

# Countering the next wave of COVID-19

It requires co-ordination across States and districts, based on real-time analysis of data



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As the focus shifts to a possible third wave, it is important for India to ask how it can marshal its resources better. Can we leverage the advantages of our size and federal character?

Delhi's experience is instructive. As the first wave abated, hospitalisation for COVID-19 patients plummeted. By January 2021, Delhi was using less than 20% of its bed capacity for COVID-19 patients. It then made the fateful decision, at the beginning of February, to reduce bed capacity back to its usual level of just above 5,000. The decision paid off till mid-March and then the system collapsed. As the second wave hit, bed occupancy went from 33% to over 90% in the first three weeks of April. The government responded rapidly, ramping up bed capacity (faster than what was seen in China or New York City) to more than the previous peak, but it could not keep up with the surge. Equally, as the surge subsided over an 18-day period, utilisation of government hospital beds went rapidly back to 30%, even as infections spread to many other areas with a shortage of key infrastructure. The fact is that it is extremely hard to ramp up capacity in response to the kind of surge that we saw in April 2021, and next to impossible to staff the additional capacity adequately. It is also true that all governments are under pressure to scale down capacity, if augmented capacity remains unused for a long period of time.

## Elastic health infrastructure

Delhi's experience highlights two important issues. First, COVID-19 waves require the health infrastructure to be elastic (i.e. expand and contract based on need) and often over a very short period. Second, demand for COVID-19-specific health infrastructure is spatially varied. If cities, districts and States see in surge in cases at different points in time, does health capacity at a location need to be fixed or can it vary over time and across geography?



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Preparing for the third wave thus requires us to think differently about health infrastructure, and focus on where we need to build capacity locally and where we can move capacity in response to a surge.

The response depends, in part, on the geography of COVID-19. When we look at the data, we uncover one key fact: in the second wave, COVID-19 returned to many of the districts affected in the first wave, a group that we call the 'permanently at risk' districts. There were 145 districts that accounted for 75% of the cases during the first wave. Strikingly, the same districts accounted for up to 80% of cases during the second wave. Of these, 45 districts accounted for 50% of the cases during the first surge and even more in the initial days of the second. The characteristics of these districts in terms of population size, density and mobility make them susceptible to rapid spread. An epidemiological question is why this happens if such districts have herd immunity, from prior infection and vaccination. One answer, as shown in models developed by the Tata Institute of Fundamental Research (<http://bitly.ws/eTR2>), is that if vaccination is only partly efficacious, as recent CMC Vellore results indicate, even limited reinfection and a more transmissible variant can lead to a large surge – and a potential third wave in the 'permanently at risk' districts. These 'permanently at risk' districts thus need reserve capacity and resources to be expanded to track and detect potential surges at an early stage.

## A mobility framework

In addition to building capability, we can also 'move' health infrastructure from one location to another. This is what China did in Wuhan when the

pandemic first made global headlines. There are two key aspects to 'moving' infrastructure. First, it is important to identify what resources can be moved, linked to costs and supply elasticity – beds and concentrators have low mobility costs and high elasticity (some resources can be rapidly imported) while entire ICUs have high mobility costs. Health workers, on the other hand, have limited elasticity in the medium run as they cannot be trained within a month, but they are potentially highly mobile.

There are three distinct policy areas that need innovation. First, for healthcare workers, it may be possible (as some States have done) to induct almost trained final year medicine and nursing students and rehire retired medical personnel. Another strategy is to use paramedical workers to monitor patients, provide oxygen and assist in telemedicine. As the Liver Foundation in West Bengal has demonstrated, even informal health providers can be trained to deal with first-line treatments in a rural setting, perform basic administrative tasks, and seek formal medical assistance.

Second, resources with high mobility costs need to be more evenly distributed, beyond the spatially concentrated 'permanently at risk' districts, to ensure equity in access in poorly served areas.

Third, spatial equity also means that if we can't bring resources to patients, we can bring patients to resources. Within reasonable distances, it may be more effective to increase the capability to transport patients to care they need. An emerging factor is that patients may be unwilling to travel if there are no arrangements for families to stay nearby. But the many patients who cross State boundaries to seek treatment

in Mumbai, Delhi, Hyderabad, Vellore and many more places are testimony to the fact that with the right support, it is possible.

## Building on federal institutions

It is obvious that the efficiency of resource-sharing increases with the area of coverage, as surge risk is more widely distributed. Therefore, the benefits of resource sharing are higher if it is possible beyond districts, across State boundaries.

For inelastic resources, augmentation of capacities needs to be assured and contingent allocation must be arranged well before any eventuality arises. Moving resources requires coordination but even more importantly, trust. After all, no State or district would want to share resources if it doesn't trust that it will have access to them in its time of need. This is particularly the case if district 'A' in State 'X' helps district 'B' in State 'Y' but then requires help from district 'C' in State Z. These arrangements are karmic in the long run, but lack immediate reciprocity and thus need greater institutional coordination.

Such sharing, though not particularly structured, was visible in the second wave, with Andhra Pradesh providing ventilators to Maharashtra at the request of a Union Minister and the Odisha Chief Minister responding positively to the request of the Maharashtra Chief Minister for oxygen supply. These success stories now need to be institutionalised through an inter-State platform, mediated through bodies such as the National Disaster Management Authority and the NITI Aayog.

COVID-19 has presented India with unprecedented challenges to build health capacities. Beating the successive waves requires enabling governance structures that treat COVID-19 as a national calamity, and co-ordination across the States and districts, based on real-time analysis of data and innovative institutional solutions. As our study shows (<http://bitly.ws/eTQC>), our size can be a disadvantage, for the virus can lurk in many corners, but it is an advantage if we treat this as a shared challenge and build on our federal institutions.

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