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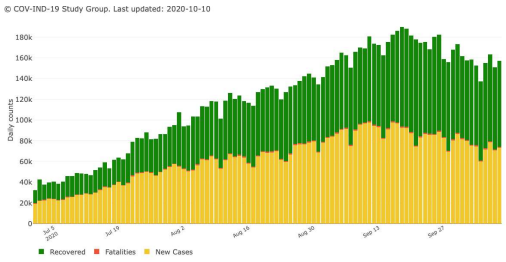
India has been recording an average of more than 70,000 cases daily so far this month, down from more than 86,000 daily cases in the last two weeks of September. Though it's a drop from earlier in September, social discipline and caution is required to manage the perverse effects of pandemic on health and non-health front. MaskUp is an effort in summarising what has happened in the last seven months and how are we going forward.

How has India fared so far?

India stands only behind USA in terms of total caseload. Here is a snapshot of India's Covid-19 journey over the last seven months :

Place	No. of cases	Per 100k	Cases in Last 7 days
World	37.5 M	481.3	320354
India	7.05 M	509.8	72268
Gujarat	150,253	249.0	9017
Ahmedabad	34769	375.9	1193

Worldometers corona data base , AMC



For a country as densely populated as India, we don't know when the pandemic will end. What we know is we have to be cautious until a safe and effective vaccine has been discovered, trialed, manufactured, and administered to a significant proportion of the population.

The spread of the virus has been uneven in India. A study focused on Andhra Pradesh and Tamil Nadu, finds that :

1. The contact tracing study found a **high prevalence of infection among children -** offering compelling evidence on the most divisive question about the virus. "The claims that children have no role in the infection process are certainly not correct. There's, granted, not an enormous number of kids in the contact tracing data, but those who are in it are certainly transmitting," Joseph Lewnard, an epidemiologist at the University of California, Berkeley said.

2. A small number of people are responsible for seeding a vast majority of new infections **- only 5% of people accounted for 80% of the infections detected by contact tracing**.

The currently available evidence indicates that the transmission mode of infection is likely via large respiratory droplets containing the SARS-CoV-2 virus. The preponderance of evidence indicates that mask-wearing reduces the transmissibility per contact by reducing the transmission of infected droplets in both laboratory and clinical contexts. Public mask-wearing is most effective in reducing the transmission probability per contact, among other measures such as social distancing.

The benefits of widespread mask use were recently seen in a Missouri hair salon, where two stylists directly served 139 clients in May before testing positive for coronavirus. According to a recent report published by the CDC, after contact tracing and two weeks of follow-up, no Covid-19 symptoms were identified among the 139 clients or their secondary contacts. All clients who were interviewed reported wearing masks the entire time.

A study led by Emmanuela Gakidou, professor of global health and health metrics sciences at the Institute of Health Metrics and Evaluation at University of Washington, **has predicted covid deaths in India would reduce by February 1, 2021, if mask use increased to 95% from the current estimated 70%.** The universal use of masks as advocated by health authorities could save over 127,000 lives in India. She further adds, “Ensuring all individuals and local and national decision-makers are doing everything to achieve the highest rates of mask use is one of the best strategies to mitigate the toll of the pandemic in the months to come.”

In the last two weeks, there has been a slowdown in case numbers in India, but epidemiologists believe the numbers should be interpreted with caution. It is too early to say that the pandemic is slowing down. "There is still a lot of forest left for the virus to spread like wildfire," says Dr Bhramar Mukherjee, a professor of biostatistics and epidemiology at the University of Michigan who has been closely tracking the pandemic in India.

India's festival season is around the corner, this is when families and friends get together. A few 'superspreader' events and increased mobility can again change the course of the virus in a small-time, Dr. Mukherjee adds. What should we do? Be stoic about it.

Air pollution and weather are acting as hidden elements in infuriating the impact of covid-19. A study on nine Asian cities suggests there exists a positive correlation between the level of air pollution of a region and the lethality related to COVID-19, indicating air pollution to be an elemental and concealed factor in aggravating the global burden of deaths related to COVID-19. Thus, use of mask becomes critical in reducing the impact of air pollution, thereby reducing the risk associated with COVID-19. Economist Michael Strain recently pointed out, "Cooler weather three weeks ago is strongly correlated with more covid cases this week." Policies such as testing, tracing, social distancing, and wearing masks are all important, but the ever changing weather can be a powerful tailwind behind those policies — or a headwind slowing them down.

