

COVID-19: Present & Future

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INTRODUCTION

This paper seeks to advance an open discussion on our response to the COVID-19 pandemic and the choices we face strategic, organizational and ethical. It summarizes the key problems the authorities will confront. It also outlines some of the questions we will be forced to answer. It then proposes three possible approaches we could take to answer these questions.

Problem Statement

Problem #1: The epidemiological curves show exponential growth

The key epidemiological characteristics² of this global COVID-19 outbreak are:

1. Rapid spread. Basic reproduction number (R_0) is above 2, meaning that, in a completely susceptible population, each person with the virus will infect an average of 2 others.
2. Substantial transmission can occur before any presentation of symptoms. Median incubation period is 5.1 days between infection and first signs. Further, most cases present as mild and a proportion are asymptomatic.
3. Unabated transmission can result in thousands of cases simultaneously, which quickly overwhelms healthcare facilities. (Severe cases requiring hospitalisation totaled 14% of cases in China, while critical cases requiring intensive care totaled 5%). This is showing to be beyond the capacity of even strong health care systems, let alone weak ones [1].
4. Curative options are limited. Currently treatment is limited to supportive care, while antiviral treatment options are in testing phase. Critical and complicated cases require ventilation support.
5. Fatality rates are highest among vulnerable populations, especially elderly and those with co-morbidities. Within some countries, this has resulted in exponential-growth curves, featuring numbers of cases doubling every three days. Some countries have managed to "bend the curve" through swift and extensive action to

interfere with chains of transmission. Border closures and travel restrictions may have some effect in initial containment, but it is likely that no country will avoid the pandemic. (One model estimate that almost all African countries will experience their first 1000 cases by 1st May 2020, and their first 10,000 cases a few weeks later) [2].

Global forecasting conducted by researchers at Imperial College, London, has estimated that:

1. In the absence of interventions, 1 billion cases and 40 million deaths due to COVID-19 will eventuate this year.
2. Mitigation measures will halve these figures and save 20 million lives.
3. Even then, cases will rapidly overwhelm healthcare systems. Peak demand for critical-care beds will exceed supply by a factor of 7 in atypical high-income setting, and by a factor of 25 in a typical low-income setting [3].

Problem #2: The most-effective strategies will be difficult in low-income countries (Indian context)

Two principal strategies have been described to control the disease:

1. Mitigation, "which focuses on slowing but not necessarily stopping epidemic spread – reducing peak healthcare demand while protecting those most at risk of severe disease from infection".
2. Suppression, "which aims to reverse epidemic growth, reducing case numbers to low levels and maintaining that situation indefinitely".

The experience from countries which have more effectively "bent the curve", such as Singapore, South Korea, Hong Kong, Japan and China, shows the greater efficacy of the suppression strategy, especially when combined with aggressive mass testing, tracing and isolation of suspect cases and contacts. Suppression has therefore become the main strategy used by Governments worldwide. The

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difficulty for low-income countries is: Suppression is a highly resource-intensive strategy, meaning that few will be able to deploy the mass testing and surveillance required for this strategy to work.

Generalized physical distancing, lockdowns and restrictions on movement will entail significant economic costs which the GOI being a low-income country will find difficult to bear. Many citizens of low-income countries, and especially poor city dwellers, will quickly face extreme poverty, hunger, and negative impacts on health. Physical distancing will be extremely difficult for many poor and vulnerable populations, such as migrant labor and displaced people. Lockdowns increase the risk of violence and abuse, especially in countries with authoritarian approach, which will in turn worsen trust and make pandemic control efforts more difficult. Forecasts suggest that such suppression strategies require 6 to 18 months to prevent possible recurrence, making implementation even more difficult in low-income settings. This will mean that low-income countries will be unable to effectively implement a suppression strategy. They will only be able to mitigate the progression of the outbreak at best, given resource constraints even for mitigation measures such as surveillance, testing and isolation of positive cases. This will have a significant impact on case numbers and mortality.

