Pandemic Policy in Developing Countries: Recommendations for India

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Each country faces unique challenges in addressing the COVID-19 pandemic. India's relatively low healthcare resources, limited state capacity, and large population of poor people, many of whom are already burdened with other health issues, pose challenges on every dimension. Even washing hands, for example, is not easily accomplished when hundreds of millions of people do not have access to piped water or soap.

The present policy of a countrywide lockdown has imposed enormous stress on the poorest Indians. Arguably, without severe measures like the lockdown, matters could be even worse, as Indian hospitals were already overcrowded and doctors overworked, and a large number of COVID-19 patients would collapse the healthcare system. Also, testing at a large scale is difficult given current capacity, and social distancing and isolation are difficult given India's low per capita living space and its tradition of intergenerational household units.

India needs to find local solutions suited to its unique context to effectively deal with the pandemic. We have collated 10 recommendations for the Indian context, many of which will also apply to other developing countries. These recommendations fall broadly within three categories:

1. Increasing testing capacity by removing regulatory and trade barriers
2. Social distancing of family units, using idle government and other buildings
3. Providing relief for the poor and the economically vulnerable during lockdown

INCREASING TESTING CAPACITY

The South Korean experience at mitigation suggests that large-scale testing to identify and isolate the infected can halt the spread of the virus. There are two problems, however, with using the South Korean method in India. First, the sheer scale at which India needs to test surpasses its test kits and lab resources. Second, the government is making matters even harder because of ill-advised and ill-timed import tariffs. Given the inability to test at a large scale, India needs a different strategy, using technology to deploy tests where they are most urgent. The first part of this strategy rests on deregulation to scale up; the second on using mobile phones to reach citizens.

Testing

By March 31, South Korea had tested 300,000 people of its 50 million population, i.e., 600 tests per 100,000 people. To test at the same per capita level, India would need to conduct 8 million tests. India would have to conduct 385,000 tests every single day of the 21-day lockdown to reach South Korean levels. That is more tests per day than the United States is presently conducting.

India has a weak healthcare system, and even the parts of the system that otherwise function well are currently stifled because of a weak government response.[1] This is true for lab capacity: as of March 31, 2020, testing capacity in India is low, in part because the government has only approved 132 labs (public and private). Assuming equal capacity across all 132 Indian Council of Medical Research (ICMR)–listed testing facilities, then India has approximately 1 testing facility per 10 million people, and all 132 facilities combined can test (using the polymerise chain reaction method) a maximum of 10,000 samples a day.[2] Even a 30-fold increase would not bring Indian capacity to South Korean levels.

A second roadblock is testing kits. India has not yet been able to scale up its manufacturing of personal protective equipment and testing kits. Although the government is encouraging domestic producers, past regulations that stifled manufacturing, in addition to the current lockdown, create a lot of friction in the process of scaling up production. The few Indian companies that can make testing kits, and have been actually exporting kits to other countries, have not yet been approved by the Union government in New Delhi. Indian companies such as Trivitron Healthcare have already provided hundreds of thousands of test kits to China to help with the COVID-19 outbreak, but they have not been approved for use in India by New Delhi. Similarly, the Indian subsidiary of the Swiss firm Roche, whose products have already been authorized for emergency use in the United States, does not have the requisite regulatory clearances in India and expects it would be weeks before it could increase the supply of tests.[3] The Indian Supreme Court's recent ruling that private Indian labs must test for free (with government support to be determined "later") will only reduce the incentive of the private sector to gear up more test capacity.

India also has import tariffs on testing kits. These tariffs are a classic protectionist maneuver designed to protect an Indian infant industry. But in this case, because of other regulatory and supply-chain roadblocks, these tests may not get produced by Indian manufacturers in the required quantities in time. This is also the worst time to compromise the interests of consumers in favor of producers. In this instance of infant industry protectionism, the consumers are hospitals and sick people, and these tariffs will cost Indian lives.

