Deadly BA.2 subvariant of Omicron spreading in more than 74 countries

Benjamin Mateus
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The BA.2 subvariant of Omicron accounts for a rising proportion of COVID-19 cases across the globe. The World Health Organization (WHO) reported this week that it was present in more than 74 countries worldwide.

The WHO's Technical Lead for COVID-19, Dr. Maria Van Kerkhove, elaborated on Omicron and its sublineages during a press briefing, underscoring the critical distinction that infections with Omicron are not mild and continue to hospitalize and kill at record numbers across the globe.

She noted, "It's really quite incredible how quickly the Omicron, the latest variant of concern, has overtaken Delta around the world. Most of the sequences are this sublineage BA.1. We are also seeing an increasing in proportion of sequences of BA.2. Omicron is more transmissible than Delta—all of the sublineages [are]."

Van Kerkhove continued, "But within the sublineages, Omicron BA.2 is more transmissible than BA.1. And so, what we are looking for in the epi[demic] curves, we're looking at not only how quickly those peaks go up, but how they come down. And as the decline in cases occur, we also need to look at is there a slowing of that decline or will we start to see an increase again? If we start to see an increase, we could see some further infections of BA.2 after this big wave of BA.1."

Worldwide, there were more than 16 million new infections and over 73,400 deaths last week. Since December 27, 2021, weekly global deaths have been rising for six consecutive weeks surpassing the Delta peaks seen in the late summer of 2021. Currently, based on sequenced coronavirus genomes uploaded into GISAID, the BA.1 subvariant remains dominant.

BA.2 appears to be increasing steadily in several countries where it is displacing BA.1. Its prevalence has notably risen in South Africa, Denmark and the UK.

In South Africa, where Omicron was first sequenced, the seven-day moving average of new infections has plateaued at 2,500 per day. The death rate, however, has risen tenfold since mid-November, with an average of 164 deaths per day. Of note, more than 9,000 South Africans have died during the Omicron wave accounting for almost 10 percent of all COVID deaths. Rates of children dying were up by a factor of 2.2.

On February 17 there were 435 deaths reported, a single-day high during the Omicron phase of the pandemic. In line with these findings, the moving average case fatality rate of COVID-19 in the country has been rapidly climbing. Viral sequences submitted to GISAID between January 24 to February 7, 2022, found that BA.2 accounted for 65 percent of cases.

The question that has arisen from these developments is what role BA.2, with all studies supporting its increased infectivity, will have on the course of the pandemic.

Dan Barouch, an immunologist and virologist at Beth Israel Deaconess Medical Center in Boston, Massachusetts, told *Nature*, "It might prolong the Omicron surge. But our data would suggest that it would not lead to a brand-new additional surge."

In an earlier report published in the *BMJ* at the end of January, the UK Health Security Agency warned that BA.2's "apparent growth advantage is currently substantial." They also reported that those infected with BA.2 were more likely to pass it to others in their household. Dr. John Edmunds, professor at the Centre for the Mathematical Modelling of Infectious Disease at the London School of Hygiene and Tropical Medicine, told the *BMJ*, "It is difficult to say what the implications of this will be. It may well extend this wave of infection, or even lead to another peak. The good news is that at present there is no evidence to suggest that it is more severe than Omicron and, as the UKHSA analysis shows, the vaccines appear to be as effective against it as they are against BA.1."

However, a much-discussed new animal- and cell-culture-based study from the University of Tokyo, conducted by lead scientist Dr. Kei Sato, found not only was BA.2's effective reproductive number 1.4 times higher than that of BA.1, but also that BA.2 was more pathogenic, showing in their animal models that the BA.2 virus had a more deleterious impact on lung tissue.

Additional findings found BA.2 was both more evasive of previous immunity from vaccines or infections and found to be resistant to several monoclonal antibodies, which raises the critical concern that the current arsenal of therapeutics may be limited considering these mutations in SARS-CoV-2. Indeed, one of the much-vaunted justifications for treating COVID as endemic was the plethora of treatment options people have if they become infected.

