

COVID 19 INDIA REPORT



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COVID 19 PANDEMIC IN INDIA

The COVID-19 pandemic in India is part of the worldwide pandemic of coronavirus disease 2019 (COVID-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The first case of COVID-19 in India, which originated from China, was reported on 30 January 2020. India currently has the largest number of confirmed cases in Asia, and has the second-highest number of confirmed cases in the world after the United States, with the number of total confirmed cases breaching the 100,000 mark on 19 May, and 1,000,000 confirmed cases on 17 July 2020. On 29 August 2020, India recorded the global highest single-day spike in COVID-19 cases with 78,761 cases, surpassing the previous record of 77,368 cases recorded in the US on 17 July 2020. India currently holds the single day record for largest increase in cases, set on September 17, with an additional 97,894 and has sustained highest number of daily cases spike since then. September 25 marked 1.49 million tests in a single day; the highest in the world

On 22 March, India observed a 14-hour voluntary public curfew at the insistence of Prime Minister Narendra Modi. It was followed by mandatory lockdowns in COVID-19 hotspots and all major cities. Further, on 24 March, the prime minister ordered a nationwide lockdown for 21 days, affecting the entire 1.3 billion population of India. On 14 April, India extended the nationwide lockdown till 3 May which was followed by two-week extensions starting 3 and 17 May with substantial relaxations. From 1 June, the government started "unlocking" the country (barring "containment zones") in three unlock phases.

TIMELINE

On 30 January, India reported its first case of COVID-19 in Kerala, which rose to three cases by 3 February; all were students returning from Wuhan. Apart from these, no significant rise in transmissions was observed in February. On 4 March 22 new cases were reported, including 14 infected members of an Italian tourist group.

In March, the transmissions grew after several people with travel history to affected countries, and their contacts, tested positive. On 12 March, a 76-year-old man, with a travel history to Saudi Arabia, became the first COVID-19 fatality of India.

A Sikh preacher, who had a travel history to Italy and Germany, turned into a "super spreader" by attending a Sikh festival in Anandpur Sahib during 10–12 March. Twenty-seven COVID-19 cases were traced back to him.[48] Over 40,000 people in 20 villages in Punjab were quarantined on 27 March to contain the spread.

On 31 March, a Tablighi Jamaat religious congregation event in Delhi, which had taken place earlier in March, emerged as a new virus super spreader event, after numerous cases across the country were traced back to it. On 18 April, the Health ministry announced that 4,291 cases were directly linked to the event.

On 2 May, in Punjab, around 4,000 stranded pilgrims returned from Hazur Sahib in Nanded, Maharashtra. Many of them tested positive, including 27 bus drivers and

conductors who had been part of the transport arrangement. As of 13 May, 1,225 pilgrims had been tested positive.

COUNTERMEASURES

Closing nonessential businesses and schools and restricting borders are among the most effective measures that governments can impose to reduce the rate of Covid-19 transmission, a new study finds, showing the effectiveness of strict measures, but the research also points to less intrusive alternatives as governors across the country re impose amid a nationwide surge in coronavirus cases.

TESTING

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. The Indian Council of Medical Research (ICMR) said that isolation of the virus will help towards expediting the development of drugs, vaccines and rapid diagnostic kits in the country. NIV has shared two SARS-CoV-2 genome sequences with GISAID. On 16 April, China sent 650,000 testing kits to India but their use was discontinued in view of a very low accuracy (of just 5.4%). In May, National Institute of Virology introduced another antibody test kit ELISA for rapid testing, capable of processing 90 samples in a single run of 2.5 hours.

INITIAL TESTING

Initially, the labs tested samples only from those with a travel history to 12 countries designated as high-risk, or those who have come in contact with anyone testing positive for the coronavirus, or showing symptoms as per the government guidelines. On 20

March, the government decided to also include all pneumonia cases, regardless of travel or contact history after the country saw a sharp increase in the number of cases. The first and second confirmatory tests for the virus has been made free by the government. On 9 April, ICMR further revised the testing strategy and allowed testing of the people showing symptoms for a week in the hotspot areas of the country, regardless of travel history or local contact to a patient.

TESTING COMMUNITY TRANSMISSION

Testing for community transmission began on 15 March. 65 laboratories of the Department of Health Research and the Indian Council of Medical Research (DHR-ICMR) have started testing random samples of people who exhibit flu-like symptoms and samples from patients without any travel history or contact with infected persons. As of 18 March, no evidence of community transmission was found after results of 500 random samples tested negative.