> ***Recommendation 1:*** *Any test kit approved in China, Japan, Singapore, South Korea, Taiwan, the United States, or Western Europe should be immediately approved in India.*

> ***Recommendation 2:*** *The Indian government should announce a commitment to pay any private Indian lab running coronavirus tests at least the current cost of tests run at government labs.*

> ***Recommendation 3:*** *All import tariffs and quotas on medical equipment related to the COVID-19 crisis should be immediately lifted and nullified.*

Screening via Mobile Phones

India will not be able to use the South Korean "test, trace, isolate" model anytime soon. So India needs a different testing strategy, at least in the short run, before it can manufacture or import more testing kits. State and local governments need to screen and identify even before testing to ensure that the tests are deployed where they are most useful. One method is to use diagnostic tools and apps over mobile phones to help individuals understand the symptoms (or lack thereof) and, based on the results, guide a limited number of people, beginning with essential workers, to testing centers. Using anonymized data, these diagnostic tests will also help the government identify high-risk areas to mobilize and target testing.[4]

India has excellent mobile phone penetration: two-thirds of Indians own or have access to a household mobile phone. About a quarter of Indians have smartphones.[5] Mobile phones can also be used to deploy surveys to identify hot spots, and they can even be used to distribute funds, as we discuss below. Mobile phone apps can also help with contact tracing, detailing travel histories, and so forth, without deploying limited manpower. Diagnostic applications in local languages deployed on smart phones will help with identification at low cost. Recorded phone surveys, to reach those with mobile phones but without smartphone access, can be used to help identify those exhibiting symptoms, identify travel history, etc. These individuals and their families can be directed to testing centers. In densely populated areas such as Mumbai, these testing centers may have to go to the families by using mobile collection units, to prevent people from overwhelming collection areas and potentially spreading the virus.

India runs on its mobile phones and needs to keep them up and running. Since mobile phones can be used for a range of solutions related to COVID-19, an important policy intervention is to keep mobile phone accounts alive even if the phone bills are not paid. Similarly, private companies or the government should provide a subsidy for pay-as-you-go account holders so they can use mobile phones to access a range of other goods and services. The easiest method would be to allow private mobile phone companies to use their government-mandated corporate social responsibility funds to keep mobile phone lines alive for those facing economic hardship.

> **Recommendation 4:** *Use mobile phones to survey, inform, and prescreen for symptoms. Direct any individual with symptoms and his or her family to a testing center, or direct mobile testing to them.*

> **Recommendation 5:** *Keep mobile phone accounts alive even if the phone bills are not paid, and provide a subsidy for pay-as-you-go account holders who cannot afford to pay for mobile services.*

SOCIAL DISTANCING

Even if India could make a singular push toward testing, it cannot have social distancing in the same way other countries can, especially developed countries. The recommendation of social distancing breaks down in India for two reasons: low per capita living space and intergenerational cohabitation.

Quarantine Options

According to the 76th Round of the National Sample Survey,[6] the average residential living space in India per household is 500 square feet, and the average per capita living space is 116.2 square feet (112.5 square feet for rural areas and 127.2 for urban areas). In Mumbai, India's densest city, the average living space per capita was reported to be 48 square feet in 2009, smaller than an American prison cell.[7]

In slums, average living space per capita can be as low as 30-40 square feet. According to the Sixty-Ninth Round of the National Sample Survey,[8] India has approximately 8.8 million households living across 33,510 urban slums. Maharashtra has almost a quarter of the urban slums in India, and India's largest slum, Dharavi, is in the heart of Mumbai. Dharavi has close to a million residents, a population density of 440,000 persons per square kilometer—which is 20 times the density of New York City—and has 400–500 residents per toilet facility. Social distancing and isolation are impossible in Dharavi. So far, Dharavi has four confirmed COVID-19 cases, with one reported COVID-19 death. While Dharavi is the most extreme example of this problem, most urban areas in India are extremely crowded with high population densities and shared sanitation facilities.

The only solution is to test and track cases in these high-density areas and isolate infected individuals (with their families) in a different location, because self-quarantine in these areas would also mean denying access to sanitation facilities and other essentials.

Second, there is a high degree of intergenerational cohabitation in India. The average household size in India is 4.3 persons per household, and a majority of Indian households include individuals across three generations. A large part of this is cultural, with the joint family (three generations, with cousins, etc., sharing a living space) as the predominant family unit in rural areas. Richer families also have other cohabitants such as live-in household help. So it is difficult to isolate young and seemingly healthy people from the high-risk elderly individuals. Entire families need to be tested and infected individuals isolated someplace other than the home.

For those willing and able to isolate, perhaps with their families, state-owned nonhospital facilities can be used as temporary quarantine and isolation wards. We emphasize that because of close contact, the household should be considered the relevant unit, and if each household member (family and other cohabitants, including live-in help) cannot be tested, the entire household should be isolated. All government schools are currently closed, and these buildings are required to have piped water and sanitation facilities, as well as kitchen facilities for the midday meal. These buildings can be quickly repurposed as quarantine facilities. Given the travel ban, Indian Railways has announced its plan to repurpose and partition railway cars into quarantine facilities with a nurse on call.

