

What's the right measure of the impact of Covid-19?

ESTIMATING SEVERITY Deaths crucial for understanding scale of crisis, gaps in response

BY INVITATION

K Srinath Reddy and Surabhi Pandey

NEW DELHI: On May 3, the day bridging the second and third phases of the lockdown, where did the different states of India stand with regard to deaths resulting from Covid-19? How do we decide which states are doing better?

Usually, media reports mention the total number of deaths, but these are not adjusted for the size or the age structure of the population.

That makes comparison between states difficult. A different number which stands out even more prominently in the reports is the Case Fatality Ratio (CFR), which refers to the deaths as a percentage of the cases diagnosed.

Which is the number that provides a better comparison of the states?

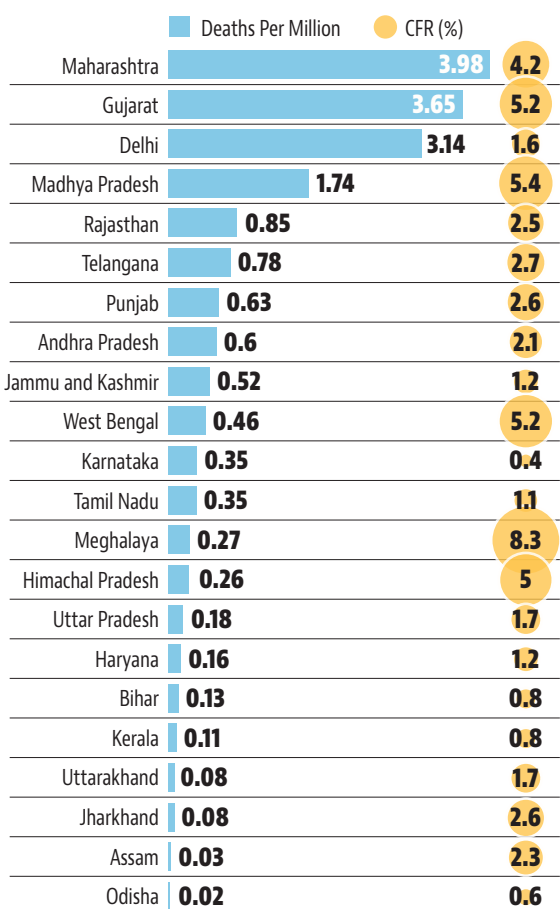
CFR has a clearly identifiable numerator: deaths attributed to Covid-19. The denominator can be very variable, based on the number of persons who tested positive for the virus and thus classified as cases. That, in turn, depends on the number of tests performed.

All who are tested for the virus will not be positive, but more the number of tests performed, higher the total number of persons detected, even if the fraction of positive tests remains constant. Quite often, when large numbers are tested, more mild cases turn up among the positives and they are less likely to die. So, a high testing rate, with more cases detected and a greater proportion of milder cases, will lower the estimate of CFR. A lower testing rate, with tests usually reserved for the more severe cases, will yield a smaller denominator of cases and, therefore, a higher CFR. South Korea, which tested liberally, including several asymptomatic persons, had a low CFR because of the large number and lower composite risk profile of the cases included in the denominator.

On the other hand, total deaths in any state are a clearly defined number at any given time,

READING THE NUMBERS

Deaths per million and fatality rates better reflect the severity of outbreak and a state's preparedness



What is CFR. Case fatality ratio reflects the proportion of people dying among all known cases. If hospitals are being compared among states, CFR matters

Data source: <https://www.covid19india.org/>

assuming that deaths are being correctly classified as Covid or non-Covid. However, the absolute number of deaths will also vary between states according to the size of their populations. If we standardise that measure and estimate deaths per one million in a population, we can compare different states more meaningfully. This figure yields a better picture of a state's overall performance against the virus, capturing the benefit from the population level containment strategy as well as the clinical case management impact. It is this broadband pack-

age of public health and clinical interventions that has a combined effect on lowering deaths in any state. On the other hand, CFR usually gives us information only about the clinical treatment benefit. Only when we get a measure of all cases infected in a population - severe, mild and asymptomatic included - do we get an Infection Fatality Ratio (IFR), which invariably is lower than CFR.