The paper summarizes the findings:

> Although BA.2 is considered an Omicron variant, its genomic sequence is heavily different from BA.1, which suggests that the virological characteristics of BA.2 are different from that of BA.1. Here, we elucidated the virological characteristics of BA.2, such as its higher effective reproduction number, higher fusogenicity [ability to fuse to cells], higher pathogenicity when compared to BA.1. Moreover, we demonstrated that BA.2 is resistant to the BA.1-induced humoral immunity. Our data indicate that BA.2 is virologically different from BA.1 and raise a proposal that BA.2 should be given a letter of the Greek alphabet and be distinguished from BA.1, a commonly recognized Omicron variant.

The study remains in the peer review process, and one of its main limitations is its reproducibility in human populations. Jeremy Kamil, an associate professor of microbiology and immunology at Louisiana State University Health Shreveport, told *Newsweek*, "the study looks highly credible and rigorous and was from an excellent research group. I think it's always hard to translate differences in animal and cell culture models to what's going on with regards to human disease. That said, the differences do look real."

Dr. Daniel Rhoads, section head of microbiology at the Cleveland Clinic in Ohio, who reviewed the study, told CNN, "It might be, from a human's perspective, a worse virus than BA.1 and might be able to transmit better and cause worse disease." In terms of severity, it has been compared to Delta. Also, it harbors multiple distinct mutations that distinguish it from the original Omicron strain leading many to recommend that the WHO designate it with a Greek letter.

According to the WHO, the BA.2 subvariant accounts for about one in five new Omicron cases recorded across the globe. Indeed, how all this will translate for countries will largely be determined by how aggressively measures are implemented to stem infections or if policies are enacted that will allow the virus to spread unchecked.

On February 1 all COVID-19 restrictions were lifted in Denmark. According to the government rules and regulations for COVID-19, the only stipulation in place is that "there [would] continue to be recommendations for the use of face masks and corona passport for an example at hospitals and in elderly care. It is also still possible for private businesses and private cultural institutions as well as associations etc. to make demands, for example, Corona passport or the use of a facemask/shield."

The BA.2 variant became dominant in Denmark by mid-January, displacing BA.1, and presently accounts for more than 90 percent of all sequenced SARS-CoV-2 samples in Denmark. Cases peaked at the end of January, where they have remained consistently high with a seven-day moving average of over 40,000 cases per day. Worrisome has been the acceleration of the daily death counts, which have edged above last winter's peak. Thirty-three people are now dying every day.

Placing these figures into context for comparative purposes, Denmark has 5.83 million people while the US has 331 million. If Denmark had an equivalent population, the case rate would be over 2.2 million infections daily and the daily death close to 1,900 per day.

With efforts underway by states and federal officials in the US to lift all measures against COVID-19, the Department of Health and Human Services has reported that COVID-19 cases due to the BA.2 sublineage are beginning to climb. The highest figures are on the east and west coasts, accounting for 6 percent of sequenced cases. It remains too early to predict how the next few weeks will transpire, but if the objective findings prove valid, then the US may experience another crushing wave by the end of March.

As journalist Chris Turnbull recently observed on twitter, "Maybe I'm just pointing out the elephant in the room here, but if Delta waves have been blunted by vaccines, and you have a variant such as BA.2 that looks theoretically just as severe as Delta, but is 1.4 times more infectious than BA.1—which was already more infectious than Delta … and on top of that, you have vaccine immunity resistance of BA.1, then that's a combination for the worst variant we've seen since the start. It's obviously early days, and I'm just speculating here, but theoretically, that does seem quite possible."

Turnbull's comments underscore the importance of adhering to the precautionary principle that deems taking any threat posed by the SARS-CoV-2 virus to the population as serious, necessitating the implementation of broad public health measures to protect the life and livelihood of its citizens. In this context, Dr. Rochelle Walensky's recent comment about giving the population a "break" from wearing masks is profoundly disturbing and outright criminal.