

“ 2019-nCoV Pandemic: A case study in 6 largely populated and most effected countries and its mutually exacerbating catastrophes”

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Abstract

Until the first identification of human corona viruses 229E and OC43, in the late 1960s, corona virus infections were witnessed as harmless for humans.. The outbreak of SARS-CoV in southern China in the winter of 2002, took a fatality rate of 10% of the infected patients.. The virus had been rapidly spreading throughout the world, especially in Asia, and controlled after July 2003. Viral analysis of the outbreak of SARS showed that bats are natural reservoirs for SARS-CoVs, and Civet cats and Raccoon Dogs are the intermediate hosts. In the year 2012, a novel highly pathogenic Middle East Respiratory Syndrome corona virus (MERS-CoV) was identified in humans, demonstrating that the corona viruses are transmitted from animals to humans at any time and with unexpected consequences for the public health. MERS-CoV, the slow spreading virus, has affected 1700 people with a fatality rate of 36%.

Keywords

2019-nCoV, SARS-CoVs, Transmission, Symptoms, Cumulative Cases, Cumulative Deaths

Situation Report

Between 31 Dec 2019 - 11 Feb 2020, In total, 43,101 confirmed cases including 1,018 deaths globally

In China, 42,708 confirmed cases, 7,333 severe cases, 1,017 deaths: Hubei(974), Heilongjiang(8), Henan(7), Anhui(4), Beijing(3), Hainan(3), Tianjin(2), Hebei(2), Chongqing(2), Gansu(2), Jilin(1), Shanghai(1), Jiangxi(1), Shandong(1), Hunan(1), Guangdong(1), Guangxi(1), Sichuan(1), Guizhou(1), Hong Kong SAR(1)

Outside China, 393 cases from 24 countries, 1 death

Severity of disease among reported 2019 n-CoV patients

Patients present with fever, cough, shortness of breath, myalgia, confusion, headache, Severity ranges from mild to severe disease resulting in death. As of 10 Feb 7,333 patients

reported as severe (17%) and an additional 1,018 people (2%) have died. Fatal cases in China strongly associated with older age (>60 years old); co morbidities common in older patients, may not be an independent risk factor. Cause of death due to progressive respiratory and multi-organ failure. Most deaths occur after prolonged course (7-10 days). 55% of the patients reported as severe have recovered. True case-fatality ratio difficult to assess, denominator (number of infections) unknown.

Transmission features

Human-to-human transmission

Transmission via droplet, contact, fomites

Occurring amongst close contacts, including family members and HCWs

1 example of health-care associated outbreak in Wuhan (involving 15 HCW), HCW infections in other cities in China, in France.

Detailed exposure histories and investigations are needed to understand frequency and significance of transmission from asymptomatic PCR positive people; not known to be drivers of transmission for other corona viruses

Transmission parameter estimates

Estimates of R0 ranging from 1.4-4.9 in China

Incubation period estimated range 1-12.5 days, median 5-6 days (WHO guidance includes 14 days)