Another possibility is to rent out hotel rooms at a discount and repurpose them into isolation or quarantine facilities. Because of the current lockdown, India's tourism industry has experienced an enormous demand contraction. Hotels are not in use and are currently dead capital that can be easily repurposed. But the government needs to pay for these facilities (albeit at a discounted rate) to swiftly create capacity and also act as a stimulus for the hotel industry.

> **Recommendation 6:** *Requisition government schools and buildings and rent private hotel rooms, repurposing them as quarantine facilities.*

Other Prevention Measures

Another low-cost and scalable solution for India is to encourage everyone to wear a mask. Arpit Gupta and his coauthors argue that if *everyone* wears a mask, even those who are healthy, test negative, or are asymptomatic, it will double the protection from masks. "Everyone will be protected by two masks: The one the other person is wearing and the one you are wearing."[9] Hong Kong and Taiwan officials have reported some success containing the spread of the virus through the extensive use of masks. Ideally, N-95 masks should be produced at an unprecedented scale and made available to every Indian, not just health workers. But even simple masks made at home

work reasonably well, and though cloth masks are less effective than N95 masks, they still provide protective benefits for nonhealthcare workers who are asymptomatic.[10] Given the various cultural and economic problems posed by social distancing as an approach, a double-mask protection is an alternative that will work for India.

> **Recommendation 7:** *Rapidly scale up the production and distribution of masks and encourage everyone to wear masks.*

SANITATION FACILITIES

A very large number of Indians lack access to sanitation facilities at home. The 76th Round of the National Sample Survey reports that only 21.4 percent of all Indians (11.3 percent of rural Indians and 40.9 percent of urban Indians) have piped water into the dwelling as the principal source of drinking water.[11] Most rural Indians rely on hand pumps shared by the community. Overall, about one-tenth of Indians (135 million) have no regular access to clean drinking water. About half of all Indians face water shortages, especially in the summer months, for water needs beyond drinking water. And only 48 percent of rural households and 86.1 percent of urban households have both a bathroom and a latrine within household premises.

In India, expecting all people to wash their hands with soap and water and take appropriate precautions, when they lack basic access to water and sanitation facilities, is not reasonable. India needs to find an alternative. Other states could emulate Kerala, which has set up hand-washing stations at all bus stops, train stations, marketplaces, etc., to encourage people to wash their hands. Mosques have water-washing facilities and should be encouraged to add soap. During the summer months, especially in drought-prone regions, water boards at the municipal level often provide water using mobile tankers to deal with acute shortages. Mobilizing and funding water boards to truck in water services is one potential solution.

Another solution is for India to switch to hand sanitizers, because it is difficult to swiftly create capacity for access to clean water. Indian pharmacies and stores sell hand sanitizer in small sachets, each containing 2 milliliters of hand sanitizer intended for a single personal use. These were easily available until the recent COVID-19 related shortage, and they are normally priced at 1 rupee (1.3 US cents). India needs to scale the production of hand sanitizer and make it available in these small, easily distributed sachets. Global brands such as Coca Cola, Pepsi, and tobacco companies such as ITC have the best supply-chain penetration in India. Even in the most remote areas, one can easily find their products. It's best to tap these supply chains to make hand sanitizer sachets widely available.

> **Recommendation 8:** *Truck in water and soap for hand washing and use existing distribution networks to provide hand sanitizers.*

LOCKDOWN

On March 24, 2020, Prime Minister Narendra Modi declared a countrywide lockdown in India for 21 days, until April 15. India has the most stringent shutdown measures of any country battling COVID-19. But the lockdown also poses enormous economic costs and disproportionately hurts the poor in India. Nearly half the country—700 million people—will not be able to survive for three weeks without economic relief and food.

At the time of the announcement, known coronavirus cases were doubling every five days. Debashree Ray and her coauthors predicted that without any interventions, the number of cases in India by May 15 would be 2.2 million, and if the most severe form of intervention is adopted for the whole period of the COVID-19 threat (similar to the current countrywide lockdown for three weeks), estimated cases would drastically reduce to 13,800.[12] With a countrywide lockdown, on April 8, India had 5,616 confirmed COVID-19 cases. The government declared a countrywide lockdown because it knows India's healthcare capacity is weak and will most likely collapse if there is swift local transmission of the virus.

Providing Relief to the Poor

While overall, India had few choices other than some version of a lockdown, a poorly planned and executed lockdown has created a serious humanitarian problem. Most Indians work in the informal sector, and India has 275 million persons who live below the poverty line of $1.25 a day (approximately 3,000 rupees per month). This group is reasonably well identified and targeted across various government schemes. Two days after the announcement of the lockdown, the Union finance minister, Nirmala Sitaraman, announced a stimulus to provide additional relief for this group through schemes such as the National Rural Employment Guarantee Scheme.

