

# Recent developments in Manaus, Brazil raise many issues about the future course of the COVID-19 pandemic

**Benjamin Mateus**  
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The health care system in the Brazilian city of Manaus, capital of Amazonas state, has been in a state of collapse for several weeks as a second wave of coronavirus has devastated the region. The onslaught began in late December and had been overtaking the limited resources of the sprawling urban industrialized center, situated in the middle of the Amazon rainforest.

On January 8, the city declared a state of emergency in the face of the rapidly mounting cases. Refrigerated containers were returned to the hospitals to assist in storing bodies. Local officials informed the health ministry, warning that oxygen supplies would run out in a week, to no avail.

In a video published online, describing the asphyxiation of patients from lack of medicinal oxygen, Mario Vianna, the president of the Doctors Trade Unions of Amazonas, said, “patients are staying alive due to the efforts of medical professionals, nurses and technicians. ... this is a terrible situation which we have feared would happen and denounced. At this moment, I appeal to all of the authorities so that they can unite so that we can urgently find a solution.”

Only neighboring Venezuela immediately responded to the crisis, offering the governor of Amazonas, Wilson Lima, a stooge of the fascist President Jair Bolsonaro, “all the necessary oxygen to attend the public health crisis in Manaus.”

According to the daily newspaper, *Folha de S. Paulo*, as of February 4, 366 of the 379 public ICU beds in Manaus were occupied. The adult ICU bed occupancy rate is at 101 percent, with 285 beds available and 288 patients being treated. Though the recent oxygen crisis has been temporarily stabilized, there is limited capacity to generate more. The city’s death rate of 190 per 100,000 is the highest in all of Brazil. The cumulative toll for the state of Amazonas is more than 280,000 cases and more than 8,800 deaths.

With Manaus’s health system inundated with patients, remote towns upriver in the rural Amazon region cannot refer critically ill patients to the metropolis and must fend for themselves. According to Doctors Without Borders, this is “creating a devastating knock-on effect in these communities.”

Last week, the transfer list of patients waiting for a bed had grown to 568 people, of whom 120 of them were waiting for a place in the ICU. Additionally, the Ministry of Health is looking to transfer approximately 1,500 patients to Manaus to alleviate units in neighboring Brazilian states that are even less developed, such as Rondônia.

In a report published on January 22 in *Globo*, the government of Amazonas predicted that the burden on the health system would grow

even more dire this month. They estimated that the demand for medicinal oxygen would rise at least 70 percent higher than on January 14, when hospitals in Manaus ran out of oxygen, leading to dozens of patient deaths. With the beginning of the rainy season, other respiratory diseases are expected to aggravate matters.

Some families that can afford to buy the necessary oxygen tanks and supplies have made makeshift ICU rooms in their homes, hiring caregivers to assist in nursing their loved ones. The chaos surrounding the hospitals has left the population mistrustful. Many protested Bolsonaro and his government’s lack of any appreciable response by banging pans and pots from their balconies.

Much attention has recently been focused on this region by scientists and epidemiologists. An oft-cited seroprevalence study, carried out in Manaus was first presented in a preprint in September, followed by minor revisions, and then published in the journal *Science* in mid-December, had calculated the COVID-19 attack rate for the metropolitan city at three-quarters of the population.

The study estimated that 76 percent of the population had developed immunity to the COVID-19 coronavirus in the months since the pandemic first hit the region in March, leading to claims that Manaus had passed the theoretical herd immunity threshold of 65 percent, and was therefore safe from future surges. When the second wave slammed into the community after Christmas, it came as a complete and devastating shock, especially to the scientists who carried out the investigation.

Manaus, the seventh-largest city in Brazil, is home to more than 2.2 million people. It sits at the confluence of the Negro and Solimões rivers, where they form the Amazon River proper. It is a manufacturing base for motorcycles, electronics, chemical products and soap, with a free port and international airport. Agricultural products include exports of Brazil nuts, rubber, jute and rosewood oil.

The Amazon River and its multitude of tributaries are essential for South America’s life, sustaining some 30 million people, mainly in Brazil but including parts of a half dozen neighboring countries. Ferries and various ships navigate through these channels for hundreds of miles, connecting communities by moving goods and supplies into forested regions impossible to traverse overland. Passengers packed in these ships, asleep in hammocks, side by side for days before they reach their destinations, have been critical factors in spreading the coronavirus.

The pandemic reached Manaus in early March, reportedly via a 49-year-old woman who had flown back from London. Within six weeks, the toll on the city reached horrific proportions. The incidence

of cases reached its peak in early May and then tapered off throughout most of the year.