Limited H2H transmission in 10 countries outside of China

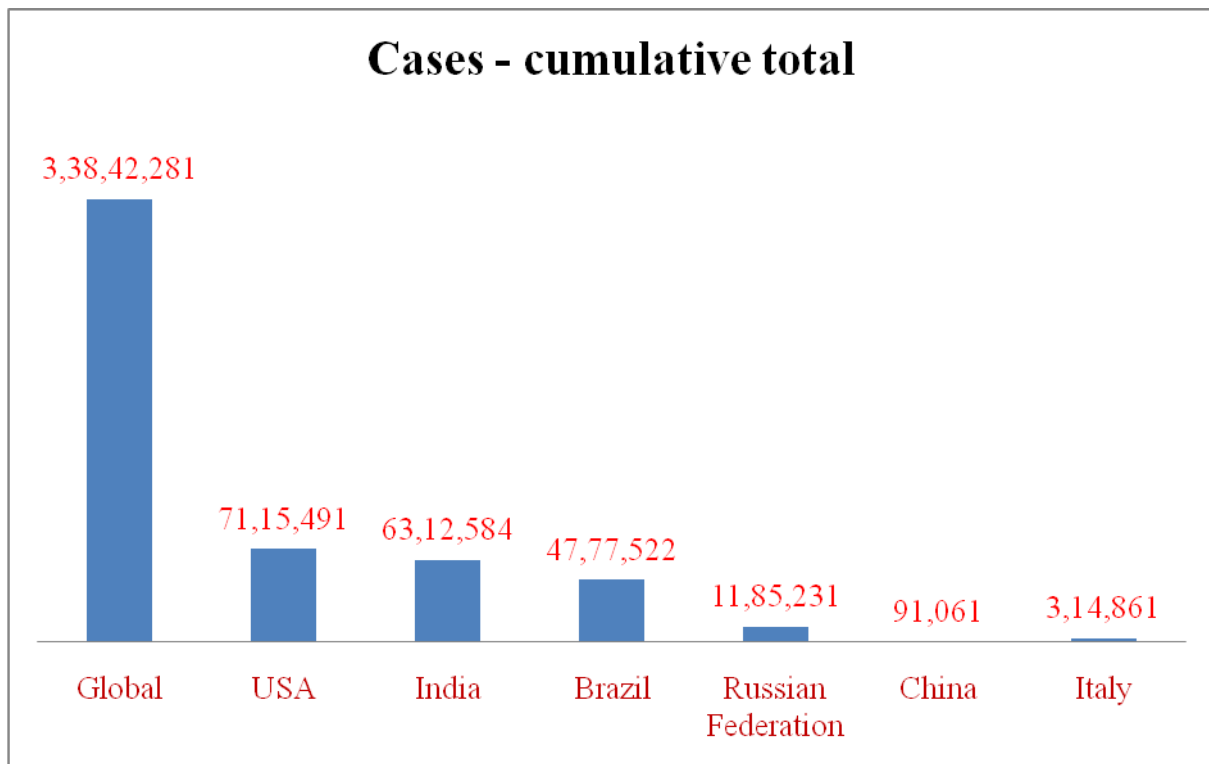
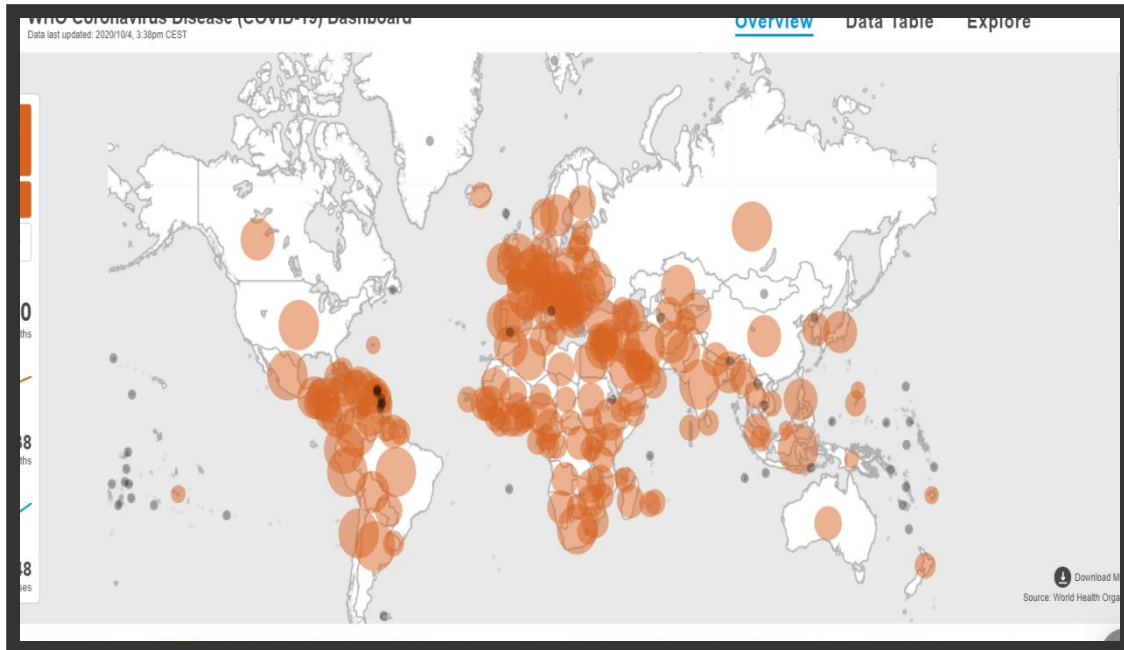
Situation Report in 6 top effected countries India, China, USA, Russian Federation, Brazil and Italy from Jan 2020 to September 2020.

