

Can India risk a controlled epidemic after lockdown ends? It will depend on these factors

India can't settle for small wins in the battle against coronavirus. Strategy must be long term and keeping in mind the future of the young population



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In an extraordinary experiment, even by the standards of an extraordinary time, India is starting to emerge from a nationwide lockdown put in place in response to the global emergence of SARS-Cov-2 as an entirely new virus for humanity to contend with.

But if India has to continue flattening the coronavirus curve post-lockdown, the Narendra Modi government has to take hard decisions.

Where India stands

India has a population of 1.3 billion and a [death rate](#) of about 7 per thousand per year, as of 2019. This means that each day, on average, about 26,000 people die in India. As of last week, roughly 60 [people a day](#) are believed to be dying of Covid-19.

Unless this number is off by two orders of magnitude, the new virus has not yet significantly altered mortality in India. Indeed, during the lockdown, net mortality appears to have gone down due to the decline in accidents.

Gains from the lockdown

From a strictly epidemiological viewpoint, the number of new Covid-19 cases and the number of deaths – which should be a lagging indicator – have been rising more slowly over the past couple of weeks than during the period before. Perhaps, more importantly, the lockdown has resulted in a major mobilisation of government machinery, and so the infrastructure and tools to deal with this challenge have been upgraded significantly. This includes the Aarogya Setu app, which has the capacity to help contain a much larger epidemic.

Should the lockdown end?

Of course. The costs of bringing large sectors of the economy and social, educational and cultural life to a halt are enormous. Given the headwinds facing the Indian economy going into this crisis, a rapid return to as normal an existence as possible is highly desirable. For the poor and working-class, especially.

The strategic view

Strategically, there is a choice to be made. To put it in the language of epidemiology: Should policy aim at an R_0 that is at most 1 or allow an R_0 greater than 1?

R_0 is the basic reproduction number from which we can gauge how infectious a disease is. If R_0 is less than 1, the infection will spread slowly and die out.

Ideally Indian policy should aim at R_0 at most at 1. Then most Indians would never get coronavirus and there would be time to manufacture a vaccine.

The second, R_0 greater than 1, would accept that an increasing fraction of Indians will get it, but slowly enough so that the health care system is able to treat the sick. In an idealised version of this scenario, people over 50 years of age would be protected and

the spread would take place only among those younger, who have lower Covid-19 mortality rates. This is the “flatten the curve and protect the elderly” strategy that [Sweden](#) has adopted.

Whether this would result in biological herd immunity would depend on whether social distancing and control by means of quarantine continue to be used after the lockdown ends. For instance, substantial use of the Aarogya Setu app would mean a combination of biological and digital herd immunity.

In this scenario, the binding constraint would be India’s low hospital capacity, which would require keeping R_0 fairly close to 1. For illustrative purposes, let us pick R_0 at about 1.2. To get a sense of the magnitude, we assume a new round of infections every five days (the so-called serial interval). Applied to the one billion Indians below the age of 50, this implies roughly two million, or 20 lakh, hospitalised at the peak of the epidemic, which is about equal to India’s estimated [hospital bed capacity](#).

The peak would come in about 10 months and 150,000 below the age of 50 might die of the disease at current rates. About 300 million Indians would presumably develop a natural immunity to Covid-19.

Is it worth going this route? There are certainly some gains — it requires fewer constraints on daily life, would result in a higher level of economic activity and would also generate a pool of young immune workers. On the other hand, perhaps the extra measures needed to get from an R_0 of 1 to 1.2 are only 20 per cent more demanding.

Regardless, it is very important for the Narendra Modi government to formulate and signal clearly which strategic aim it wishes to pursue after the lockdown. Settling for a slow-growing epidemic among the young requires preparing the public for a growing number of new cases post-lockdown, which in the current climate is likely to be seen as defeat. It also needs serious thought as to how to protect older citizens in a society where several generations often live in close proximity.

A long-term policy

Despite these choices, setting a value of R_0 for Covid-19 is not an aim in itself. A more comprehensive aim from the health point of view would be to maximise life expectancy or minimise mortality from all medical causes, including Covid-19. The best way to do that is to move from monitoring just Covid-19 deaths to deaths from all causes – this will catch not only unidentified Covid-19-related deaths but also those other deaths that might be the unfortunate side effects of economic hardship. Examining how this mortality is faring when resolved by age would be best, and in an ideal universe, it would be stable or declining across all age groups. This result *could* be consistent with an R_0 bigger than one restricted to the young. Of course, short-term trends in health are not the only aim of policy. Well-being, especially for a young country, has to take into account what future the young will face.