The two statistics (CFR and deaths per million) also give very different pictures about the states (Charts 1 and 2). If we look

➤ If we look at case fatality ratio, Delhi (1.6) looks better than Punjab (2.6) or Jharkhand (2.6), which have lower testing rates.

➤ On the other hand, Punjab has far fewer deaths per million population (0.63) than Delhi (3.14). Jharkhand is even better (0.08 deaths per million).

K. SRINATH REDDY AND SURABHI PANDEY, Public Health Foundation of India

at CFR, Delhi (1.6) looks better than Punjab (2.6) or Jharkhand (2.6), which have lower testing rates. On the other hand, Punjab has far fewer deaths per million population (0.63) than Delhi (3.14). Jharkhand is even better (0.08 deaths per million). Where would you rather be today? Meghalaya looks terrible on CFR but is very well placed when the actual death rate in the population is considered. Odisha and Kerala do well in both, while Maharashtra and Gujarat stay high in both while minimally changing places.

Statistics can be appealing or appalling, depending on how they are presented. The purpose of each statistic differs from another and the choice, of which to use when, is driven by the nature of assessment we wish to make. If performance of hospitals is being compared, CFR matters. If the overall state of the epidemic is being assessed, deaths per million is the statistic that tells us whether a state is in a safer zone than another. It is important that all of us - policymakers, media and the public - understand these measures and their distinctions so that we can soon get the measure of Covid-19.

The authors are with the Public Health Foundation of India, or PHFI. Views are personal.

REMDESIVIR MANUFACTURE

India a step closer to making key drug

Jayashree Nandi
jayashree.nandi@hivive.com

NEW DELHI: The Hyderabad based Indian Institute of Chemical Technology (CSIR-IICT) has synthesised the key starting materials (KSMs) for Remdesivir, the first step to develop the active pharmaceutical ingredient in a drug. IICT has also begun so-called technology demonstrations for drug manufacturers such as Cipla so that manufacturing can begin in India, if needed. Remdesivir, manufactured by Gilead Sciences, is the first drug to treat Covid-19 approved for emergency use in the US based on clinical data.

Gilead Sciences has a patent on the drug but patent laws allow for the drug to be developed solely for research purposes and not for commercial manufacturing. Remdesivir, when administered by an intravenous infusion helped patients recover on an average in 11 days, compared to 15 days taken by those on placebo, as per US clinical trial results.

India is part of the World Health Organisation's Solidarity Trials for the cure of Covid-19 and has received 1000 doses of the drug for testing.

Harsh Vardhan, science and



➤ Gilead Sciences in California has developed Remdesivir, the first drug to treat Covid-19, approved for emergency use in the US. AFP

technology and health minister said in a statement on Monday that synthesis of KSMs has been achieved by CSIR-IICT and that technology demonstrations to Indian industry are happening. For Favipiravir, another promising drug to treat Covid-19, CSIR is working with the private sector for clinical trials and a possible launch in India.

Remdesivir has three KSMs, Pyrrrole, Furan and a Phosphate intermediate. Dr Srivari Chandrasekhar, director of IICT said over phone from Hyderabad that synthesis of KSMs is an impor-

tant stage in drug development. "The synthesis of key starting materials (KSM) for any drug is the first step to develop an active pharmaceutical ingredient (API). These key starting materials for Remdesivir are available in India and chemical companies can manufacture these. Other reagents can be sourced from other countries. We started working on KSM for Remdesivir in January end, when trials had begun in China," he said.

Gilead Sciences CEO, Daniel O' Day in an open letter on April 29 said: "On the supply side, we

are working to build a global consortium of pharmaceutical and chemical manufacturers to expand global capacity and production. It will be essential for countries to work together to create enough supply for people all over the world and we look forward to these collaborative efforts."

