 high capacity liquid handling RNA extractor machines for augmenting testing capacity of existing equipment at laboratories of IISc, NIMHANS, BMCRI, NIV and NCBS

b. We are in the process of setting up of 4 RT-PCR laboratories in Jayanagar General Hospital, CV Raman Hospital, KC General Hospital and IRL Laboratory

c. We have allocated 10 TrueNat™ testing machines to enable decentralised testing at the ward level through respective Primary Health Centres

d. We are organizing training for technicians and doctors to use the equipment efficiently while building awareness in the community around tests available for COVID-19

e. We are exploring better algorithms to conduct pooled testing with our institutional partners to scale up this capacity

We estimate that this will increase capacity by around 8000-9000 which will help to double testing capacity in Bangalore.

> **Activating the PHC network**
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> *In Bommanahalli zone, covering a population of over 10 lakhs, there are 13 Primary Health Centres (PHCs). Almost all of them struggle due to lack of equipment, staff or difficult locations. This zone has a large and active volunteer network at the frontline doing awareness and communication work. They had a 24X7 helpline but didn't have testing capacities to match the need.*
>
> *Hence, it was decided to equip two of these PHCs with TrueNat™ testing facilities. This involved providing the entire set of equipment as well as training the staff to operate the same. One of these facilities is already operational.*
>
> *These testing machines are useful to diagnose other diseases such as TB. Hence, utilizing this opportunity, we can build sustainable capacities of PHCs to strengthen our public health system.*

Increasing Intermediate Capacity

We have supported setting up of intermediate centres that provide oxygen supply as well as facilities that enable quicker recovery of people with mild symptoms from COVID-19. This, in order to reduce load on tertiary care.

Interlinking all elements in the chain

Hazrat Bismillah Shah (HBS) hospital is a 100-bedded multi-speciality hospital operational in Shivajinagar with a strong commitment to community work. The hospital has been treating COVID patients for over four months now. With the surge in cases in the city in July, HBS hospital realized the increased demand for oxygen beds and critical care facilities.

We supported HBS hospital to expand their capacity of oxygenated beds through the 48-bedded Varsity Hotel, located nearly 400 m from the hospital. This has been in the form of supporting the team of doctors, nurses and operating expenses to manage the oxygenated beds.

HBS hospital is utilizing the Varsity Hotel space as a step-down facility for the HBS hospital critical care units. Patients are directly admitted to the HBS hospital for emergency and/or critical care. Once patients recover from the hospital, they are shifted to the Varsity Hotel rooms for further care with continued oxygen support for few days, before they are discharged back home. The facility has really helped HBS hospital to decongest their hospital beds for more critical patients. With the space available in Varsity Hotel, HBS hospital can treat over 100 patients with severe symptoms at any point in time.

On the other end, Mercy Mission at the frontline has been working in the same community around awareness, precautions and screening people through their oxygen centres and field booths, a simple kiosk with a nurse and a volunteer to check people, especially with comorbidities, for early symptoms of COVID-19. The proactive approach of screening vulnerable people of the community and sending them for tests has helped reduce pressure on the public health system significantly.

Augmenting Tertiary Care Capacity

We have helped increase the number of oxygenated beds and intensive care bed in public hospitals (such as Bowring and Lady Curzon Hospital) and other public-spirited hospitals (such as St. Johns Medical College, Hazrat Bismillah Shah, Bangalore Baptist and St. Martha's). While this has largely been through supply of equipment, in the case of Martha's and Broadway (connected to Bowring Hospital) it has meant bringing in equipment, doctors and nursing staff through our partners.

Resources through partner networks

Broadway-Bowring and Doctors For You

Doctors For You (DFY) has been a valued partner in humanitarian relief and healthcare efforts during the COVID-19 pandemic. Their team of doctors, nurses and healthcare staff has been supporting State governments to provide care and treatment to COVIID patients across government hospitals in Mumbai, Delhi, Bangalore and Bihar.

