

EDITORIAL

A single strand RNA impacts global DNA**T S Ravikumar¹, Rajeev Aravindakshan²**¹President, All India Institute of Medical Sciences, Mangalagiri, Andhra Pradesh and Member of WHO Global Patient Safety Curriculum Committee; ²Additional Professor, Department of Community and Family Medicine, All India Institute of Medical Sciences, Mangalagiri, Andhra Pradesh

Abstract	Introduction	Methodology	Results	Conclusion	References	Citation	Tables / Figures
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An editorial in the recent edition of The Lancet (April 25th 2020), was a focussed review on India's lockdown during the pandemic. (1) While the editorial gave only back-handed credit to Indian performance, the world's largest lockdown, it did not give a balanced comment on India's accomplishment. The initial lapses of migrant labourers issue were played up along with several other inconsistencies noticeable in the review. In order to present a more balanced critique of India's accomplishment, we herein compare the status of the response to the pandemic among the nations that had first exposure to the virus in January 2020, serving as a comparison among the first cohort of countries.

India is one of the countries to have recorded the first case of COVID-19 in January 2020 and hence, is among the nations, most vulnerable to coronavirus epidemic. It was quick to close the international borders and enforce lockdown early. These and other actions have been lauded by WHO. (2)

While this largest democracy with most diverse population has the toughest challenge to control the pandemic within its borders, India has so far proved to be among the best in public health system resilience as shown in the mortality analysis in Table 1. Of course, each Indian state is a microcosm analogous to a country and hence preparedness and response cannot be expected to be uniform. As indicated in the editorial, Kerala and Odisha have been the best performers. Not only have the Nipah virus outbreak (Kerala) and natural disasters

(Odisha) experiences came in handy for these states, but the robustness of public sector health systems in these states and the 100% enforcement of lockdown along with leadership messaging were also contributing factors.

The Lancet editorial enumerates several strategies by India more successfully undertaken than even the most developed nations, and yet, the editorial brings scepticism that 'whether the strategies will succeed'. This is a pandemic of centuries and every innovation should be attempted, since there are only a handful of process tactics in the public health tool kit to the slow virus spread, i.e., social distancing, lockdown, hand hygiene and respiratory hygiene.

Contrary to the editorial opinion that central government did not acquiesce responsibilities to the state governments, the centre demonstrated admirable stewardship and the states worked lockstep to enforce them. The editorial describes that the enforcement of lockdown was not well organized and was brought on suddenly creating a lot of hardship for the population. The lockdown was indeed well-organised and implemented at all levels. The Prime Minister connected remarkably well to the population including taking them along on a novel social experiment christened "Janata Curfew" on Sunday, March 22nd prior to the lockdown on March 24th. This Janata curfew, a voluntary community lockdown, was announced for the country by the Prime Minister in his national address the week before. We consider this community empowerment to be an unprecedented experiment

in sociology and was a resounding success, with the public taking it up with gusto! It also perhaps helped the government identify issues for remedy before the formal lockdown went into effect on March 24th. The issue of migrant workers was an initial setback, quickly remedied with provision of shelter, security, food; led by the Chief Minister of Kerala, and adopted by other states, these migrant workers are now known as “guests” in each state, without further dislodgement.

An alternative of announcing the lockdown days ahead, with delay in implementation would have had the unintended consequence such as the episode of mass exodus of Italians from Lombardy region to the south, with resultant “super-spreader event”, the outcome of which is still felt in Italy and other parts of Europe to-date. The doubling pattern of cases in India is presented in Figure 1 to show the effect a lockdown.

The doubling rate of cases in the initial phases was about 5 days because of the amount of testing done only on the foreign returned individuals and their contacts. As we see later, the detection rate picked up when the net was widened. A stray incident caused a sudden shortening of doubling period in between. However, by and large, we can see that the pace of the pandemic in India has considerably slowed with days to double the count becoming close to 10 days in the past week. (3)

The editorial is not accurate in its portrayal that “better planning and communication could have helped avert this crisis”, without understanding the problems through an Indian lens. In a not so-well-regimented democracy of 1.35 billion people, the planning and communication from the head of the country, through intergovernmental ministries, down to the district collector level and now to each of the panchayats have been nothing but stellar: and the results show it in the reduction of the velocity of the epidemic curve and potential saving of lives across the nation.

Inadequate testing may be an issue (resource constraints, non-availability of testing kits) but India started implementing case identification, contact tracing, isolation/quarantine, surveillance and early treatment coupling this with targeted testing with gradual expansion of testing strategy. We must not forget that there are many a slip between the cup and lip in terms of testing blindly. The current standard test leaves much to be desired in terms of its sensitivity and yield. In addition, even a

widespread disease like malaria which had a simple blood test, could achieve test rates of only about 1% population per month even in the worst seasons of the year. With the cost of the current test being high in comparison, the Indian model could well become one of the most effective models and the perhaps an alternative to the South Korea model of early testing in the community (frontier testing). The pandemic has shown the high resilience of Indian public health sector, despite being chronically underfunded. One of the authors (TSR) has indeed been a critic, an advocate for the urgent need to increase the public funding level, currently one of the lowest at 1.28% of GDP. (4)

Despite this short coming, the system has shown better resilience than most other countries (perhaps among the best) during this pandemic, including most developed nations. It took the virus threat seriously since January, acted with alacrity in closing borders to reduce the imported cases, screened at all entry points, identified imported cases to isolate, contact-traced them with diligence, used testing judiciously, implemented lockdown early with clear communication earning public trust, used surveillance to identify cases early and provided treatment in a stratified way. Hotspot and cluster identification and mitigation strategies are in process with effectiveness. The result is shown in current Indian data. Table 1 shows the dates of identification of first cases in respective countries in January 2020 and the depiction of death rates using two different formulae. (5)

All the nations were given the same information (no asymmetric information) by WHO as available during the early period of this pandemic. The multi-dimensional responses by individual nations with symmetrical information available dictated the outcomes of the events which unfolded over the next few months.