Problem #3: Severe resource constraints will limit the capacity to surge and scale up

The countries currently at the epicentre of the pandemic are among those previously considered best prepared for a pandemic. But now, they all face critical shortages, including ventilators and other intensive-care equipment, personal protective equipment (PPE), diagnostic tests, and skilled healthcare workers, especially given the high rates of transmission and illness among them.

This situation will be much more difficult for low-income countries, due to lower initial stocks of critical equipment, massive increase in worldwide demand, and constraints on suppliers. Health care workers are also, obviously, in shorter supply [4].

In addition, many governments will find it very difficult to organize and manage their responses, due to capacity constraints. Countries in humanitarian crisis rely largely upon the international humanitarian system to support them in their efforts to prepare for and control epidemics. But humanitarian actors will face specific additional resource constraints which will greatly restrict them in the following:

1. Fundraising sources will reduce at least in the short-term. Private donors may have less disposable income and extensive physical distancing restricts various fundraising techniques. GOI may choose to focus on their own pandemic control efforts rather than funding action.

2. Medical and logistical supply chains will be disrupted.

3. Human resources flows will be heavily disrupted, and many medics will work in their home countries rather than deploy internationally [5].

Further, the global and more-or-less simultaneous spread of the pandemic will restrict the international humanitarian system's usual techniques to surge and scale up-such as shifting resources globally from less-urgent to more-urgent programming. Large-scale international humanitarian responses featuring many cross-sector actors may prove impossible to mount in many countries during this pandemic. India will be largely on its own and will not receive additional support.

Problem #4: Massive uncertainty will make decision-making difficult

As SARS-CoV-2 is a new virus in humans, we know very little about how it interacts with our biology or with our society. We are rapidly learning, but there is much yet which is unknown: how the virus interacts with malnutrition or TB and HIV; how an epidemic evolves in a much younger population with fewer elderly; how the virus works in contexts of greater heat and humidity; what the effect of physical distancing measures are; what happens when they are lifted, and so on [6].

Therefore, all information has a degree of doubt attached to it. While this is a common problem in any emergency, the scale of this pandemic is much greater than any outbreak health care responders have faced before. In most epidemics, we have had significant bodies of evidence and experience to guide us in our decisions and actions; this time, we will have fewer such resources to draw on. Further, we will need to do this simultaneously in multiple contexts, straining our specialist technical capacity. This situation causes doubt, which can lead to slower and more complicated decision-making, as it did in the early stages of the outbreak in Italy [7].

Threats such as pandemics that evolve in a nonlinear fashion (i.e., they start small but exponentially intensify) are especially tricky to confront because of the challenges of rapidly interpreting what is happening in real time. The most effective time to take strong action is extremely early, when the threat appears to be small or even before there are any cases. But if the intervention works, it will appear in retrospect as if the strong actions were an overreaction.

Summarized Problem Statement

The situation we face can be summarized as follows:

1. This is a novel virus; therefore, we must assume that all people are susceptible to infection and that all countries can expect COVID-19 cases.
2. If swift identification and containment measures are not implemented, then local transmission will follow. The rate of local transmission will be determined by the local context, environment and population behavior.
3. We can expect sharp peaks of COVID-19 cases and deaths in India.
4. These peaks will quickly surpass the capacity of healthcare systems to cope.
5. Reducing these peaks will depend on the rapid introduction of suppression strategies, which break up transmission, lower the number of cases requiring hospitalisation, and provide time to test, trace and isolate, develop new treatments and vaccines and achieve herd immunity.
6. Low-income countries, and countries in humanitarian crises, will find it difficult to implement these suppression strategies, and as a result their healthcare system capacities will be overwhelmed.
7. Humanitarian actors will experience unprecedented constraints and will find their usual modes of working difficult.
8. Once extensive community transmission begins, epidemic control will not be possible in low income countries and countries in humanitarian crises.
9. Uncertainty will make everything harder to visualize. Nevertheless, we will have to act.

We will have a series of difficult decisions we will be forced to make, between different interventions which are all necessary, but which cannot all be done:

1. Maintaining essential health services
2. Surveillance, testing and tracing
3. Case management
4. Preventative and other public health measures
5. Protective measures for the most vulnerable

Which target populations?