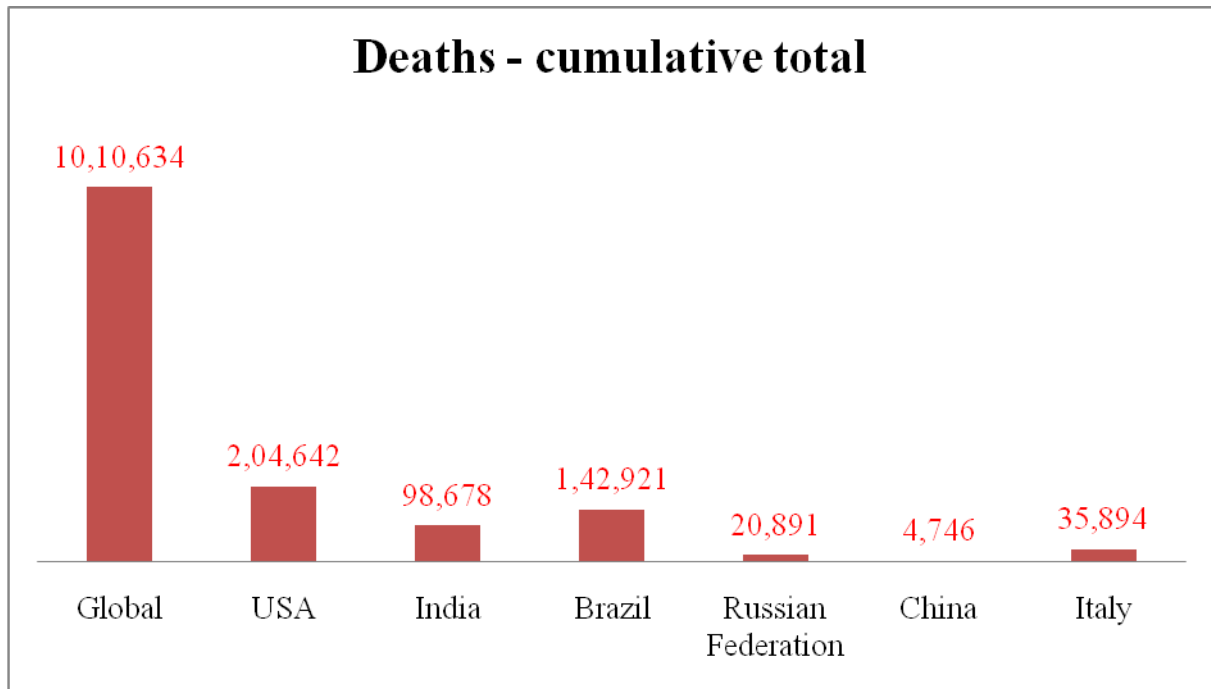
Globally, as of 30 September 2020, there have been 33,842,281 confirmed cases of COVID-19, including 1,010,634 deaths, reported to WHO.

