

The New Strain Will Be Called “Omicron”. Experts: “Be on the Pulse, without Panic [1]

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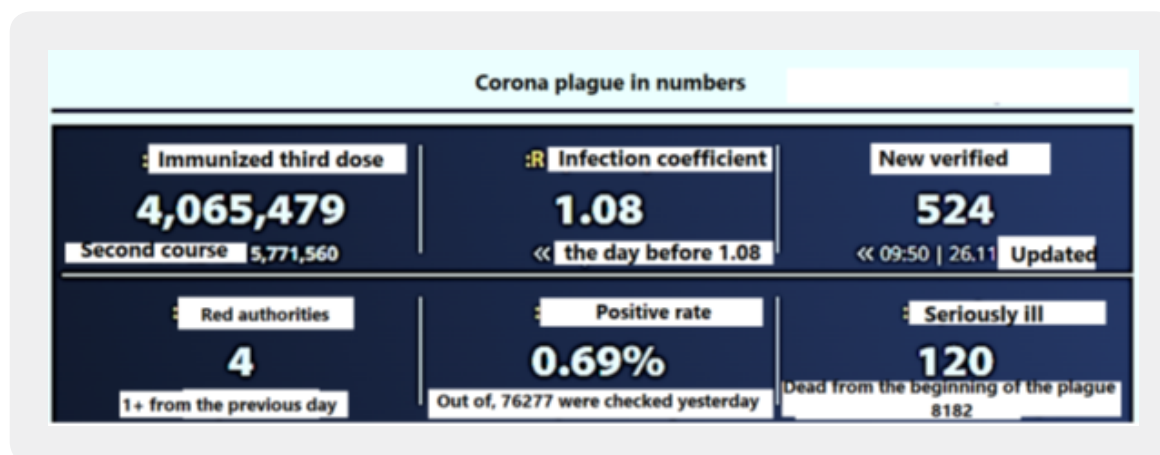
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The 50-mutant corona strain was named "OMICRON" after the Greek letter, defined by the World Health Organization as "cause for concern". Is it resistant to vaccines? In a conversation with Ynet, the experts explained: "It does not bode well, but it is too early to determine that this is the next disaster." Director of the Microbiology Laboratory: "There were also strains that dissolved, it is difficult to deduce from 100 cases."

Last night (Friday), the World Health Organization gave an official name to the new strain of the corona virus, which is causing concern worldwide due to the large number of mutations that appear in it: "Omicron", the 15th letter in the Greek alphabet. At the end of a special conference of the organization's experts, they decided to define it as a "cause for concern officially", and this is the fifth variant of the virus that has been described as such since the outbreak of the plague.

The health organization added that the evidence indicates an increased ability to breed the strain. It was discovered in South Africa. According to the organization, it is spreading there in all provinces of the country.

In Israel, a series of measures decided to prevent the spread of the strain. At least 50 different mutations, 32 in the spike protein associated with the virus' infectivity. The vaccines developed - but questions about that infectivity and possible resistance to vaccines are still open.

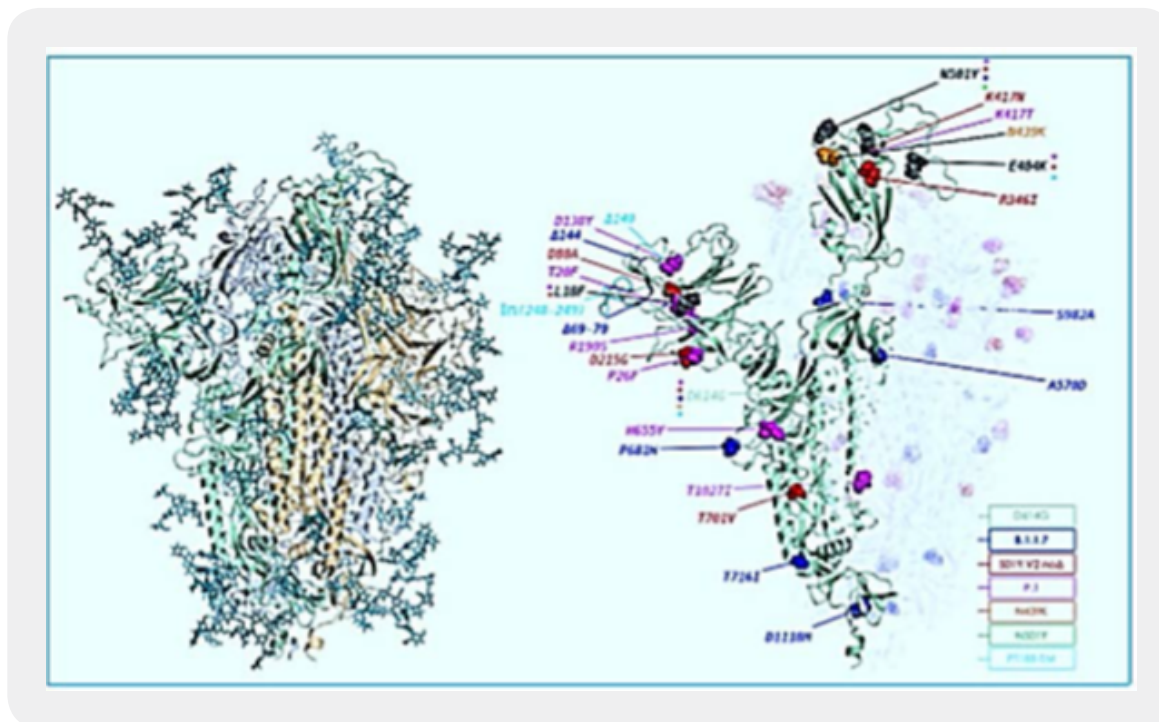


Figure 2: Spike and surrounding epitopes, there is a difference in different mutations (credit ref. [2]).