- a. Those with COVID-19, directly threatened by the pandemic
- b. Those with other life-threatening conditions, knowing mortality is usually highest from indirect causes in emergencies
- c. Urban populations, amongst whom outbreaks will spread most rapidly
- d. Rural populations, amongst whom access to services is weakest
- e. Refugee/IDP/migrant labour camps
- f. Neglected and marginalised people
- g. People in conflict-affected areas
- h. Communities we have established commitments to
- i. Communities faced with immediate danger

The questions we now face is:

1. Should we suspend existing life-saving activities, projects, or even missions, in order to open epidemic responses?
2. Should we refuse to respond to new outbreaks in order to stay with the populations who already need us?
3. What if we only have the capacity to properly implement one or two of the strategies listed?
4. What if, regardless of our chosen strategies, people who are critically ill with COVID-19 turn up on our doorsteps and demand care?
5. What if we cannot protect our own frontline staff, let alone anyone else?
6. Attitude of the general public towards health care workers.
7. Attitude of Indian political leaders to the present crisis.

How can we answer these questions?

We can identify three possible approaches towards answering these questions in a way that accords with our ethics and principles. While there are tensions between the different approaches, they are not mutually exclusive and can be complementary.

1. Practical and Reactive: This approach focuses on choosing the most appropriate program strategy for the needs of each specific situation while accepting the limitations.

2. Change and Adapt: This approach focuses on adapting ourselves organizationally to be more efficient, to allow us to cover more options than otherwise possible, but potentially at a cost of quality, advocacy and solidarity.

3. Prepare for Tough Ethical Choices: This approach focuses

on setting down an ethical basis beforehand for a global triage between different populations in need.

Practical and Reactive: Choosing the Most Appropriate Program Strategy

This approach is based on the existing emergency response approach implemented by the international humanitarian system and extends it globally. It can be summarized thus:

1. Respond to COVID-19 in existing project locations whilst balancing the capacity to continue high morbidity and mortality programming (e.g. Malnutrition, RH, SV, HIV/TB, Measles, Malaria) as well as advocating to improve overall response or ensuring voices of vulnerable groups are also heard.

2. Use existing capacity to do case management and focus on vulnerable populations. This includes health facility surveillance (screening, triage) and patient care [8-10].

3. Initiate specific community activities/engagement in groups or areas of more vulnerable communities (e.g. delivery of medicines to isolated patients), and address some of their needs.

4. Use the WHO line list for COVID-19 surveillance purposes.

5. Focus on existing project activities without excluding other activities such as training.

6. Given the current operational constraints (HR, supply, pandemic context), new non COVID-19 projects should be stopped until further notice.

The Practical and Reactive approach is highly flexible. In this approach, we start by looking at each given situation as we usually do as a mixed set of needs and vulnerabilities on the one hand, and capabilities and resources on the other, which need to be matched as best as possible [11].

It has the great advantage of practicality, as it uses a style of project-based adaptation that we are familiar with and then extends it across the operational portfolio. We can tailor our response to whatever that situation most needs, as we would see a refugee camp differently to an urban slum, or to a vertical program for a highly vulnerable population or to a hospital in a rural setting with a large but dispersed population. This will still require serious re-prioritization, especially away from new, non-lifesaving or no-longer-appropriate activities, but also perhaps between life-saving activities [12].

This approach could be further strengthened if we integrate several key learnings from Ebola responses in West Africa and the DRC and other reflections, including:

1. Centering our engagement, medical strategy, and relationships around affected communities, especially those that are marginalised and vulnerable.

2. Recognising the leadership and coordination role that will be played by Ministries of Health of Central and State Governments and finding the most respectful and productive ways to influence and engage with them.

3. Working in complementarity and collaboration with other health actors, seeing the response, and understanding what roles every actor can most effectively play.

However, this practical and reactive approach can result in two significant difficulties:

1. It relies on our existing resources and systems at a time when these resources and systems will be overloaded by the pandemic. Resource constraints will mount for Human Resources and supplies. Information-sharing and decision-making will become more difficult, as situations become chaotic.