Data of 6 Top effected countries

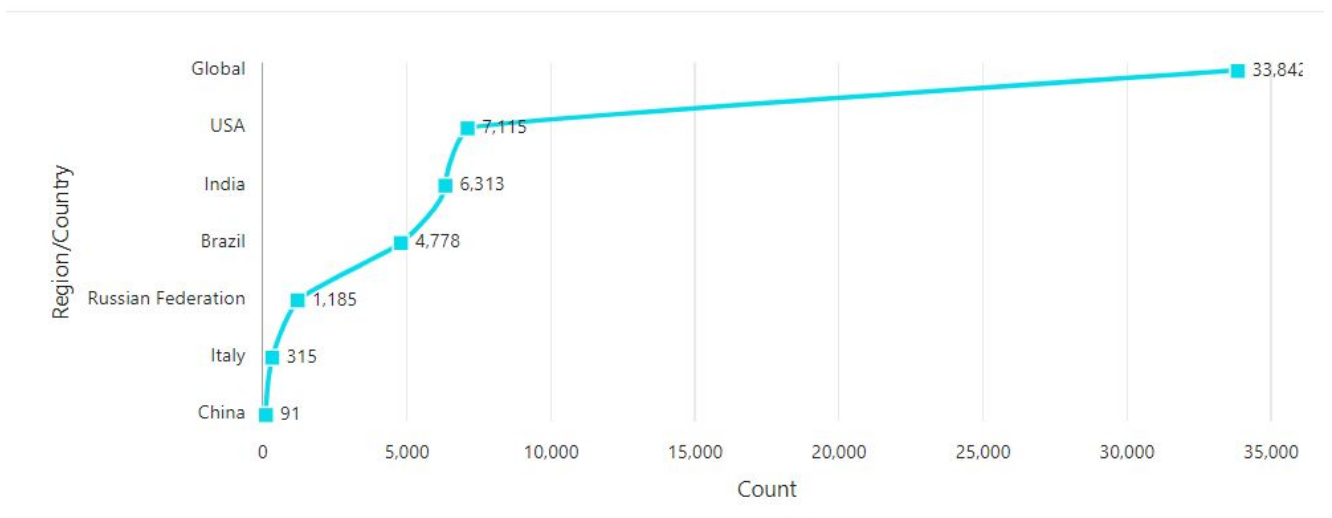
Name	Cases - cumulative total	Cases - newly reported in last 24 hours	Deaths - cumulative total	Deaths - newly reported in last 24 hours
Global	3,38,42,281	2,85,764	10,10,634	5,647
USA	71,15,491	38,476	2,04,642	767
India	63,12,584	86,821	98,678	1,181
Brazil	47,77,522	32,058	1,42,921	863
Russian Federation	11,85,231	8,945	20,891	169
China	91,061	20	4,746	0
Italy	3,14,861	1,850	35,894	19

Courtesy: WHO Dashboard





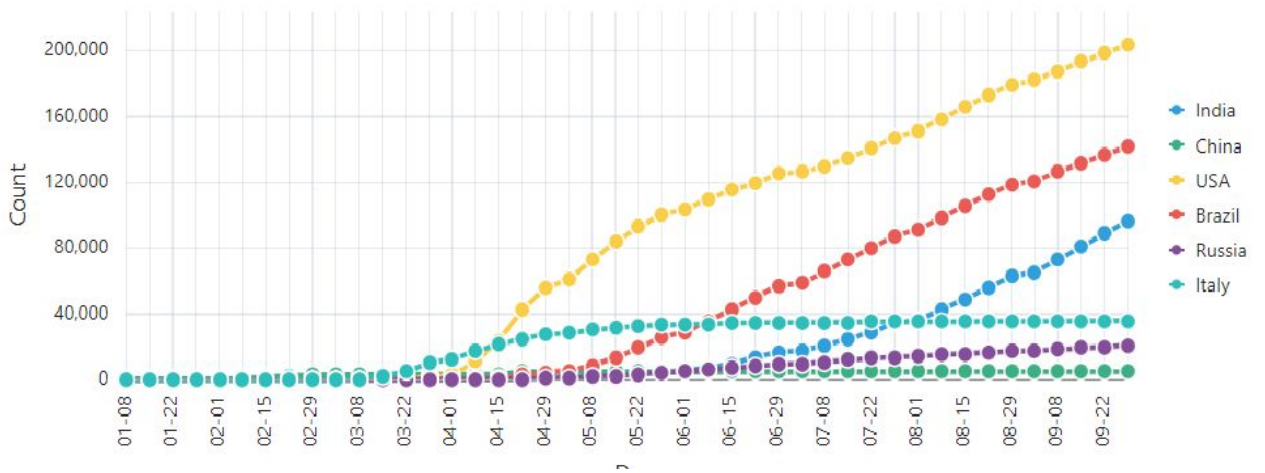
Cumulative Cases (in Thousands)