Knowledge to inform strategic choice

Making a decision on whether or not to risk a controlled epidemic among the younger segment of the population can benefit from clarifying several unknowns/poorly knowns from existing data. The main unknowns/poorly knowns take the form of the following questions:

- Are there more Covid-19 cases than what the official data shows? A naïve estimate based on current death count and an assumed rate of one death per one hundred infections suggests that the official counts are only capturing 30 per cent of the true number of cases.
- What is Covid-19 mortality by age and pre-existing conditions among Indians? Does this vary by state?
- What percentage of Covid-19 cases among Indians really require hospital care? How does this vary by age and region?
- Are there knowable long term health consequences from Covid-19 for patients who recover from it?
- What are the dominant modes of transmission in India based on the cases to date?

- What can be done to selectively protect the elderly in modest economic circumstances and what are economic activities that are or can be made relatively low-risk?
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With these answered, it would be easier to understand what a path with a growing pool of Covid-19 cases would look like.

The tactical view

The Modi government now has an arsenal of tools to reduce the spread of Covid-19 without resorting to a national lockdown: social distancing requirements, encouraging/requiring the use of physical barriers to transmission such as masks and better ventilation, standard contact-tracing and quarantine turbo-charged by the Aarogya Setu app and travel restrictions. There is also considerable testing capacity, although the precise amount needed is very much tied to how many cases are really present, the value of R_0 and how many contacts need to be tested. Testing is a means to an end, not an end in itself.

What is needed most is a clear conceptualisation of where the largest risks lie so that the government and citizens can focus on those. The evidence from outside India shows that this is a disease primarily spreading indoors, often in families, or outdoors when people spend long periods of time in close proximity. It is also a disease that has a light presence among the very young, say below age 10, and is a large risk for those above age 60, for whom it at least doubles the risk of dying in a given year.

The good news then is that activities that take place outdoors and do not involve close social interactions can resume. Roadside vendors, open-air shops and eating places, construction work and probably quite a bit of rural life should all proceed with improved hygiene and strategic use of masks. Sunlight appears to be helpful.

On the indoor transmission front, small homes, crowded public transport and workplaces increase risk. For this, Indian health authorities are already focused on

creating an infrastructure for infected family members to quarantine away from those not yet infected – offering them financial incentives might be a good idea.

Encouraging indoor use of masks around elderly family members, use of N95 masks by the elderly and education regarding ventilation would be effective in addition to contact hygiene.

When it comes to public transport, investing public monies in increasing capacity rapidly so as to reduce crowding might be an economically productive way to respond. Low-tech solutions would be to insist on spreading out the passenger load over longer ‘peak’ hours – perhaps including the full weekend – and the wearing of masks. In places where pollution is not in itself a bigger threat, keeping windows open instead of resorting to air-conditioning would again be a low-tech risk reduction measure.

Unfortunately, the most problematic events are large religious and cultural gatherings. Restricting their in-person attendance for some time appears to be the only feasible solution.

It should be possible to take advantage of the age gradient at risk. The Netherlands and France have recently [allowed](#) the youngest children to return to school. Many places have special shopping hours for the elderly.

Knowledge-based navigation

A continuing optimal public health response to Covid-19 requires integrating rapidly accumulating knowledge worldwide with India-specific knowledge generation. It requires classical epidemiology, in-person medicine, biomedical research, big data and attention to the purely physical aspects of virus transmission.

By far, the most important thing for the Modi government to get right is this knowledge collection and integration across diverse domains.

There has been progress in various separate domains in India and they are clearly linked in Prime Minister Modi’s public pronouncements. But it would be even better

to have a single apex group with no more than three-four key people covering these various domains that continuously collects inputs and updates *evidence-based, integrated, prioritised and actionable* recommendations to fight Covid-19.

Otherwise, over the long haul that probably lies ahead, the danger is that India and Indians might spend too much of their time on measures that yield small returns while neglecting those that would yield the biggest returns for money and attention invested.

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