ISSN 2475-529X

short commentary

Journal of Nursing & Healthcare

SARS CoV2 Second Wave Onslaught in India and Mass Vaccination Prospects

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Submitted: 26 May 2021; **Accepted:** 02 Jun 2021; **Published:** 08 Jun 2021

Citation: *Gautam Kr Ghosh (2021) SARS CoV2 Second Wave Onslaught in India and Mass Vaccination Prospects, Journal of Nursing & Healthcare V6 (2) 1-3*

Abstract

In little over a year, in March 2020 the World Health Organisation declared COVID-19 a pandemic and on March 24, India went into the longest lockdown. On March 25, 2020, the number of new cases stood 121 and deaths were two. Contrast to that, in corresponding month this year, there are more than 53,000 cases daily and more than 250 deaths. It is still rising, doubling every 12-14 days. India is now the country with the highest number of daily infections and casualties. Unlike the first wave, the cases are currently much more widespread and has severely strained the country's critical care capacity. This paper attempts to note the virus onslaught during Covid-19 second wave and India's prospect at navigating the pandemic and foster for citizens early and reliable access to vaccines.

Keywords: Covid-19, study, mathematical modelling, pulmonary phase, vaccine

In little over a year, in March 2020 the World Health Organisation (WHO) declared COVID-19 a pandemic and on March 24, India went into the longest lockdown. On March 25, 2020, the number of new cases stood 121 and deaths were two [1]. Contrast to that in corresponding month this year, there are more than 53,000 cases daily and more than 250 deaths [1]. It is still rising, doubling every 12-14 days. India is now the country with the highest number of daily cases. Unlike the first wave, the cases are currently much more widespread. The second phase, according to the scientists from the University of Florence in Italy, is the pulmonary phase (Phase 2), when the immune system becomes strongly affected by infection, and leads to primarily respiratory symptoms and low oxygen levels with predominant problems, including the formation of blood clots. Almost 55% patients in the second wave would require oxygen support as opposed to 41.5 % case-need felt in the first wave, scientists have warned [2].

The states with high infections are showing signs of being overwhelmed by current infection surge. Complacency led to unanticipated shortages of medicines, medical supplies and hospital beds, as health experts opined and added that all the planning that went into successfully tackling the first Covid-19 first wave were forgotten, and public health system was back to square one. A team of scientist from the Kanpur based Indian Institute of Technology, through their mathematical modelling, has predicted that the daily infection count will reach peak in May 2021, and warned that the case fatality rate, which as of now is low, will rise once the infection reaches the rural areas of Bihar, Uttar Pradesh and similar states that have inadequate health infrastructure [3]. Independent calculations made by scientists, from Ashoka University in Haryana, have also predicted that the peak of the ongoing wave of infections could be between mid-April and mid-May [4]. The contrast in the picture between March 2020 and March 2021 stands out. A number of issues arise. In spite of a massive vaccination drive, why are the numbers rising steeply? Is our strategy of dealing with COVID-19 flawed? What have we learnt in this one year of severe social and economic stress?

Coronavirus has been intensely researched globally and its genome was published quickly that aided the developments of vaccines in less than one year, a record. However, the virus keeps mutating and the strain found in different countries is somewhat different. Some strains are more virulent than others and spread faster. The Institute of Health Matric and Evaluation under University of Washington, though their own modelling study strongly suggests that the new surge is linked to "escape variants"— which can override immunity afforded by previous infection [5].

In India also, it is feared that the surge since mid-February could be due to new strains that may have evolved here. Public health

experts asserted that the second wave in India has been widely attributable to the B.1.1.7 variant—first identified in the U.K.—which had ramped up cases in the state of Punjab. Another possible culprit is a homegrown variant, called B.1.617, with two worrying mutations [6]. A separate, more infectious variant, named the Bengal strain—a triple mutant—has also been identified as the cause of many of the infections in the West Bengal, epidemiologists pointed out [7].

As the virus mutates it is feared that it can evade the available vaccines. The duration for which vaccines provide immunity is not known. So, if vaccination is required every couple of years, not only for immunity boost but for new strains, massive vaccination drives will be required. If 60% or more of the population is vaccinated, 'herd immunity' is said to occur and that stops the spread of the virus. So, in India, at least 84 crore individuals would have to be vaccinated in one year.