Experts said the Indian government could request Gilead Sciences for grant of voluntary licenses to Indian private companies for a royalty. If not, India could use the compulsory licence option, under which it, or a generic manufacturer, can manufacture patented drugs so as to protect citizens. The patent holder, however, gets paid for this.

"Because it is a patented drug, there are two options. One is that manufacturers obtain permission from the patent holder for licence to manufacture. The other is that the Indian government allows two or three manufacturers to produce the drug on a compulsory licence or a government use licence. The manufacturers will need regulatory clearance which will be available only when more clinical data is available on the efficacy of the drug," said KM Gopakumar, an intellectual property rights expert.

Only 610 cases in 112 aspirational districts, says govt's empowered panel on Covid-19

HT Correspondent
letters@hindustantimes.com

➤ Empowered Group 6 has mobilised over 92,000 NGOs and CSOs, appealing to them to assist state governments.

AMITABH KANT, Niti Aayog chief

"Empowered Group 6 has mobilised over 92,000 NGOs and CSOs, appealing to them to assist state governments and district administrations in identifying hot spots and delivering essential services to the vulnerable, including the homeless, daily wagers and migrant workers," the Niti Aayog CEO said.

Kant also said that 610 Covid-19 cases were so far reported from 112 most backward districts, which are termed as "aspirational districts" by the government. "So far, in those 112 districts, only 610 cases have been

reported, which is 2% of the national infections... Of these, six districts have reported the first case after April 21," he added.

The panel's progress report said: "Major hot spots are Baramulla (62 cases), Nuh (57), Ranchi (55), YSR (55), Kupwara (47) and Jaisalmer (34) it added."

On a question about the state of the economy, the Niti Aayog CEO said that economic activity began picking up in the third phase of the lockdown, which has seen considerable relaxations.

The empowered group previously asked all chief secretaries to appoint state-level nodal officers to coordinate with all NGOs. "The NGOs were also urged to lift and distribute rice and wheat from the Food Corporation of India's godowns at the subsidised rate of ₹21-22 per kg so that no one remains hungry," Kant said.

The sixth empowered group is monitoring and coordinating with NGOs and civil society orga-

nisations across 700 districts. The Niti Aayog has taken steps to ensure that these districts are able to contain the spread of the virus and has actively referred the requirements in testing kits, personal protective equipment and masks to the empowered groups, the progress report said.

The group also engaged organisations such as the Red Cross Society, Bill and Melinda Gates Foundation, Tata Trusts and Piramal Foundation. The group has involved the organisations in identifying hot spots and deputing volunteers; delivering essential services to the vulnerable.

The report added: "A primary area of concern in these times is the mass exodus of migrant labourers from urban hubs of work to their villages. NGOs are coordinating efforts and working closely with the district administrations and states so that measures of care, quarantine, and treatment go hand in hand."

WhatsApp comes up with chatbots for users to check coronavirus facts

HT Correspondent
letters@hindustantimes.com

NEW DELHI: Poynter Institute's International Fact-Checking Network (IFCN) has released a chatbot on WhatsApp where people can message and check on fake news claims. Replies from IFCN's database of debunked fake news will be available to people at +1 (727) 2912606.

Baybars Örsek, director at IFCN, Poynter Institute, said the chatbot which is available in English alone, and will be released in Hindi soon. "The service is launching in English but will be available in other languages, including Hindi, Portuguese and Spanish, in due course," Örsek said.

A release from WhatsApp said through the bot, people can check whether a piece of content about Covid-19 has already been rated as false by fact checkers.

"Since January, more than 80 fact-checking organisations from 74 countries have identified more than 4,000 hoaxes related to the novel coronavirus. All this information now forms the Corona Virus Facts database and is updated daily by the IFCN so that chatbot users can navigate and access its content," the release said.