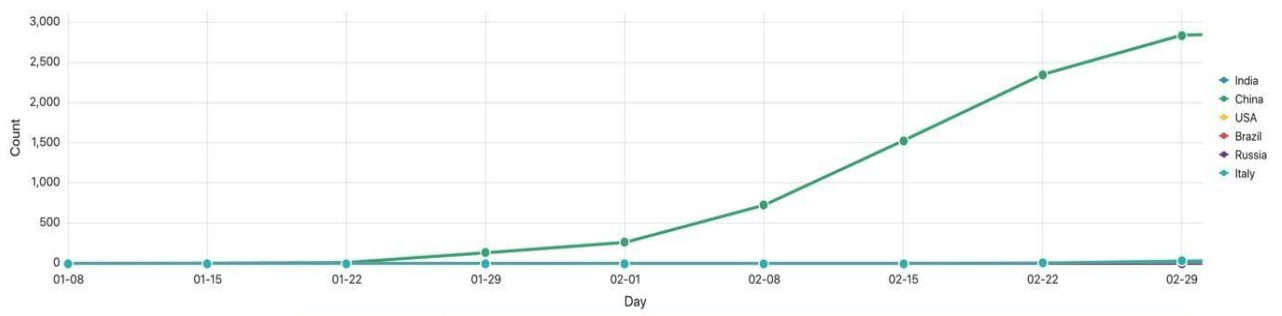
Cumulative Deaths

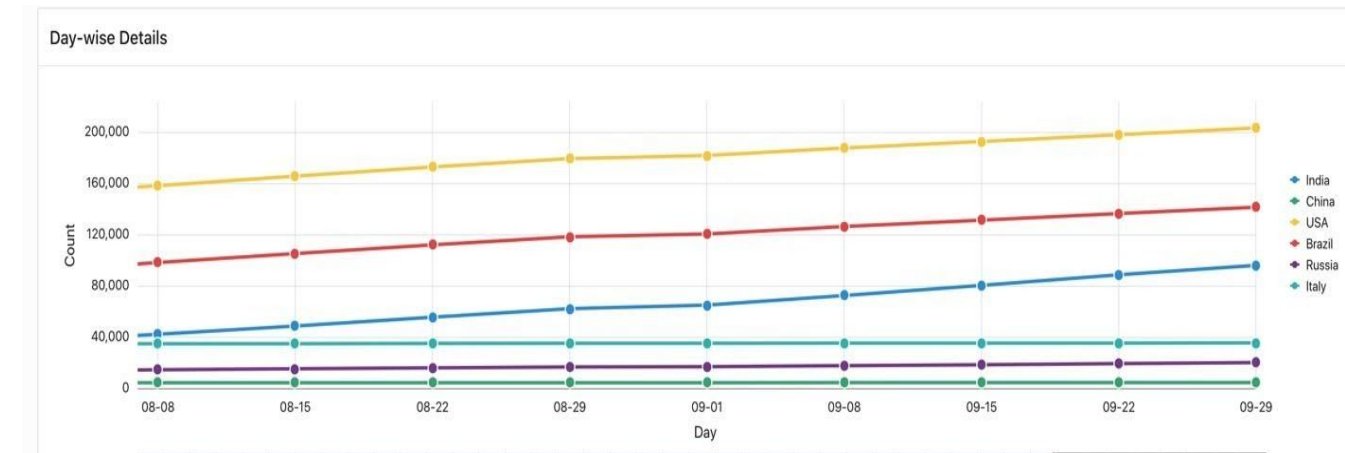
