Commentary

Review of COVID 19 data and mitigation efforts in India

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The beginning of pandemic in India:

As a part of global pandemic of novel Corona virus, Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) On January 30th, 2020 India reported its first case of Corona Virus Disease 2019 (COVID 19) in the state of Kerala , which subsequently rose to three cases by February 3rd, 2020. All these three cases were from students who had returned from Wuhan, China. From February 3rd to March 3rd, 2020 no new case was reported. On March 4th, 2020, 22 new cases were reported, including 14 infected members of an Italian tourist group. In the month of march, the transmissions grew in India due to people returning from COVID 19 affected countries or religious congregations of Tablighi Jamaat held in Delhi in early part of March 2020. India reported first mortality due to COVID 19 on 12 March, a 76-year-old man who had travelled back to India from Saudi Arabia.

Mitigation measures by government:

By mid-March, the government had drawn up plans to deal with a worsening pandemic situation in the country such as setting up additional quarantine and treatment facilities across the country, availability of protective medical materials, essential medicines and availability of essential consumer items. On 17 March, the Government of India issued an advisory, urging all Indian states to take social distancing measures as a preventive strategy for implementation till 31 March. On 22 March, the Government of India announced first complete lockdown in 82 districts of 22 states and Union Territories of the country, where confirmed cases were reported. On 24 March, central government announced a complete 21-day national lockdown to contain the pandemic which was periodically extended till 31 May in all Indian states. On 30 May, it was announced that lockdown restrictions were to be lifted from then onwards, however lockdown would be extended till 30 June for only the containment zones. Services would be resumed in a phased manner starting from 8 June. It was termed as "Unlock ". The Government divided the country into three zones – Green Zone, Red Zone, Orange Zone; Red zone (Hotspots) – districts with high doubling rate and high number of active cases, Orange zone (Non-hotspots) – districts with fewer cases and Green zone – districts without confirmed cases or without new cases in last 21 days. Under leadership of Union Health Ministry a policy making team was announced which comprises of the ministry's Emergency Medical Response Unit, the Central Surveillance Unit (IDSP), the National Centre for Disease Control (NCDC) and experts from three government hospitals.

On 2nd April 2020, India launched Aarogya Setu mobile App for helping augment the efforts of limiting the spread of COVID19, with an objective of enabling Bluetooth based contact tracing, mapping of likely hotspots and dissemination of relevant information about COVID19. The App has over 114 million users as on 6th May, which is more than any other Contact Tracing App in the world. The App is available in 12 languages and on android, iOS and KaiOS platforms. The Aarogya Setu data fused with historic data has shown enormous potential in predicting emerging hotspots at sub post office level.

Testing policies and capacity:

The virus testing laboratory facility was started as early as in early March, 2020 which was expanded to 65 centres under guidance of National Institute of Virology (NIV). By 21st March, additional 111 testing

laboratories became functional. On 14 March, scientists at the National Institute of Virology isolated a strain of the novel coronavirus. By doing so, India became the fifth country to successfully obtain a pure sample of the virus after China, Japan, Thailand and the US. Initially, laboratory testing was restricted to only those who had travel history to 12 designated high risk countries or those who have come in contact with anyone tested positive for the coronavirus, or showing symptoms as per the government guidelines, but shortly it was extended to include all pneumonia cases, regardless of travel or contact history. Testing strategy was further revised on 9 April, 2020 by allowing testing of the people having symptoms for a week duration (in the hotspot areas) regardless of travel history or local contact to a patient. On 24 March first Indian company received validation for its RT-PCR tests from National Institute of Virology and the Indian Council of Medical Research and in April 2020 to fulfil India's rapid need of testing .Another Indian company developed low cost paper-strip test that could detect COVID-19 within an hour. Each test costing just US$7.00. Simultaneously testing to check the community transmission began by mid-March 2020. Department of Health Research and the Indian Council of Medical Research (DHR-ICMR) started testing random samples of people who exhibit flu-like symptoms and samples from patients without any travel history or contact with infected persons and between 15 February and 2 April, 5,911 SARI (Severe Acute Respiratory Illnesses) patients were tested throughout the country of which, 104 tested positive (1.8%). In the month of April, 2020 rapid antibody test and RNA extraction kits were received from Chinese manufacturer and were introduced in few states for some time. Since it was found to give inconclusive results, it was put on hold. National Institute of Virology in May 2020 introduced antibody test kit ELISA for rapid testing, which has capacity to process 90 samples in single run with turnaround time of 2.5 hours. At present real time or Conventional RT-PCR test is recommended for diagnosis. The TrueNat and CBNAAT systems have also been deployed for diagnosis of COVID-19 in view of availability of customized cartridges. SARS-CoV-2 antibody tests are not recommended for diagnosis of current infection with COVID-19. In June 2020 the ICMR included Rapid antigen test as approved point of care test to diagnose COVID 19 with aim to have early detection of infection and quick containment. All COVID-19 tests conducted through RT-PCR, TrueNat and CBNAAT are reported on ICMR data entry portal which helps in drawing the National estimates on numbers of tests conducted, numbers of positives, tests conducted per million populations etc. By August 5,2020 cumulative total number of sample tested are 21,484,402 of which 1,908,254 turn out as positive test result which comes to 8.88% of total tests performed. Per million population 15,570 tests are performed As of now India has facility for COVID-19 testing by Real-Time RT PCR or TrueNat Test or CBNAAT Test at total of 1194 centres (including 344 private centres).