"The bot allows users to review IFCN's database of 4,000 debunked myths, to search for fact checks by word or phrase, access to tips to protect themselves from falsehoods, and also to find out how to contact local fact checkers in their country," Örsek said.

Through the bot, a user can access a global directory of fact-checking organisations, and the user's country is detected from the mobile country code to provide contacts of fact-checking organisations which are closest. "The person can then submit a piece of information for review directly to its local fact checker or visit it," WhatsApp said in a release.

Jawan tests positive, BSF HQ floors sealed

HT Correspondent
letters@hindustantimes.com

NEW DELHI: Two floors of the Border Security Force (BSF) headquarters in Delhi were sealed on Monday after a staff member tested positive for the coronavirus disease (Covid-19).

In a statement, BSF spokesperson Shubendu Bhardwaj said a head constable was found to have contracted the infection on Sunday. He was working in an office on the second floor of the BSF headquarters and last visited the premises on May 1. The statement said the first and second floors of the building have been closed as a precaution.

All drills for sanitisation are being undertaken, BSF said, adding that contact-tracing was also underway.

BSF added that before the constable tested positive, its headquarters - an eight-storey building in the CGO complex on Lodhi Road in central Delhi - were closed on Friday, and the entire complex was thoroughly sanitised with prescribed solutions of disinfectants.

BSF said on Sunday 42 of its

ALL DRILLS FOR SANITISATION ARE BEING UNDERTAKEN, BSF SAID, ADDING THAT CONTACT-TRACING WAS ALSO UNDERWAY

personnel have been infected with Covid-19 so far. Of these, 31 belong to a 98-member unit that was deployed with the Delhi Police at the headquarters of Islamic sect Tablighi Jamaat at Nizamuddin, which emerged as a major hot spot of the infection about a month ago.

The Central Reserve Police Force (CRPF)'s 140-odd personnel were found to have contracted the infection till Sunday. On Sunday, the CRPF headquarters were sealed after a head constable tested to a senior officer tested positive.

BSF, with 250,000 personnel, is primarily tasked with guarding the Indian borders with Pakistan and Bangladesh, apart from rendering a variety of duties in the country's internal security domain.

No new Kerala case for 2nd straight day

THIRUVANANTHAPURAM: For the second consecutive day on Monday, Kerala did not report a single Covid-19 case while 61 people were discharged - the largest number in a single day - since the outbreak began in the state in January last, chief minister Pinarayi Vijayan said.

Vijayan told reporters that now only 34 patients are in hospitals. Out of 499 cases 465 were discharged. At least 33,500 samples were tested and 21,724 people were under observation.

He cautioned against being complacent in the fight against Covid-19.

remarkable progress in containing the virus, it is not the time to lower the guard," Vijayan said.

Despite the Union home ministry allowing the opening of wine shops in non-red zone areas, Kerala has refused to do so fearing that social distancing norms will be flouted.

Many states witnessed serpentine queues in front of wine shops. In Delhi, police shut down all liquor shops in the east district following violation of social distancing guidelines by people.

Vijayan said the state will open more sectors of the economy in coming days but lockdown rules will be met. **HTC**

CONTAINMENT ZONES

Tension, impatience stretch across states

Rupsa Chakraborty, Hemendra Chaturvedi and Ranjan
letters@hindustantimes.com

MUMBAI/AGRA/BHOPAL: Azad Nagar in Indore, Ramganj Bazar in Jaipur, Dharavi in Mumbai and Master Plan Road in Agra may be divided by geography, but they have one thing in common.

All four neighbourhoods are Covid-19 containment zones, cut off from the rest of their cities, all residents confined indoors and no outsider allowed in.

Life wouldn't have been easy for the residents of these neighbourhoods, which have been under what's called a hard lockdown - a state in which a particular area is completely sealed and residents have no freedom of movement - after a significant number of cases surfaced within their municipal limits.

Everyday essentials are home delivered so that residents don't need to step out and the heavily barricaded localities are sanitised everyday. They have been isolated in the run-up to and after Prime Minister Narendra Modi declared a three-week nationwide lockdown that came into force on March 25, and has since been extended twice, until May 17.