Two other formulae, such as $\text{deaths}/(\text{deaths} + \text{recovered cases})$ (Formula 3), and $\text{deaths}/\text{cases on day}(-T)$ where $T = \text{days from case identification to death}$ (Formula 4) are not shown because the countries have already gone through three months of the pandemic.(6) An estimate of preventable deaths per million population will be universally comparable, even though there is a problem of lack of standardization in terms of ageing population and other community variables., Even though India has a

younger population, it suffers from undue burden of diabetes mellitus, hypertension, cardio-vascular disease and chronic lung disease which are major determinants of mortality from COVID-19.

Among the nations, those with early and vigorous efforts to keep the pandemic in stages 1, 2 and perhaps at cusp of stage 2/3, showed the competence and resilience of the respective public health systems in saving lives. India is among the better performers along with Singapore, Hong Kong, Japan, South Korea, Malaysia, Australia, and Thailand. Only two countries in Europe come close to these (Finland and Germany). Countries such as Taiwan, Cambodia, and Sri Lanka have total cases lower than 600. The nationwide integrated approach currently in vogue in India has surpassed most nations in its effectiveness. We consider this India model of early case identification, vigorous contact tracing, isolation, targeted testing with progressive expansion of testing strategy is an alternative to the South Korea model of early country wide testing (Frontier testing). It may be applicable to resource constrained nations globally.

References

1. The Lancet. India under COVID-19 lockdown. Lancet. 2020 Apr 25;395(10233):1315. doi: 10.1016/S0140-6736(20)30938-7. PubMed PMID: 32334687; PubMed Central PMCID: PMC7180023.[PubMed]
2. WHO lauds India's "tough and timely" anti-corona actions [Internet]. Press Trust of India. 2020 [accessed on 26/04/2020] Available from: <https://economictimes.indiatimes.com/industry/healthcare/biotech/healthcare/who-lauds-indias-tough-and-timely-anti-corona-actions/articleshow/75138501.cms?from=mdr>
3. Siddharath Srivastava. COVID-19 Virus Outbreak in INDIA [Internet]. 2020 [accessed on 24/04/2020] Available from: <https://coronaindia.github.io/>
4. Ravikumar TS and Georgie Abraham. We need a leap in healthcare spending [Internet]. The Hindu. 2019 [accessed on 28/04/2020] Available from: <https://www.thehindu.com/opinion/op-ed/we-need-a-leap-in-healthcare-spending/article26196313.ece>
5. Covid-19 Coronavirus Pandemic [Internet]. 2020 [accessed on 28/04/2020] Available from: <https://www.worldometers.info/coronavirus/>
6. Ghani AC, Donnelly CA, Cox DR, Griffin JT, Fraser C, Lam TH, Ho LM, Chan WS, Anderson RM, Hedley AJ, Leung GM. Methods for estimating the case fatality ratio for a novel, emerging infectious disease. Am J Epidemiol. 2005 Sep 1;162(5):479-86. doi: 10.1093/aje/kwi230. Epub 2005 Aug 2. PubMed PMID: 16076827; PubMed Central PMCID: PMC7109816.[PubMed].

Tables

TABLE 1 DATA FROM COUNTRIES WITH FIRST CASES IN JANUARY 2020

Country	Date	Current Death Rate/million population (Formula 1) as on 26 Apr 2020 [4]		Case Fatality Ratio % (Death per million population*100/ Cases in million population: Formula 2)
		Low	High	*%CFR
China	December, 2019	3		5.2
Thailand	January 12, 2020	0.7		1.7
Japan	January 12, 2020	3		2.8
S.Korea	January 20, 2020	5		2.4
USA	January 20, 2020		168	5.6
Taiwan	January 20, 2020	0.3		1.7
Singapore	January 22, 2020	2		0.1
Hong Kong	January 22, 2020	0.5		0.4
France	January 23, 2020		341	14.1
Germany	January 24, 2020		69	3.8
Canada	January 24, 2020		61	5.5
Australia	January 24, 2020	3		1.1
Malaysia	January 24, 2020	3		1.7
Sri Lanka	January 26, 2020	0.3		1.1
Cambodia	January 26, 2020	0 (Too few cases)		-
Finland	January 28, 2020		32	4.1
Philippines	January 29, 2020	4		7.2
India	January 29, 2020	0.6		3
Italy	January 29, 2020		430	13.5
Spain	January 30, 2020		482	10

UK	January 30, 2020		287	13.5
Sweden	January 30, 2020		213	11.8

Figures

FIGURE 1 DOUBLING RATE OF COVID CASES IN INDIA

