

[bloomberg.com](https://www.bloomberg.com)

# Herd Immunity May Be Developing in Mumbai's Poorest Areas

By Ari Altstedter and Dhvani Pandya

7-9 minutes

---

[Sign up here](#) for our daily coronavirus newsletter on what you need to know, and [subscribe to our Covid-19 podcast](#) for the latest news and analysis.

Around six in ten people living in some of India's biggest slums have antibodies for the novel coronavirus indicating they've recovered from infection, in what could be one of the highest population immunity levels known worldwide.

The findings, from a July serological survey of 6,936 people across three suburbs in India's financial center of Mumbai, may explain why a steep drop in infections is being seen among the closely-packed population, despite new cases accelerating overall in the hard-hit country.

"Mumbai's slums may have reached herd immunity," said Jayaprakash Muliyil, chairman of the Scientific Advisory Committee of India's National Institute of Epidemiology, and the retired head of one of its premier medical colleges. "If people in Mumbai want a safe place to avoid infection, they should probably go there."

Medical volunteers take a temperature reading of a woman inside Dharavi slums in Mumbai on July 9.

Photographer: Punit Paranjpe/AFP via Getty Images

### [India's Coronavirus Epidemic Is Now the World's Fastest Growing](#)

The findings of the study, which was conducted by municipal authorities and the Tata Institute of Fundamental Research, suggest that despite efforts to contain its spread, Mumbai's poorest places may have unwittingly pursued the controversial [strategy](#) of herd immunity. This describes an approach in which infection is allowed to run through a population to faster neutralize the pathogen's threat.

The idea is controversial not only because of the risks to those who get infected, but because there is still debate over how much immunity an infection leaves, and how long it lasts. Some studies have shown antibody counts dropping after only a few months, creating the possibility of re-infection, though there's been little [evidence](#) so far that re-infection has been occurring in this pandemic.

Some experts have raised the possibility that other [immune cells](#) continue to provide immunity even after antibodies fade.

## [Unsung Immune Cells Take Over When Covid Antibodies Wane](#)

About 57% of surveyed people in the slums of Dahisar, Chembur and Matunga had antibodies in their blood, compared to [21.2%](#) found in an April study in New York City, and [14%](#) reported in Stockholm in May.

### **Virus Conquest**

Covid-19 spread slows in Asia's densest slum as daily cases drop

Source: Municipal Corporation of Greater Mumbai

A "hands-off" approach has been [criticized](#) in places like Sweden, where it appears to have resulted in more deaths than neighboring countries that implemented lockdowns. But the findings from Mumbai's slums, where the population is young and less pre-disposed to severe cases of Covid-19, may support public health strategies more focused on protecting the vulnerable without trying to suppress the virus completely. The study's authors noted the results suggests asymptomatic cases constitute a large part of all infections.

With social distancing more or less impossible, Mumbai's slums are singularly well-suited for the coronavirus's spread. Dharavi, the largest, packs a population as big as San Francisco's into an area the size of New York's Central Park, with as many as 80 people often sharing a public toilet, and families of eight regularly packed in a 100-square-foot room.

Yet the slums have seen steep drops in infections in recent weeks after cases first erupted in April, even as India's overall cases grow at the [fastest](#) pace globally. [Credit](#) has largely been given to the intensive containment measures officials implemented in the slums, like door-to-door health screenings

and rapidly-erected quarantine facilities.

## [How Asia's Densest Slum Chased the Virus Has Lessons for Others](#)

The serological findings suggest another possibility: the crisis may be largely over because the virus has spread efficiently, not because it was stopped.

“One explanation is they did an excellent job containing it, the other is that herd immunity has been reached,” Muliyl said. “The virus does its work. The virus doesn't worry about your quarantine and it is much more efficient than your efforts to contain it.”

### **Herd Protection**

To be sure, the findings should not be taken as reason to relax precautions like mask-wearing and maintaining as much physical distancing as possible, said K. Srinath Reddy, president of the Public Health Foundation of India. Tests like the ones Mumbai used to conduct its survey have a tendency to throw out false positives, so the actual rate of exposure may be lower, he said.

Even if the numbers are taken at face value, most of Mumbai's slum dwellers venture regularly into the rest of the city for work or other reasons, putting them at risk of transmission to or from people elsewhere.

“It's not really herd immunity, it's herd protection,” Reddy said. “If you wander out to another herd which has had a lower degree of exposure, there's no such protection.”

For Muliyl, what the government's containment measures did achieve in the slums is help keep mortality rates low, because the proactive surveillance ensured that cases were caught early

and given high quality care. Of a population as big as a million people, Dharavi has recorded 253 deaths.

## New Delhi Study

Growing immunity may also be behind the dip in cases in the capital city of New Delhi, said Mulyil, where a study in early July found that a [quarter](#) of the population had been exposed.

Epidemiologists generally believe that infection levels must reach 60% to create herd immunity. But exposure concentrated in the populations least able to socially distance, like slums, could still slow the overall spread of infection if those who've been better able to protect themselves continue to do so.

In Mumbai overall, new cases dropped to the lowest tally in almost three months this week, although the July antibody survey found only 16% had been exposed to the virus among those living in places where social distancing is more feasible, like apartment buildings and houses.

Hospitalizations seem to be going down in both of India's hardest hit major cities, another indication their outbreaks may be easing.

Still, there have been persistent reports of cases and deaths being under-counted around India, raising skepticism over whether infections are truly dropping in Mumbai and New Delhi. The Delhi government was recently [censured](#) by a court for basing its numbers too heavily on antigen tests with high rates of false negatives.

(Updates with expert comments in 13th paragraph.)