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 20 states and union territories. About 40% of the identified patients did not have travel history or any history of contact with a positive patient. The ICMR advised priority containment in the 36 districts of 15 states which had reported positive cases among SARI patients. Till the third quarter of the year, India had attained the highest number of daily tests in the world

RESEARCH AND TREATMENT

According to estimates, India has around 40,000 ventilators, of which 8,432 are with the public sector. Various Indian PSUs, firms and startups, including DRDO and ISRO, have since repurposed their production lines to manufacture general PPEs, full body suits and ventilators. They are also designing low-cost or mobile medical equipment. The focus was to increase the production of low-cost, compact and portable ventilators that could cater to multiple patients at a time. This led to the creation of some of the world's smallest and cheapest ventilators. The government aims to double the current capacity of ventilators by June 2020 with the assistance from PSUs. The government has also requested major private automakers to explore the possibility of manufacturing ventilators at their plants. Maruti Suzuki, in collaboration with AgVa Healthcare, will supply 10,000 ventilators till the end of May. From nil in the near past, India was producing around 200,000 PPE kits and 250,000 N95 masks per day in May 2020. By the second half of month, India had emerged as world's second largest producer of PPE body coveralls.

The Centre for Cellular and Molecular Biology has been working on genome sequencing of COVID-19. In May, CCMB also started a partnership with a private company Eye stem Research to grow novel coronavirus strain in human lung epithelial cells for research and trials of antiviral drugs.

DEVELOPMENT OF ANTI COVID VACCINES

Pune-based Serum Institute of India announced that it would apply for clinical trials of certain strains from Drug Controller General of India (DCGI) in April. As per company

president Adar Poonawalla, a vaccine for COVID-19 will be delivered within a year. However, it may not be effective on 20 to 30% people. Two other companies are also trying to develop a vaccine: Zydus Cadila, which is replicating viral vector and developing a DNA plasmid vaccine, and Hyderabad-based Bharat Biotech, in collaboration with US based Fulgent, which is expecting the first clinical trials of a nasal vaccine by late 2020. As of late February, the Serum Institute of India had begun animal trials of vaccine candidates, followed by Zydus Cadila in March. ICMR partnered with Bharat Biotech in May to develop COVID vaccine completely in India.

Till May, there were over 30 candidates of COVID-19 vaccine in development in India, many of which were already in preclinical tests. Per reports emerged in July, ICMR was preparing to launch BBV152 COVID vaccine or Covaxin, India's first COVID-19 vaccine on 15 August following its ongoing human trials in July. Although, later deadline was cited as only meant to cut "red tape" and the expected timeline of any Indian vaccine not to be before 2021. COVEXIN has been reported to have positive results on animals in building immunity against COVID-19 in pre-clinical trials. In mid-July, Zydus Cadila too had followed with human trials of its vaccine named ZyCoV-D. In early August, SII's got approval from DCGI for trial phases II & III. SII has also joined GAVI in a partnership with Bill & Melinda Gates Foundation to produce 100 million doses of vaccine for developing countries.

STATISTICS

<u>State</u>	<u>Confirmed</u>	<u>Active</u>	<u>Recovered</u>	<u>Deaths</u>	<u>Population</u>
Andaman and Nicobar Islands	3,912	180	3,678	54.00	380581

Andhra Pradesh	7,29,307	50,776	6,72,479	6,052	84580777
Arunachal Pradesh	11,007	3,022	7,965	20	1383727
Assam	1,88,902	33,047	1,55,077	778	31205576
Bihar	1,90,740	11,420	1,78,395	925	104099452
Chandigarh	12,707	1,492	11,035	180	25545198
Dadra and Nagar Haveli and Daman and Diu	3,103	101	3,000	2	243247
Delhi	2,95,236	22,720	2,66,935	5,581	16787941
Goa	36,238	4,720	31,050	468	1458545
Gujarat	1,45,200	16,570	1,25,111	3,519	60439692
Haryana	1,36,115	11,320	1,23,286	1,509	25351462
Himachal Pradesh	16,283	3,136	12,918	229	6864602
Jammu and Kashmir	80,476	13,712	65,496	1,268	12541302
Jharkhand	88,873	10,027	78,089	757	32988134

