India may have undercounted COVID-19 cases

- The findings of a **serological survey** by the Indian Council of Medical Research (ICMR) from 69 districts across 21 States indicate that an estimated 7,00,000 people could have been infected by the SARS-CoV-2 virus in these districts even in early May.
- The number indicated by the survey is twenty times higher than the 35,000 confirmed cases of COVID-19 reported as of early May in the entire country, suggesting that the actual COVID-19 count overall could be underestimated by a **factor of at least 20**.
- Confirmed infections have since swelled to more than 3,08,000 as of Friday (June 12), with more than 8,900 people having died of the disease.

**Tested for antibodies**

- The research paper published in May in the ICMR's in-house Indian Journal of Medical Research describing the methodology of the survey, **blood samples of 24,000 adults** were examined for antibodies produced specifically for SARS-CoV-2 via an **ELISA test**.
- The survey revealed that 0.73% of the population showed evidence of IgG antibodies.
- The survey began around May 12 and given that it takes an average of **two weeks for IgG antibodies** to be detected.
- The adult population of these districts according to the 2011 census was 60% of the overall population (160 million) and this works out to around **96 million persons**.
- If the results of the survey are applied to the adult population of these districts, the total number of people likely to have infected by the virus adds up to **7,00,000**; the numbers could be even higher if the growth of the population in the last nine years is factored in.

**Indirect evidence**

- Antibodies produced in response to being infected by the virus confer **immunity** but are also **evidence of being exposed to the infection**.
- Because they rely on blood samples and are only an **indirect evidence** of the presence of the virus, they aren’t as **accurate as PCR tests**.
- Two values called **sensitivity and specificity** — that are a measure of the proportion of cases mis-identified or outright missed — determine the **accuracy of the test**.
- Academic literature has suggested that there is a **higher chance** of “false positives” being reflected in serological surveys if there is a low prevalence of the disease.
- The scientist that The Hindu spoke to said while the prevalence percentage accounted for the limitations of this test, 7,00,000 was an “accurate estimate” of the level of infection in these districts. The test has been developed and validated by the ICMR-National Institute of Virology and is said to be the most reliable so far.
- “Community transmission has been evident for long.”