In an attempt to calculate the impact of the first wave on the region, Dr. Lewis Buss and Dr. Ester Sabino, colleagues from the University of Sao Paulo, in conjunction with international collaborators, conducted a seroprevalence study using serum from blood donors in Manaus from February to October to determine the percentage of the population who had developed antibodies to the virus.

The provocative title to their study, which caught the attention of the media, was “Three-quarters attack rate of SARS-CoV-2 in the Brazilian Amazon during a largely unmitigated epidemic.”

The authors wrote, “Although the ideal design to determine the prevalence of SARS-CoV-2 infection is a population-based sample, this approach is time-consuming and expensive.” Instead of a random sample, they used blood donors who had been encouraged to give blood with the promise of a COVID-19 test. The inevitable result of such a procedure was to find an extremely high “attack rate,” i.e., to find that many, if not most people in Manaus had developed antibodies to the coronavirus.

The study, based on nearly 1,000 new samples each month, found that the incidence of COVID-19 was only 5 percent in April but had climbed steeply by May to 40 percent. By June, the attack rate had reached 66 percent, and in October, it had reached 76 percent.

Critics faulted the study for using a sample of blood donors motivated by the promise of free COVID-19 tests. They argued that infected patients might prefer to donate blood to know their status. In contrast, those who know they are not infected may potentially not expose themselves. Therefore, the study results are skewed toward those with infections, and would overestimate the actual attack rate.

University of Sao Paulo epidemiologist Paulo Lotufo said it most succinctly, “There is *a single* research carried out on blood donors with several assumptions, which leads to several limitations in the generalization of the findings ... reading that article does not allow reaching the conclusion already exposed in the title.” He warned that ignorance “or bad faith” characterized those who were using the study to argue that herd immunity had been reached in Manaus.

During the same time, another less-mentioned study conducting a nationwide serologic household survey found that by June, only 14 percent of Manaus’s population had been infected. Though this study has its methodological concerns, the divergence in results should have led to a scientific debate because the conclusions raised significant public health concerns.

Underscoring the critical concerns raised by these scientists, the virus has taken a savage new turn in Manaus. In December, Sao Paulo’s Institute of Tropical Medicine and Department of Infectious Diseases, in collaboration with Imperial College, London, detected a new variant circulating in the population.

They named the new lineage, P.1, which possesses several mutations found in the UK and South African variants. However, they acknowledged that P.1 developed independently of the other two. They found the P.1 variant in 13 out of 31 (42 percent) of PCR-positive samples collected between December 15 and 23. When they updated their results two weeks later, the P.1 mutation frequency between December 15 and 31 had risen to 52.2 percent. They detected the P.1 lineage in 41 out of 48 samples, or 85.4 percent, for January.

The same group that had conducted the seroprevalence study issued an urgent comment on their findings on the new lineage in the *Lancet* on January 27, 2021. As their figure shows, the increase in excess deaths and hospitalizations appeared to follow the P.1 lineage rise.

While they offer no less than four possible alternative explanations for the sudden increase in cases of COVID-19 in a city that presumably had achieved herd immunity, the simplest explanation is that the earlier study was highly problematic and its figures were seized on for reasons of political expediency, to justify the lifting of procedures which restricted economic activity in order to contain the pandemic.

There nonetheless remains the possibility that the new P.1 lineage is more dangerous and more infectious. The most recent study urges: “the genetic, immunological, clinical, and epidemiological characteristics of these SARS-CoV-2 variants need to be quickly investigated.” That is no doubt an urgent necessity.

The issues raised by this focus on Manaus highlights the importance that the science behind the pandemic needs to be evaluated thoroughly and afforded a proper critique within the scientific communities and not cherry-picked based on political expediency.

The UK’s experience with the B.1.1.7 variant demonstrated that the lockdowns and stringent contact restrictions and social distancing efforts that drove the first wave of infections down have entirely failed this time around as incidence rates had tripled.

In the US, the Democratic Party and the Biden administration are eager to force schools to open and stay open. The recent drop in cases is being used as a pretext to begin opening small businesses and venues as well. Dr. Michael Osterholm has warned that with the UK variant becoming dominant in the US, conditions are ripe for a massive spring resurgence of the virus. However, the corporate media is seeking to lull the population into complacency in order to promote the herd immunity policy.

The events in Manaus have significance for the rest of the world as the working class is in an existential struggle with the ruling class against the drive to return to economic normalcy at any cost. No nation is even close to herd immunity to risk the safety and well-being of their population. It is high time that the virus is afforded the appropriate concerns as a threat to humanity. Swift and deliberate measures must be taken to contain the pandemic and initiate an international coordinated vaccine initiative unparalleled in human history to end this pandemic.



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