2. It does not help us if and when we need to reprioritize nationally. Some national reprioritization will be practical, such as where we send our PPE first, or which locations get more central specialist input. But sometimes strategic reprioritization might be needed, to facilitate opportunities to have major impact on the course of the epidemic and save thousands of lives but only if we can mobilize significant resources for them quickly. Sometimes we might have situations so dire that we need all hands but only if they are not already full of other work [13].

Change and adapt: Becoming organizationally more flexible and efficient. This approach is based on the idea that we can save more lives in more places if we free up greater capacity within our healthcare system to do so. It means understanding how complex the situation has become and adapting to it through more flexible management. This includes reorganizing us, identifying inefficiencies or blockages that we simply cannot afford and eliminating or reducing them. This can then free up resources (money, people, time) which can be devoted to the national COVID-19 response. This approach is also based on viewing information and learning, and therefore decision-making capacity, as a resource, and one of the only ones (next to money) which can flow unrestricted across the country [14].

The underpinnings of this approach are provided by research on complexity and “adaptive management” and their applications to humanitarian aid provision, including the significance of organizing in networks as opposed to hierarchies. There is extensive literature on this topic, which is relevant to the current situation.

This approach is also informed by recent COVID-19 response experiences. Given the novelty of the virus, the most effective ways to treat different groups of patients or reduce transmission are also new. They will emerge organically from different responses and might be different in different regions –and they will need to be shared, a task which large organizations never find easy. Otherwise, some regions might continue with ineffective responses even after their neighbors have solved them, as it happened with the different responses of neighboring provinces in Italy. This is a significant finding as health care in India is a state subject bound by the state administrations.

Specific components of this approach would need to be developed, but some building blocks could be:

1. Complete decentralization of decision making. Resource reallocation issues need to be as close to frictionless as possible – for example, mandate a centralized framework of expectations and goals and let local governments decide specific implementation strategies.

2. Encourage locally led innovation and problem solving, by and within local bodies.

3. The Central Government to identify and solve critical technical problems which will be beyond the capacity of the local bodies, as well as analysis and assimilation.

4. Empowerment of states into greater decision-making roles, whether clinically or in management, as well as expanding their roles in coordination mechanisms.

5. Horizontal peer exchange and learning, particularly between frontline healthcare professionals, to synthesise surveillance data and response strategies.

6. Move as much information and communication online as possible, and make it accessible to all health actors, healthcare workers, and community members. For example - Make YouTube videos or hold public webinars on critical techniques.

7. Counter misinformation and spread accurate public health messaging.

The Central Government should look to reduce the inefficiencies of the hierarchical structure of governance. Decentralisation and autonomy can give rise to the possibility for diverse approaches and strategies to be tried simultaneously. But it also has massive coordination needs to overcome often unclear decision-making lines and high risks of paralysis [15].

Coherent coordination with authorities can be especially challenging. Cross structural learning and reflection can also mean we sometimes repeat each other's mistakes. Each of these flaws needs to be addressed. Organisational change and adaptive management is needed. Nevertheless, this organisational-change approach can result in three significant difficulties:

1. Change is never easy and will inevitably come with risks and setbacks, as well as positives. This may compromise key values and standards, potentially including quality of care for patients, our national coherence and voice, etc.

2. This approach still does not answer the question of how to divide our scarce resources (supplies, central staff, money) among different states, responses and populations.

3. These changes might improve our capacities and required flexibility to respond, but they will still not be sufficient to save us from difficult choices, in the worst-case scenarios.

Prepare for Tough Choices: Setting Down the Basis for a Global Triage (India to lead again)

This third approach recognises that during this pandemic, our healthcare system will be overwhelmed at some point. During this time, the scale of health needs in relation to our capacity will mean we will be unable to meet all our obligations to our patients and to the broader populations of states in crises. This will be true both for existing patients, and for new patients of COVID-19. As a result, we will be forced to make grave, even tragic choices about how we allocate our resources. These choices are likely to be the source of considerable distress for our professionals and for patients and communities.