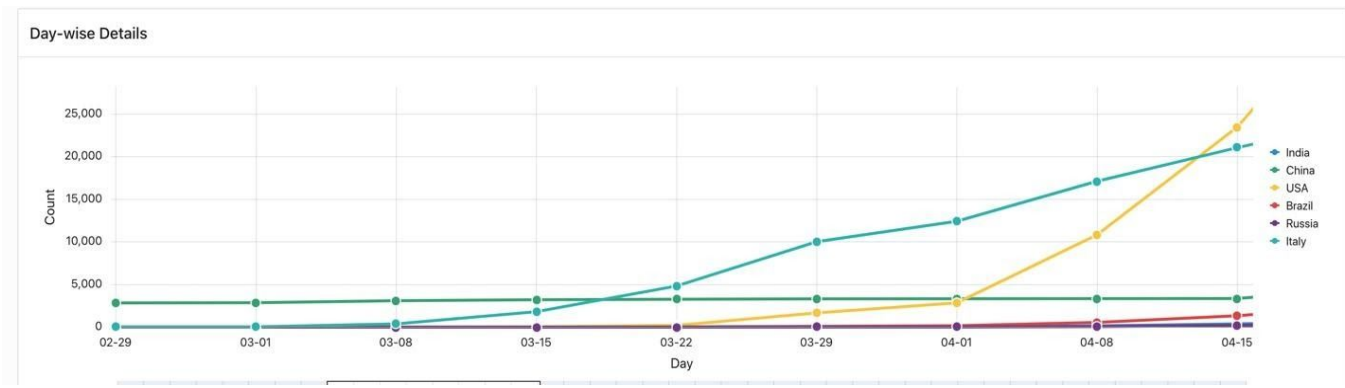
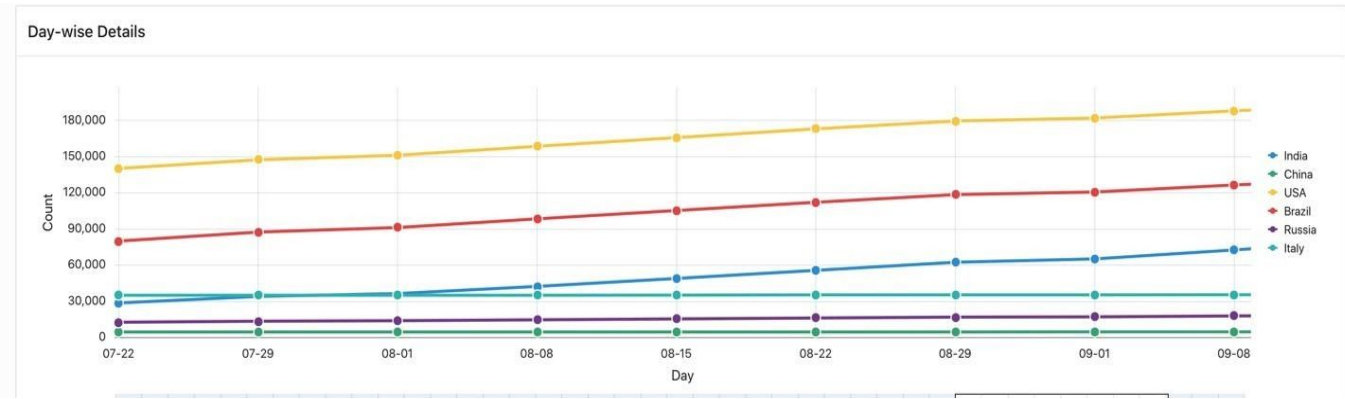