Karnataka	6,57,705	1,15,170	5,33,074	9,461	61095297
Kerala	2,42,799	87,823	1,54,092	884	33406061
Ladakh	4,720	1,195	3,464	61	2,74,000
Lakshadweep	0	0	0	0	64473
Madhya Pradesh	1,38,668	18,141	1,18,039	2,488	72626809
Maharashtra	14,65,911	2,47,468	11,79,726	38,717	112374333
Manipur	12,240	2,680	9,482	78	2855794
Meghalaya	7,037	2,371	4,606	60	2966889
Mizoram	2,148	261	1,887	0	1097206
Nagaland	6,662	1,185	5,460	17	1978502
Odisha	2,38,003	26,846	2,10,217	940	41974218
Puducherry	29,682	4,522	24,614	546	1247953
Punjab	1,20,016	11,982	1,04,355	3,679	27743338
Rajasthan	1,48,316	21,294	1,25,448	1,574	68548437
Sikkim	3,216	580	2,587	49	610577

Tamil Nadu	6,30,408	45,279	5,75,212	9,917	72147030
Telangana	2,04,748	26,551	1,77,008	1,189	3,52,00,000
Tripura	27,545	4,621	22,623	301	3673917
Uttarakhand	52,329	8,414	43,238	677	199812341
Uttar Pradesh	4,20,937	44,031	3,70,753	6,153	10086292
West Bengal	2,77,049	27,988	2,43,743	5,318	91276115