Before we are forced to make these decisions, it is critical that we put in place an ethical framework that will help to both guide our decisions and explain the rationale behind those decisions to those who are affected by them. What is required is a framework for ethical prioritisation when we cannot meet the most serious and immediate health needs of our patients and populations. A recommended ethical framework is set out below. It is designed to be used in accordance with relevant clinical triage protocols.

The Importance of Fairness

Globally or clinically, the most important ethical issue is fairness. The question we must ask is: given the disparity between health needs and the resources we have at our disposal, what would be a fair distribution of resources? In addition, as there will always

be room for reasonable people to disagree, we need to identify procedures for decision-making that everyone agrees are fair, even when they may disagree with the outcomes. Levels of ethical decision-making [16].

There is extensive literature on the concept of triage in humanitarian settings, as well as growing consideration of its application during the COVID-19 pandemic. Its outlines will be familiar to medical practitioners: in situations of extremity where not everyone can be treated, workable and adaptable principles need to be set down for who should receive treatment and who should be set aside for non-treatment.

Central and State-level: One set of decisions will be national. These will involve 'national' decisions about whether the healthcare system will specifically prioritise COVID-19 patients during the pandemic and if so, to what extent and why. It may also include questions about acceptable standards or ceilings of care, and what levels of risk our frontline healthcare professionals may legitimately be exposed to, given the inevitability that high-quality PPE will not always be available [17].

As the relationship between health needs and available resources will be different both between, and within states, these principles will also be required to help guide decision making at a state level. Field-level decisions (clinical triage): At the field or individual clinician level, choices will almost certainly need to be made about prioritising individual patients for treatment, and likewise setting aside others for non-treatment. Although there is extensive literature on methods of clinical triage during emergencies, such decisions inevitably raise ethical questions. As far as possible, such decisions need to be fair in the circumstances [18].

A framework of principles to guide decision making

The following principles, adapted from widely used and accepted frameworks for prioritisation, could guide decision-making at all levels during this pandemic:

1. Equal respect – everyone matters, and everyone matters equally, but it does not follow that everyone has the same ability to benefit from treatment. Decisions to prioritise specific states, regions, populations, or patients must be based on good reasons and avoid being arbitrary or discriminatory.

2. Obligation to minimise the harms of the pandemic – this involves taking all reasonable measures to reduce the spread of the pandemic and mitigate the harms (direct and indirect) arising from it. It also involves the obligation to learn what works in minimising harms, and to share it.

3. Fairness – People with an equal chance of benefiting from a resource should have an equal chance of receiving it.

4. Reciprocity – Those who take on increased burdens should be supported in doing so. This principle includes giving consideration to priority access to some goods for staff exposed to particular risks.

5. Maximising benefits – Where health needs overwhelm available resources, consideration must be given to maximising the health benefits of the resources available.

6. Flexibility – Plans must be adaptable to changing circumstances. They should also be based on the best available evidence and subject to regular update and review.

7. Participation – As long as it is reasonable in the circumstances,

those who may be affected by decisions should be able to participate in them.

Possible Examples of Application

The interpretation of these principles should be discussed and debated, but they would seem to prioritise certain types of choices:

1. An intervention which could contain the virus before reaching extensive community transmission in a population would garner a higher priority – this would save the greatest number of lives for the smallest allocation of resources. While this kind of public health intervention is usually considered for an entire population, it might be even more relevant as a way of protecting a particularly vulnerable group, whether defined medically, such as TB patients, or socially, such as residents of an IDP camp.

2. Likewise, high priority would be those places at the highest risk of widespread outbreaks, such as slums and refugee camps, conflict zones, etc., and those people most at risk of the highest mortality rates, such as TB, HIV, Hep B and C, Measles, Malnourished patients, etc. This is certainly so where this could maximise the number of lives saved.

However, this proposed framework does not answer situations when the values might be in contradiction with each other, such as when we might be able to save many lives in a population, but only by exposing frontline staff to high risk. Or when an intervention for a highly vulnerable group could only be accomplished by downscaling an existing service for a different but also vulnerable group. Or, in the worst-case scenario, when saving one population requires not saving another.

