Covid-19 in India

Brown University, Center for Contemporary South Asia (CCSA) & School of Public Health

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~prepared by Aarushi Kalra

Bhramar Mukherjee, University of Michigan

Mukherjee's team of statisticians has worked with real time projections of cases and deaths in India, since the onset of the pandemic in the region. Mukherjee's team has been questioned with trepidation about the timing of the third wave. She clarified at the onset that her work is about models and epidemiology: not astrology.

Current State of Pandemic

Mukherjee began her presentation by showing the time series of the effective R trajectory in India. The prognosis does not seem to be that grim as India is doing relatively well in terms of vaccinating populations recently. At the time of the workshop 40% of the Indian population had received at least one dose.

However, she noted that human behavior will change when you say there is no threat of a third wave. She directly faced the question: what do we need? Lots of models. This is because a stochastic system is in constant turmoil, and many steps behind actual reality. So the race is going to be between the vaccine and the variants.

Data Paucity and Opacity

Mukherjee's team was confronted with many big challenges, but perhaps the most crucial one was that they had to work with the worst possible data, to do the best possible statistics. Because of asymptomatic infections, lack of access, misclassification of deaths, desire to maintain public image; Indian COVID data is of questionable quality.

According to latest sero-prevelance survey, 67% of the population had antibodies in June-July 2021. This is disproportionately higher than the population infected by COVID. At the same time, all of the excess deaths cannot be attributed to COVID either. On balance, she claimed that infection fatality rate lies between 0.2% and 0.4%.

Role of Early Interventions and Predictions

We do know that public health interventions work. Her team also modeled which intervention affects the effective R rate and by how much. The government could have prevented about 22,000 reported deaths if they moved early in January/ February 2021.

So what do we do given that the pandemic is here to stay? Mukherjee advocated for human shelter at home as well as testing at home policies.

Arvind Subramanian, Brown University

Subramanian and co-authors focused on excess deaths per capita in the presented paper. He began by noting very low excess mortality before March 2021. This was mostly because we were relying on official

numbers. Looking at sero-surveys too, India could possibly not have done as well as Israel. This is early evidence that the official numbers were gross underestimates.

In order to correct this deficiency in official data sources, Subramanian and co-authors used information from three data sources:

1. Civil Registry System (state government data)
2. Sero-prevalence Surveys
3. CPHS-CMIE

Based on these three data sources, they produced three estimates and the necessary caveats. These are listed below:

Estimate 1

1. 3.5 to 5 million deaths
2. Deaths from first wave were much larger than what we believed them to be

Caveats:

1. CRS undercounts deaths
2. Undercounts vary by region
3. Undercounts have been changing over time. In particular, they have been declining over time
4. Dataset is not complete for all states, and stops at May 2021 for most states
5. UP CRS data for wave 2 is not plausible at all

Estimate 2

1. India's IFR was estimated to be 0.54%
2. This seems much more realistic for India

Caveats:

1. Indian health capacity is much worse, so International age-specific IFR could be inapplicable to India
2. Indian sero-prevelance surveys are subject to uncertainty

Estimate 3

1. Baseline death rate in India is 6.7 and 7. This means that about 10 million people die in India every year.

Caveats

1. The CMIE data is controversial for representation, but it is also the only panel in the country
2. There was a spike in mortality in 2019 in the data. This raises questions about validity due to presence of pre-trends

Subramanian highlighted the importance of correct measurement: if we had focused on the right numbers in the first wave, we would have been much less complacent in the second wave. He also made a compelling case for strengthening health capacity, and data institutions.

Patrick Heller, Brown University

Patrick Heller brought to light the politics of the pandemic by connecting COVID outcomes to political regimes. Political systems across states can have entirely different political configurations. This was also in tandem with variation across states in the case of vaccination rates, sero-prevelance, infections, etc.

Heller and co-authors provided qualitative assessments of state responses in Bihar, Delhi, Kerala, Maharashtra and Tamil Nadu. He claimed that state capacity is what determined these numbers. But state capacity is a very sticky variable, which has to be mobilized via political interventions.

Heller discussed different regime types in Harris (1999), which were updated in 2021 to best describe these five states. Furthermore, he enquired how the taxonomy of regime type in these states affected their responses to COVID.

The state responses were disaggregated as follows:

1. Executive Coordination: bureaucracy responding to vertical incentives only
2. Line Departments
3. Local governments: very limited autonomy, by any global metric, very weak. India is the most centralized democracy
4. Cooperation with opposition
5. Civil Society: may be the most important thing, but also the hardest to measure. States can only co-produce things

Heller analyzed what went wrong and what was correctly done under each of these rubrics. The analysis was further broken down at the state level. The team's analysis was extremely useful for policy practitioners, hoping to avoid the massive losses that were witnessed during the second wave.

Questions:

Ashish Jha: What are things that policy makers can do to make data available? What about private datasets like Google Mobility reports, open reservation tables.

Mukherjee: Digital National Health Data: No linking of different datasets, multi-platform linkages.

Subramanian: credits government for harnessing technology. This is not really the only datasetwhere data integrity has been questioned: similarly for GDP, poverty estimates, and so on. So there is a binding constraint of official data.

Therefore, you need alternative kinds of data. That complimentary effort would be good for awareness, but may not be very helpful in public action.

Ashish Jha: Why do we not have good data in the US: it doesn't seem like a money problem. How do we understand this, and then what do we do about it?

Heller: Data is knowledge, and knowledge is power. We have to democratize data. Delhi did not know where the PDS shop of the people was, because GIS data was sitting in a different department that did not want to part with.

When data is collected, it renders people invisible. All the official data collection techniques miss informal settlements, and this is a political issue, and bureaucratic attitude.

Subramanian: Sen's comparison of India and China. Because if decentralization and democracy, India has much better ability to respond to catastrophe. But if India is unable to respond to this catastrophe, then it doesn't inspire much confidence in the power of data.

Mukherjee: trust has to be integrated within the data framework.

Prerna Singh: Demoted India from being democracy to electoral autocracy. Dreze and Sen talk about accountability through two mechanisms: Free press and existing of robust opposition.

Anindita: Centralized response in first wave, and subnational responses in the second wave. On responses: where could we have done better!

Mukherjee: smart lockdowns may be a potent public health restriction. Have to be agile wrt data guided metrics. Not the strength, but the timing of these interventions is what is key.

If you do it too early, people will not believe you because what is the counterfactual. If you do it late, then you lose lives.

Jha: People don't understand exponential growth, and when it is about exponential growth: it is all about the time.

Subramanian: The scientific community has also not been in glory during the time, so Sen's idea of public reason has also been upended. When we fault society for not understanding something, or not doing something: who do we blame? So people say, they did their best compared to other countries.