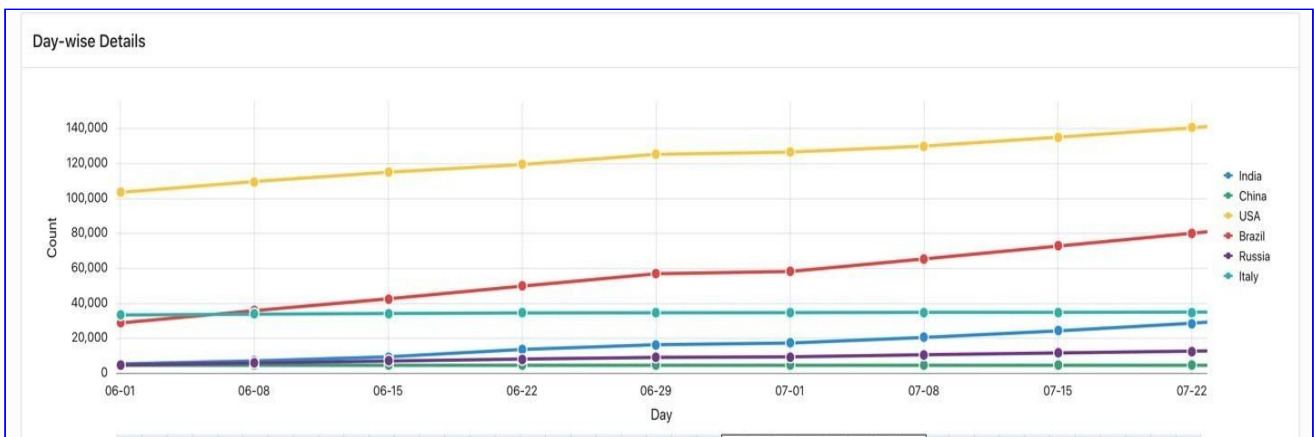
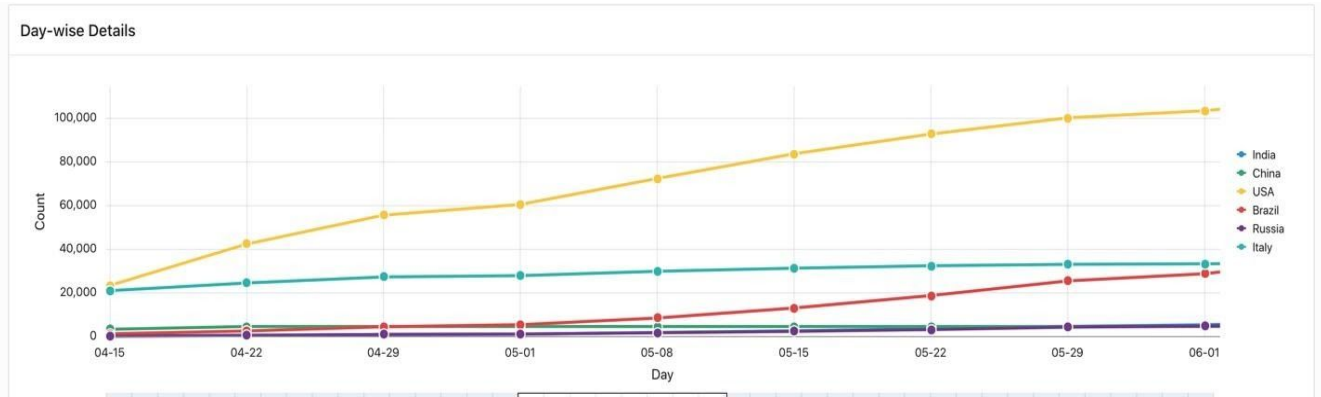
Day-wise Details



Day-wise Details







It took 169 days for India to cross the first 1 million COVID-19 cases mark compared to Brazil (115 days) and the U.S. (98 days). But the jump from 2 million cases to 3 million occurred in just 16 days - much quicker than Brazil (23 days) and the U.S. (28). This means cases are increasing quickly though the virus remains limited to a few States. Within those States, however, cases are spreading across districts.

Some predominant clinical characteristics of hospitalised patients

Symptoms commonly observed in Covid 19 patients			
Fever	98.6%	White Cells	4.5 (3.3-6.2)
Fatigue	69.6%	Lymphocytes	0.8 (0.6-1.1)
Dry Cough	59.4%	Neutrophils	3.0 (2.0-4.9)
Anorexia	39.9%	Platelets	163 (123-191)
Myalgia	34.8%	Creatine Kinase	92 (56-130)
Dyspnea	31.2%	Lactate dehydrog	261 (182-403)
Sputum	26.8%	Bilirubin	9.8 (8.4-14.1)
Sore Throat	17.4%	Creatinine	72 (60-87)

“Mutually exacerbating catastrophes” is an apt description for the COVID-19. Meanwhile, the catastrophes continued to pile up, The governments implemented necessary policies to slow the spread of the virus, and people changed their behaviour to limit their exposure, global supply chains started to shut down, contributing to an economic catastrophe. Schools closed, and hundreds of millions of students are still trying to learn on their own at home, an educational catastrophe. People in high- and low-income countries alike report skipping meals, a nutritional catastrophe that will make the others worse. In the blink of an eye, a health crisis became an economic crisis, a food crisis, a housing crisis, a political crisis. Everything collided with everything else.

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