The most important component of the stimulus and relief package was the provision of 10 kilograms of food grain and 1 kilogram of lentils per person per month under the public distribution system (PDS). The PDS has a countrywide network with excellent penetration. Though notorious for its corruption and leakages, this is still the fastest method for the government to transmit essential food supplies to hundreds of millions of people. India needs to add more essentials to the in-kind transfer through the PDS system, such as masks, soaps, and hand sanitizers. The main problem at the moment is that not everyone in need has the "ration card" required to access the local PDS ration store. But Union and state governments should suspend the requirement of a ration card and accept any valid ID to distribute the in-kind transfer. About 850 million Indians have voter identification cards, and more than a billion have the biometrically linked AADHAAR card. Both are good substitutes for the ration card to provide immediate relief. Mobile phone penetration is so high that it can be also be used to survey and crowdsource information on availability of food and other essentials at PDS stores.

Recommendation 9: *Accept voter identification cards and AADHAAR cards for in-kind transfers at ration shops.*

Cash Relief for the Economically Vulnerable

In the March 24 lockdown announcement, there was no mention of a list of essential goods or functions, nor did the announcement state who was allowed to mobilize during the lockdown. India has 300–400 million people who are above the poverty line but work in the informal sector, typically for daily wages. These people are highly vulnerable to economic stress because they have no government safety net and very low savings. The lockdown announcement seemed to suggest that no economic activity was allowed during the lockdown, causing daily wage laborers across the country to panic over their ability to survive the three-week loss of wages. In particular, economic migrants working in urban areas and now trying to return home to their families struggled, as trains and buses stopped running and state borders closed for the lockdown.

The finance minister's stimulus announcement, made two days after the lockdown announcement, did not help calm the anxiety of daily wagers and economic migrants. There was little to no relief provided in the stimulus for this group. The simplest method to alleviate their stress is a direct cash transfer for a few months to help buy essentials and survive the loss of wages owing to the lockdown and uncertainty thereafter. The government has repeatedly made claims that most Indians have access to a bank account, especially after the launch of the prime minister's Jan Dhan bank account scheme to further financial inclusion. According to the March 2020 progress report of the Jan Dhan Scheme, there are 383.3 million Jan Dhan bank account holders.[13]

The stimulus package also announced cash transfers of 500 rupees ($6.60) per month through Jan Dhan accounts to approximately 200 million female beneficiaries. This amount is too small, not even a fifth of the poverty line of $1.25 a day, but is intended to supplement the in-kind food grain transfers. The stimulus also provides a one-time transfer of 1,000 rupees ($13.20) to 30 million senior citizens. This is a good start to provide direct cash transfers. So far, however, the government has not used these accounts to their full potential in this crisis.

Daily wage earners in the informal sector are truly invisible in the Indian policy framework. There are very little data and identification of this group and its characteristics, and no government schemes exist to provide them a safety net. They fall above the poverty line of $1.25 a day, but they do require assistance during an economic contraction as severe as the government-imposed lockdown. Aside from Jan Dhan accounts, the best way to target these 300-400 million Indians is to transfer money through mobile phones using Paytm and similar applications. Almost all of them have an AADHAAR card, which can be linked to a mobile money transfer to swiftly put cash in their pockets.

India's COVID-19 stimulus and economic relief package is the smallest in the world, including among emerging economies. And India's lockdown is the most stringent measure taken so far, at an enormous cost to the economy, in particular to its poorest citizens. Both the Union and state governments need to announce direct cash transfers targeting a larger group. This amount should at minimum cover the poverty line, at 3,000 rupees per month, and should last a minimum of three to four months.

> **Recommendation 10:** *Announce a direct cash transfer of a minimum of 3000 rupees per month (equivalent to the poverty line of $1.25 a day or $38 a month) to be distributed through Jan Dhan accounts or mobile phone applications such as Paytm.*

CONCLUSION

India needs to control the COVID-19 pandemic *better* than other nations because the consequences of losing control are more severe there. India locked down early given its number of domestic cases, which has given India a window of opportunity to suppress the virus if its testing and isolation strategies can be ramped up quickly and efficiently. The lockdown must also be managed efficiently and humanely if it is to succeed without imposing excessively large costs of its own. We have provided 10 recommendations, keeping in mind India's local context and its unique challenges, which we hope will aid in managing the suppression and lockdown process.

ABOUT THE AUTHORS

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NOTES

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