A Fair Process for Decision Making

We recognise that for many decisions, certain principles may come into conflict, may be open to interpretation and disagreement or may be insufficiently 'action-guiding' in the circumstances. Recognising this, and the critical importance of the decisions being made, it is essential that we put in place procedures for decision-making that are ethically robust and likely to maximise the confidence of those affected by the decisions, those who make the decisions and those who have to put the decisions into practice.

Principles for good decision-making include:

1. Transparency: decisions regarding prioritisation must be as transparent as possible.

2. Reasonability: decisions must be reasonable in the circumstances – they should be based on the best available evidence and supported by good reason.

3. Open to revision: decisions must be open to revision in the light of new evidence and changing circumstances.

Attitude of the Indian Public Towards Health Care Workers

A very important factor which could take centre stage not only in India but in the entire Indian sub-continent and in communities with similar religious and social beliefs is the attitude towards health and health care workers. There have been numerous incidents where the death of a COVID-19 patient in the hospital has led to manhandling of the doctors and staff and vandalism. Any household labeled by the health authorities as isolated leads to an uproar by the neighbours clamouring for the suspect to be removed to hospital. A patient dying of COVID-19 infection is denied burial/

cremation. In such cases the administrative intervention has been needed to go ahead with the last rites. Even the patients admitted in isolation facilities threaten the staff (threaten to spit on them) for minor delays in food or toiletries which are provided by the district administration.

There have been incidents of public gatherings by returning expats or political leaders. Some politicians have been seen to visit slums or high intensity areas in the company of almost 10-15 party members. Members of some communities are seen indulging in mass prayers leading to a crisis of spurt of infection.

This is not a time to cash on political or religious short-term gains. The health care professionals must be encouraged and pampered as they are the forerunners in this fight. They must be given incentives in the form of a tax holiday (as most governments are unable to give a salary bonus).

Responding to shortages of Personal Protective Equipment. This note has so far focused on prioritising limited health resources between populations and individuals. One of the unusual and troubling features of this pandemic is a global shortage of Personal Protective Equipment (PPE). Given that COVID-19 can be fatal, and that the risk of contracting it can be managed – if not eradicated – by appropriate PPE, a lack of PPE presents serious challenges to the ability of the system to fulfill its duties of care to its patient-facing healthcare professionals.

Although all healthcare professionals recognise that there are risks associated with their work, particularly those working in patient-facing or 'field' roles, it is unacceptable for us to ask healthcare professionals to expose themselves to a potentially fatal disease without appropriate PPE. Where stocks of PPE are limited, it will be appropriate to offer priority to those in higher risk roles. ICMR or WHO need to be prompted to issue guidelines on the re-use of PPE kits after treatment with Hypochloride or any other method of sterilisation. In the absence of critical PPE components, healthcare professionals should not be expected to treat patients where they are exposed to a risk of infection.

KEY MESSAGES

A. The epidemiological curves for COVID-19 have shown exponential growth. The most effective control strategies might not work in low-income countries. Severe resource constraints will limit the capacity to surge and scale-up, and massive uncertainty will make decision-making difficult.

B. All Governments will be forced to make tough decisions about which necessary actions we cannot take, and therefore which people we cannot save. We have faced tragic choices before, but in this COVID-19 pandemic, they will be extreme, including large numbers of patients presenting and dying.

C. What if we must choose between caring for patients in our hospitals and mitigating the risks from the virus for a highly vulnerable population? Be forced to weigh one project or state against another?

D. How can we help ourselves make these decisions?

We can see three potentially complementary approaches:

a. We stay practical and react based on the context. But will we have the resources and capability to do so effectively? Will that just delay the tough decisions?

b. We adapt organisationally, streamline. That will help, but will it help enough?

c. We prepare an ethical framework to allow us to prioritise between populations, patient groups, projects and states, and then hope we do not need to.

d. Attitude of the Indian diaspora towards health care professionals in regard to delivery of health care and religious and ethnic backgrounds.

THE END DOES NOT JUSTIFY THE MEANS IN AN EMERGENCY BUT RATHER THE MEANS JUSTIFY THE END. Let's all stay safe and remember those (HEALTH CARE WORKERS) who have put their lives in the frontlines to save the lives of the patients.

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