It isn't easy either for government officials deputised to these areas, classified as highly contagious, who have to spend most of the day visiting homes to trace the contact history of locals, ensure no one is breaching the quarantine, and gathering information about the health of residents that goes into the framing of national policies to combat Covid-19.

There have been instances of abuse of officials, some of whom have even been spat at.

Mamta Patel, 42, doesn't let that deter her. A mother of two, Patel is a revenue department official tasked with ensuring compliance with lockdown restrictions in Indore's Azad Nagar, from where the most number of Covid cases - 80 - have been reported.



➤ Health workers in Mumbai's Dharavi, a containment zone, say screening residents dressed in personal protective equipment kits isn't easy, especially with the temperatures rising. SATISH BATE/HT PHOTO

Every day, Patel confronts people who exhibit a mixture of fear and apprehension, pain and distrust. She takes each case as a challenge as she goes about doing her duty in what she calls these "tragic times".

"Recently a woman and her three-year-old child tested positive. The woman, who has a three-month-old baby, wanted a family member to come with her to hospital. It took us lot of time and energy to convince her that it will not be possible," Patel said.

There have been instances of women not willing to go to hospital leaving their children behind. "Some who tested positive wanted to remain in home quarantine, which is not possible," she said.

Patel has been on the job since the first case was reported on March 23 from the neighbourhood of 100,000 people, and hasn't taken a single day's leave.

She is tasked with surveying the area, screening residents, collecting samples, hospitalising positive cases, and following

up with recovered patients.

"In the beginning, people were hostile. Gradually we won the faith of the people and they are now cooperating," she said.

Patel's husband, too, is on Covid-19-related duties in Indore. "I am at the locality at 9am every day after finishing work at my house as the maid is not coming in because of Covid," Patel said. "My children - Class 12 and the other in Class 8 - often ask me how long this will go on. I assure them that life will be normal soon," she said.

A few hundred kilometers away in Mumbai's Dharavi, Asia's biggest slum, Nazish Shaikh, 33, has been attending to Covid-19 patients for over a month with no leave.

The health care worker is among 2,500 people deployed in the containment zone. All of them work wearing protective suits in Mumbai's sweltering weather.

Dharavi, a densely populated slum of 850,000 people, has already recorded 496 Covid-19 cases with 18 deaths. Screening slum-dwellers while dressed in

full personal protective equipment (PPE) kits isn't easy. People can't see the faces of health care workers attending to them; it creates trust issues and impedes communication.

"With the rising temperatures, walking around in PPE leads to dehydration. And we can't even drink water in the suit. The N95 masks make it tougher to breathe," Shaikh said.

She works for up to 10 hours daily despite keeping a fast for Ramzan, and has to be extra careful to make sure she doesn't catch the infection herself because she has to take care of two elderly parents at home.

"My parents wait outside the home for me. I don't even look at them and go directly into the bathroom. Then I take a bath in warm water with Dettol and soak my clothes in detergent in a separate bucket. Only after this do I allow them to come inside. I can't take risks with their health," said Shaikh, who has been on duty since March 19.

Equally tough is the job of

the frustration of residents, some of whom even spat on them. "There were a few such incidents initially but now locals cooperate," he said.

Dixit said he has never in his career as a health officer seen such fear among people as that inspired by the coronavirus disease. "At the end of my career, I have learnt a lot," said Dixit, who will retire in two years.

Ajitabh Sharma, the nodal officer for Ramganj Bazar road in Jaipur, has experienced the pain of people who have been without work and living with the fear of Covid-19 for almost two months. "There is no much pain and anguish, which words cannot explain... More than corona, fear is killing people. This has been the toughest job of my career," he said.

Suresh Kumar, 32, who is responsible for distribution of food in the slums in Mumbai, compares the situation to a science fiction movie that is all too real.

"The fear on the faces of people is so real," he said.