In Bangalore, we supported the DFY team to manage 150 beds with oxygen at Broadway Hospital, run under the aegis of Bowring and Lady Curzon hospital. The hospital has been renamed as 'Charaka Super Speciality Hospital' and equipped with 150 oxygenated beds and 30 ICU units. Our contribution has been in supporting the team of doctors, nurses and operating expenses to manage the 150 oxygenated beds, in addition to support for procurement of specific medical equipment.

With this support to a government facility in the heart of the city, the focus is to ensure free care and treatment to patients who cannot afford private hospital beds.

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HBS and Daya Foundation/IQRAA

June-end witnessed a sudden spike in demand and hence a severe supply crunch in the supply of ventilators in the city. Meanwhile, we had supported our partner Daya Foundation/IQRAA International Hospital and Research Centre in Calicut with 100 ICU beds in April which were not in use due to fewer cases in that city.

Hence, we requested them to share their equipment with our hospital partner HBS Hospital in Bengaluru. They agreed and not only did they send the equipment but also their extremely skilled doctors, nurses and attendants to look after the increasing number of patients in the city. The facility was set and good to go in less than a week's time.

So far, we have added 350 oxygenated beds and 57 ICU beds with ventilators in the city. All this, with a focus on ensuring their efficient utilisation. For instance, our partner LabourNet has set up 'COVID helpline centres' at Baptist, St. John's and Bowring Hospitals for real-time information on bed availability, thereby, helping those who really need support to reach the right hospital in time.

Training, Communication and MIS

We are working closely with BBMP to develop creatives for extensive distribution in the community. Earlier, the communication to community was primarily through media, locally created audio and video messages and word of mouth. While the messaging on the need for wearing masks and physical distancing is clear, people were not aware of steps to follow if one develops COVID-like symptoms or tests positive but is asymptomatic or pre-symptomatic. Hence, we needed to develop messaging around home quarantining, monitoring oneself, reducing stigma for frontline health workers and so on. Also, healthcare workers have to be kept informed of real-time developments in our understanding of the virus, its effect, or changes in the way we test, screen etc. We have completed the following, till date:

a. Created a set of 14 short (3-4 mins) videos and manuals for training booth-level committees in English and Kannada featuring senior government officials. A corresponding text manual is also being finalised

b. Awareness building through communication materials and engagement with external agencies to create a behaviour change campaign

c. In-house creatives developed in consultation with the frontline team and shared with BBMP officials

For improving Management Information Systems, we have initiated the process of engaging with the state and BBMP COVID war room – our present focus is to support in best utilising the available resources such as simplification of daily report generation for informed decision making. We are also developing a mobile application for conducting survey to identify vulnerable populations in some clusters with our partners, CFAR and Action Aid, in collaboration with BBMP.

6. Way Forward

We will continue the on-going work, ramp-up and consolidate our efforts in the city. Illustratively:

a. Our frontline efforts will cover a total of 100 wards through our partners reaching more than 10 lakh people from vulnerable communities.
   i. As the pandemic spreads, we need to identify a strategy for significant residential pockets that continue to remain difficult to reach, most of which lie outside the city
   ii. We will work with booth-level committees for awareness, prevention, tracing, screening etc. across the city. These committees need to be activated to augment the public health infrastructure on the ground - ASHA and other frontline workers - that is currently overwhelmed and has long term value

b. We need to focus on better utilising existing testing facilities. Currently, there is under-utilisation of the existing RT-PCR capacity. We hope to work with the government to evolve a testing strategy which combines centralised RT-PCR testing with decentralised testing at the CHC/PHC through TrueNat™ and Rapid Antigen. This increased testing will need to be accompanied with mass awareness in communities.

c. For the current load of around 35,000 active cases, the city has enough hospital bed capacity. We do not foresee further support needed on this. However, there is a need for added ICU capacity with ventilators. Further, to ensure beds for distress cases from poor communities in both public and private hospitals, coordination centres could be helpful. We are exploring possibilities of various models around this.

As we ramp-up these efforts, we will ensure that we are improving efficiency of existing processes and resources, cross-learning from the government and each of our partner's work, following common protocols for operation and maintaining clear communication, transparency across levels. All this, while making sure that there are rational linkages between existing resources.