Number cases and rate of increase of cases

From its first reported case, India took 58 days to record 1,000 cases. It crossed 10,000 in another 16 days. From there to 1, 00,000 was breached in 35 days. Since then the number of days to add an additional hundred thousand cases has progressively gone down. India had a total of 571 cases and 10 fatalities when it imposed a nationwide lockdown on March 25. After 68 days of the stringent curbs, the country reported a cumulative 1 90,648 cases and 5,408 deaths on May 31. The most significant impact of the lockdown was that it helped keep the mortality numbers low. It also gave the authorities time to ramp up health infrastructure and medical facilities to prepare for the future. On August 5th 2020, 08:00 IST total cases are 1855745 whereas 5,86,244 were active Cases, 1282215 Cured/Discharged, 1 Migrated and 39795 deaths in India, which comes to nearly 97 % recovery rate and mortality rate of 3%.

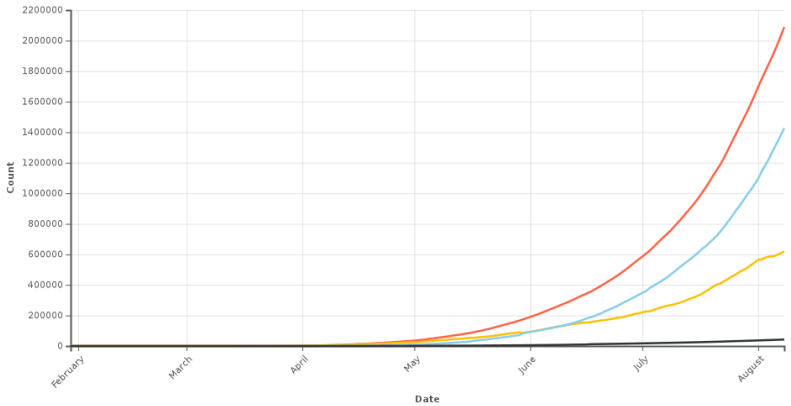

Figure-1 : Total number of confirmed cases, active cases, recoveries and deaths

Source: https://www.mohfw.gov.in/

Case Fatality Rate

India's Mortality Rate rose to a high of 3.43 per cent on May 6 post which saw a decline till June 8 (2.78 per cent). Post lockdown, it again went up to 2.89 per cent on June 16 before rocketing to 3.36 per cent on June 17 due to a revision of backlog of deaths. However, since then, it has been on a consistent downward curve. Despite its size and population, economic constraints and other challenges, its Mortality Rate is less than half of China's and significantly and several times better than most developed Western European nations. With effective containment strategy, aggressive testing and standardized clinical management protocols based on holistic Standard of Care approach, the Case Fatality Rate has significantly dipped. The Case Fatality Rate is progressively falling and currently, it is 2.49%. India has one of the lowest fatality rates in the world.

Mortality and morbidity in health care workers:

As per the data of Indian Medical Association (IMA)National COVID registry data, as of August 5th, 2020 more than 1500 doctors have been infected, 196 of them have lost their lives fighting against COVID, 75 per cent of them being above the age of 50 years. As per one unpublished study by Dr. Rajiv Jaydevan around 25 nurses/paramedics have lost their lives due to COVID 19.

An inactivated COVID-19 vaccine candidate has been developed by Bharat Biotech International ltd. in collaboration with ICMR – National institute of Virology, Pune. After intense characterization and review of all data from Bharat Biotech International ltd., ICMR is supporting the clinical development as the vaccine candidate appears to be promising. Based on in-depth scrutiny of the available data from pre-clinical studies, the Drugs Controller General of India has accorded permission to conduct phase 1 and 2 clinical trial.

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