CHARTS



Fig 1 : demographic view

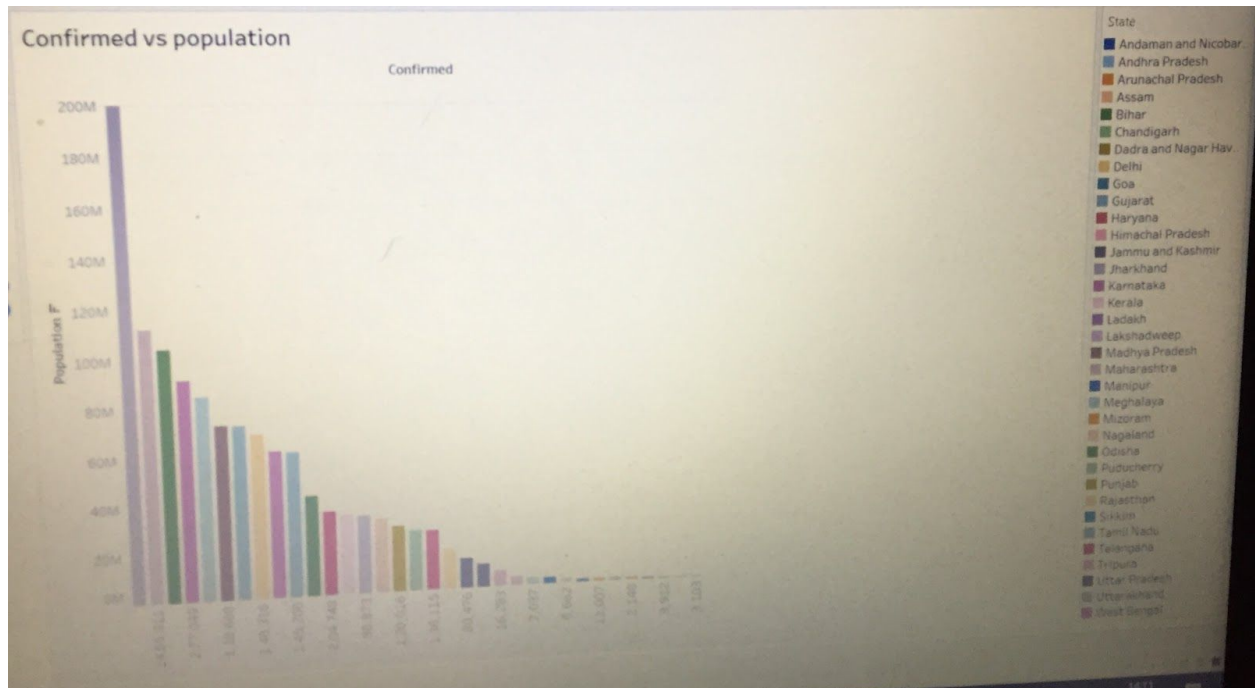


Fig 2: Confirmed cases vs Population

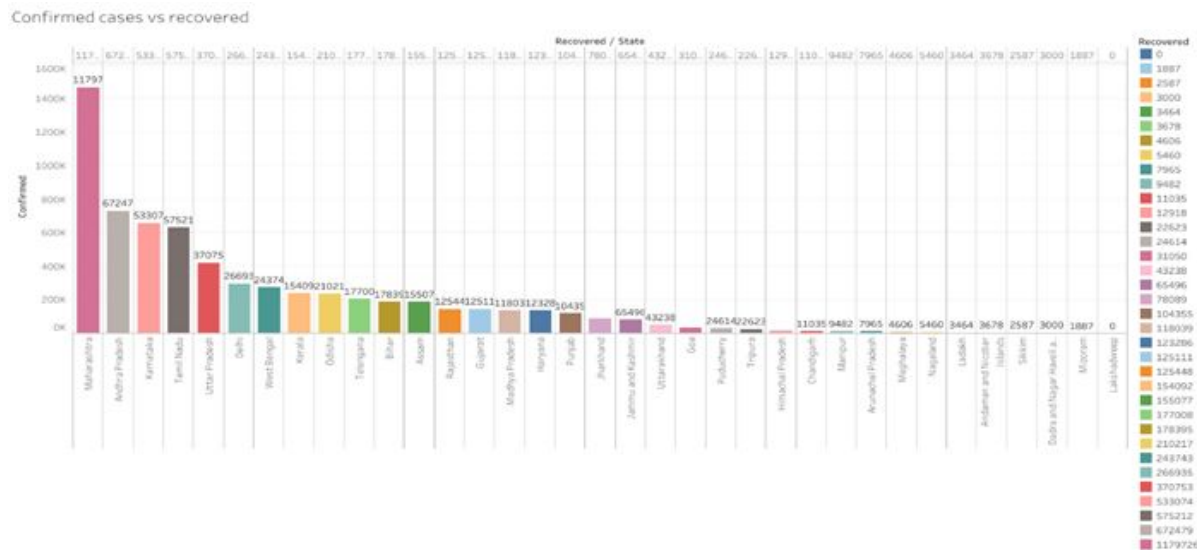


Fig 3 : confirmed vs recovered

Confirmed cases vs deaths

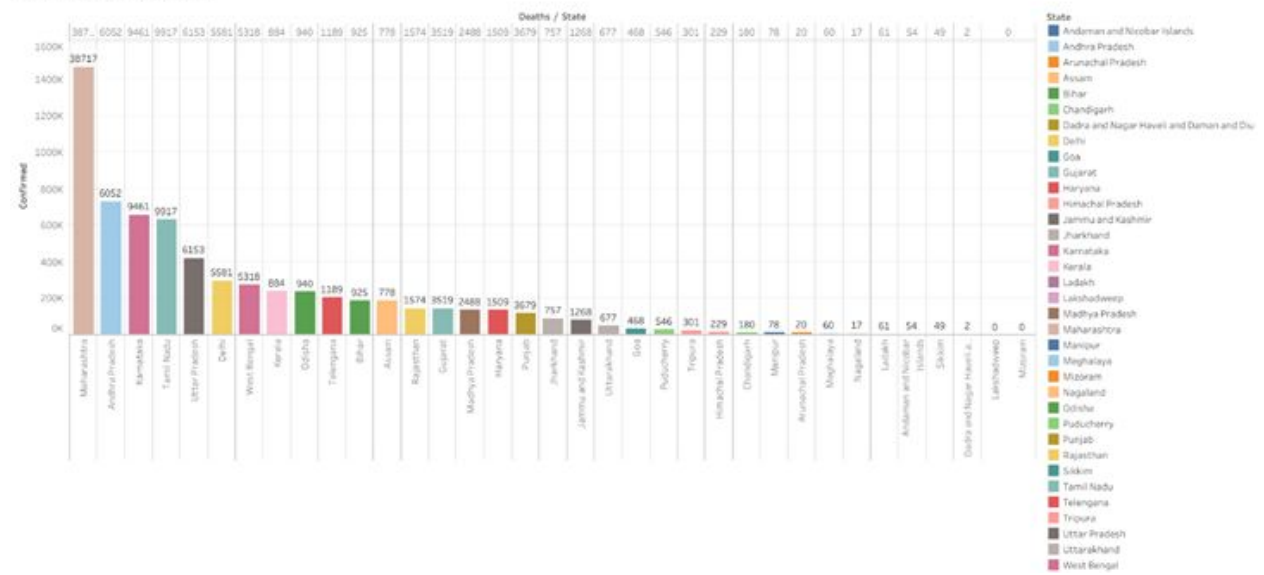


Fig 4 : confirmed vs deaths