Using NFHS for population surveillance for coronavirus

Introduction

Governments worldwide have been testing for coronavirus (COVID-19) in high-risk individuals, such as those with symptoms, close contacts of those tested positive, health-care professionals and those with travel history to an affected region.

But this does not give an accurate number of those affected, making it impossible to understand the true prevalence in a population.

Inaccurate data

Lancet Global Health proposes the use of the Demographic and Health Survey (DHS) framework to ascertain the prevalence of COVID-19.

The scientific and logistical infrastructure of India’s National Family Health Survey (NFHS) be leveraged to conduct a random sample-based population surveillance to track coronavirus.

Used earlier

The article gives the example of how India used NFHS for HIV surveillance — India was projected to have 25 million HIV-positive individuals, with a 3-4% prevalence in adults, but when a random-sample-based population surveillance was conducted to test for HIV in the general population, the estimates sharply reduced to 2.5 million, with a 0.28% prevalence in adults.

They note that “layering a COVID-19-focused data-collection effort on to the NFHS infrastructure would keep operational costs low, with the major expense being laboratory costs for testing samples.”

Prevalence and Testing

They estimated that if COVID-19 anticipated prevalence is under 0.5%, it needs a sample of about 3,000 individuals to be tested.

“The minimum required sample size increases to just over 15,000 under a rarer scenario of 0.1% prevalence.” If a disease is widespread, meaning there is higher prevalence, its detection is easier, needing only a smaller sample. Conversely, if it is rare, it is harder to find and a larger sample should be tested to detect that.

This sampling approach could be implemented at the State or district levels.

India and about 90 countries with established DHS sampling frames can implement this surveillance system. The idea is that population-based testing is important for any decision making with some repeated cross-sectional testing of the same.