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ICMR wants two COVID-19 testing labs in each city

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NIMHANS says it will establish the labs; ICMR recommends pool testing to reduce the number of kits used

To counter the 'not enough tests done' accusation, the Indian Council of Medical Research (ICMR) has now asked the State government of Karnataka to set up a minimum of two testing labs in each city. The National Institute of Mental Health and Neurosciences (NIMHANS) has also written a letter to ICMR that

it will take the lead in establishing the testing labs in the State.

The State Medical Education Minister Dr Sudhakar K has assured all the medical professionals in State that there will be one testing centre in each district. These labs are likely to be set up by the end of April.

Additionally, the ICMR has also advised 'pool testing' in low-infection areas to increase the number of tests. This process involves testing up to five samples in a single test. Currently, only one sample is being tested at a time.

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"In the view of the number of cases across the country, and to contain the infection, it is critical to increase numbers of tests conducted by laboratories. The positivity rate is still low. Hence, it may help to use the pooled samples for screening," said the ICMR advisory.

City doctor Dr Satyanarayana Mysore, HOD of Pulmonology at Manipal Hospitals explained, "Pool testing could be strategic to save time in a pandemic like this. For pool testing, let's take a hot spot and randomly select 100 people. Obtain 100 swabs and instead of testing individually, test these samples together. If that tests negative, the pool is negative and community screening passes on to the next group. If the test turns out to be positive, all the swabs need to be tested individually."

There are also reports that the Andaman and Nicobar administration has been pool testing samples to reduce the number of test kits used, as the country faces an acute shortage.

Other research

Researchers at Texas A&M University, Centre for Disease Dynamics, Economics and Policy (CDDEP) and Princeton University have assessed the feasibility of pooled real-time reverse transcription-polymerase chain reaction (RT-PCR) testing to vastly increase testing for Covid-19. Here, the researchers used mathematical analysis to explore efficient pooling strategies using this technique.

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For a population containing 256 sampled individuals, where the maximum number of samples in a single pool is 64 (as pooling more samples may be beyond practical testing limits), with only 7.3 tests on the average, it could be possible to distinguish between prevalences of one per cent and five per cent with a probability of detection of 95 per cent and the probability of false alarm of four per cent.

"This means that rather than testing all 256 individuals in the population, which would be highly costly, with an average of 7.3 tests, a five per cent prevalence of Covid-19 can be detected using this method," said Krishna Narayanan, professor at Texas A&M University.

The study titled, "Pooling RT-PCR or NGS samples has the potential to cost-effectively generate estimates of Covid-19 prevalence in resource-limited environments" by Krishna R Narayanan, Isabel Frost, Anoosheh Heidarzadeh, Katie K Tseng, Sayantan Banerjee, Jacob John and Ramanan Laxminarayan is available at MedRxiv.

Why pool testing?

A feasibility study was conducted at ICMR's Virus Research & Diagnostic Laboratory (VRDL) at King George's Medical University (KGMU), Lucknow.

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The study demonstrated that performing real-time PCR testing for Covid-19 with multiple samples (up to five) is feasible when the prevalence rates of infection are low.

"Deconvoluted testing (testing individual samples) is recommended if any of the pool is positive. The pooling of more than five samples is not recommended to avoid the effect of dilution leading to false negatives," ICMR said in the advisory.

Where should pool testing be used?

Apart from areas with a low prevalence of Covid-19, which will be initially decided based on existing data, the advisory suggests pool testing in areas with the positivity of two to five per cent.

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