The Government of India has already announced mass vaccination drive [8]. But the planning for logistics and production was unduly slow paced, that resulted sluggish start. These in spite of India being the largest producer of Covid-19 vaccines worldwide, with the Serum Institute of India (SII) as well as indigenous ICMR and Bharat Bio-tech vaccine developed. Health experts indicate that the primary barriers to vaccine availability, are not rigid intellectual-property protections but limited manufacturing capacity and poor distribution infrastructure. There is constant need of raw materials, production capabilities, liner bags, a whole bunch of complex machinery and supplies. For India the initial hiccup had been the US and European limits on exportation of critical Covid-19 vaccine production materials. Again, India limited its official approvals to just two indigenous vaccines: Covishield and Covaxin. But hit hard by the shortage of vaccines and rising public anger, the GoI reversed the vaccine preference. On 13 April 2021, GoI granted emergency-use approval to all "foreign" Covid-19 vaccines [9] approved by the United States Food and Drug Administration, European Medicines Agency, United Kingdom Medicines and Healthcare products Regulatory Agency, and Pharmaceuticals and Medical Devices Agency Japan. The government also announced mass vaccination for all above 18 years eligibility from May 1 this year, but logistical problems on record impacted the proper functioning of this vaccination drive; and many states could not begin 18+ age group vaccination for want of supplies. Vaccines have not been tested for people below 18 years of age, so the trials are now starting in phases and it will take perhaps another six months for the results to come as media reports indicated. Some reports also suggest that the vaccine is less effective in the case of those above 65 years of age because of their lower immune response. So, some countries did not recommend certain vaccines for the elderly. All these have caused confusion and hesitancy.

Since the virus is highly virulent in the second wave, people are once again been asked to maintain physical distancing along with use of face masks and better hygiene via hand washing. Local containment zones or short duration lockdown announced in certain States. During last year, festivals turned low key and sports events stopped or were postponed or held in an unnatural setting without spectators. Visits to religious places stopped for much of the year. Cinema halls and theatres were closed. Economic activities slumped with loss of employment witnessed. All these impacted citizens psychologically. The result has been that people were exhausted and itched to go back to the pre-pandemic days. As the number of infections declined, people stopped using masks or used them casually even though the virus threat stayed alright. In the recent months this year, India has been witnessed to massive protests, elections rallies, and Kumbh mela that on record acted as super spreader events. Tens of thousands gathered every day in such events to fall prey to the virus. During the period, observably the political compulsion got the better of public health concern, and that led the administration largely to issue cursory advisories about mask-wearing and maintaining physical distance without strict enforcement.

However, India had survived the first wave with distinct advantages, especially in keeping low mortality rate. For the second wave, it is imperative to modify country's pandemic preparedness. Public health experts asserted that state governments and central agencies need to invest in stockpiling a small number of vital drugs and medical supplies at critical centres to give the industry-enough time to respond to demand surges. To detect and monitor outbreaks and contain spread inside hotspots, surveillance system must be mounted. Stricter COVID-19 precautionary norms enforced for public, and quarantine procedures need to be adapted to halt the virus's transmission and spread. Scientists opine that as the virus mutates, India will need to increase up genetic sequencing of positive Covid-19 test samples in order to catch new variants quickly. Testing and tracing that got relaxed lately thus need revamping. A successful COVID-19 vaccination will be crucial to lowering India's daily new coronavirus cases and deaths. Free vaccination against COVID-19 commenced in India on January 16, 2021, in what is expected to be the largest vaccination program in the world. The mass vaccination aims at covering some 960 million eligible citizens – requiring more than 1.8 billion doses, as public health experts pointed. Out of the eight COVID-19 vaccines that are currently under various stages of clinical trials in India, four were developed in the country. India's drug regulator has approved restricted emergency use of Covishield (the name employed in India for the Oxford-AstraZeneca vaccine) and Covaxin, the homegrown vaccine produced by Bharat Biotech. Indian manufacturers have stated that they have the capacity to meet the country's future needs for COVID-19 vaccines. As far as logistics are concerned public health experts pointed out that India vaccinates 26.5 million infants per year for a number of diseases, as well as annual tetanus shots for 29 million pregnant women [10]. The centres can be used for these vaccinations offer cross-country storage facilities and distribution points for the COVID-19 vaccine, including 29,000 cold-chain points offering precise temperature customization for the doses. All that is required for pacing up mass vaccination, is focused follow up of the announced national vaccination strategy, with firm plan of requirement-based vaccine procurement and its administration. The pandemic has ravaged the country and social media feeds are full of visuals of Covid-19 tragedies. The situation demands embracing collective wisdom at tackling the pandemic through scientific approaches, as epidemiologist predict more waves, given that India is evidently still far away from reaching herd immunity and its vaccination rate remains unduly slow.

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