Of the 50 worst-hit districts by number of positive cases as of 12 October, 23 were rural with at least 50% of their population in rural areas. A third of the patients in these 50 districts live in rural districts. The country now faces a new pandemic challenge - to break the chain of infection in vast, rural areas, where healthcare are scant. Across rural Maharashtra (India's richest state by gross domestic product), hospital staff have dramatic tales about refilling of oxygen cylinders - truck break-downs, major suppliers running dry, 400-kg cylinders being manually hauled out in the absence of hydraulic platforms.

How reliable are the diagnostic tests?

Despite rising positive cases, the COVID-19 test conducted per million people in India has been declining rapidly. The number of tests per million people dropped from 811 persons to 722 persons says a report by The Hindu. On one hand, we have lowered the number of tests conducted whereas on the other hand sensitivity of these tests is also a matter of concern as the widely chosen 'Rapid Antigen Detection Test' (RADT) can give as high as 50% false-negative results says the same report. However, on average the false-negative cases may range between 20 to 30 percent said Dr. Christina Wojewoda, a pathologist at the University of Vermont. According to Dr. Wojewoda, if an antigen test yields positive results you can believe it, but if it's negative, you have to question that.

Even the RT-PCR tests (which is considered as the most appropriate test for detection of COVID-19) have 95% sensitivity and specificity indicating a chance of giving 5% false positive and false negative results says a UK-based Technical Advisory Committee report.

Different Diagnostic tests for detection of COVID-19

Test name	Possibility of false-negative	Cost for the test (INR)	Remark
RT-PCR	5%	2200-3000	Widely under use
Rapid Antigen Test	20% - 30%	500-600	
TrueNAT	-	1200-1300	
Feluda	4%	500	Not yet available
Saliva-based Test	-	-	

'Feluda'- is a paper-based testing kit which makes use of a gene-editing technology called 'Crispr'. With 96% sensitivity and 98% specificity the test kit is simple, precise, reliable, scalable, and frugal says, Professor K Vijay Raghavan, principal scientific advisor to the Indian government. On the other hand, the saliva-based test was validated by ICMR, however, no firms have shown positive response in this regard. The saliva-based testing kits will be of low cost and can deliver results faster.

High-Risk Groups.

Pregnant women are more vulnerable to infections due to changes in the immune system during pregnancy as well as factors such as shifts in the respiratory system. "The big risk in pregnancy is not as dramatic as some other respiratory diseases like influenza," says Denise Jamieson, chair of gynecology and obstetrics at Emory University School of Medicine in Atlanta.

According to two recent published studies from a national registry run out of the University of California, San Francisco and the University of California, Los Angeles, pregnant women with covid-19 seem to have prolonged bouts of the illness but largely give birth to healthy babies.

The most vulnerable age group, **the elderly, are particularly tricky to vaccinate.** "We have very few vaccines designed for older populations," says Shayan Sharif, a professor of vaccinology at the University of Guelph, Canada. Many infectious diseases are more severe in older adults than younger adults. Older people have more risk factors – a lifetime of exposure to carcinogens or other infectious diseases will increase the risk of future disease from new infections. They also undergo something called immunosenescence – ageing of the immune system. The most immediate hope for older people suffering with Covid-19 might be when we find a drug that reduces hospital time from weeks to days, says Sharif, or even one that negates the need for intensive care at all.

IIM-A's COVID dashboard shows the way forward.

IM-A's covid dashboard is one way forward in dealing with the virus on the campus. An earlier simulation study on the impact of reopening academic institutes by IIM-A faculty and a sophomore at IIT said covid could sweep college campuses within 10 weeks if reopened. The study also recommends, "Indian academic campuses to stay virtual for the foreseeable future… until adequate achievements in the deployment of vaccines happen; campuses need to prepare themselves with isolation wards, testing capacities, and medicines; and information on these measures should be shared with the stakeholders in the ecosystem".

"As the COVID-19 pandemic sweeps through the world, we must reassess the principles that guide our individual and collective responses and the way we operate in society. In the face of crisis, we must lead with science and humanity."

Tweet Forward

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