Health experts support the government's new decisions - including the declaration of most of Africa as red and the reopening of corona hotels to returnees from the mainland (except Morocco and Egypt) - but call on the public to avoid unnecessary anxiety. Health Minister Nitzan Horowitz also posted a similar message, tweeting: "Thanks to the supervision and testing infrastructure we have deployed, we are quickly identifying each new variant. This is what allows us to act effectively now. The situation is under control and there is no reason for unnecessary anxiety. Balance and get vaccinated!"

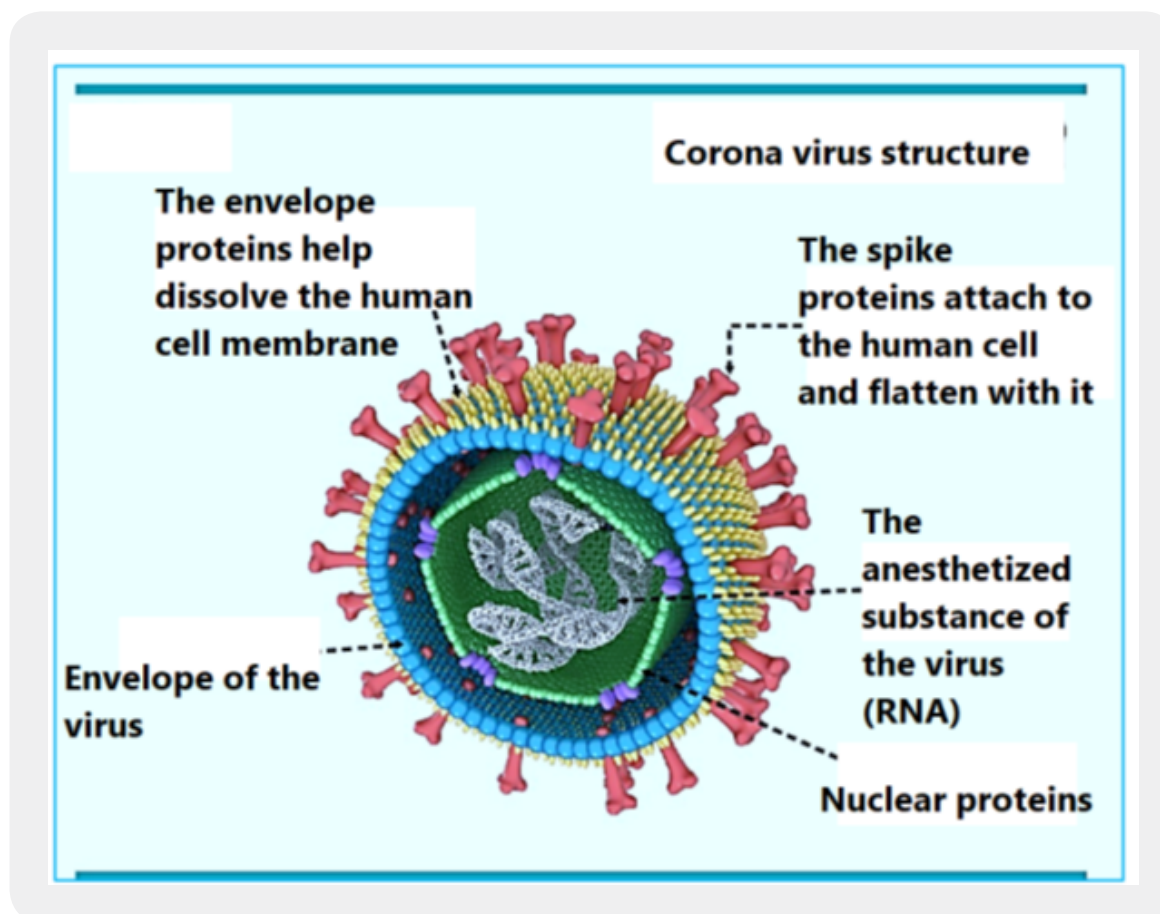
Dr. Oren Koibler, a virologist from the Tel Aviv University School of Medicine and a member of the Madat Association, explained in a conversation with Ynet that this is a strain with many mutations relative to previous species have been discovered. Concentrate on the spike protein, which is the protein that is stored against it. Therefore, there is a fear that both the vaccinated and the recovering may be harmed more".

Koviler noted that the concern is as stated that the variant will impair the effectiveness of the vaccine. "We are at an early stage where we are debating whether it will happen that there will be a decrease in immunity and are testing it in some labs in the world right now. There is a high chance that this variant will be able to infect vaccines a little more effectively, "80% to about 60%, which is not good enough for us to prevent a wave of disease, especially when we have a lot of unvaccinated people in the population".

The second reason for concern, according to Dr. Keebler, is the rate of spread of the variant. The Delta variety has cleared all the other types, and this is the first time we see a variant that takes over an area fully. On the other hand, apparently, there were not many adhesions in this area before the variant came and there was a decline, and then this variant appeared. We do not really know if he is able to push the Delta, but this is the first time we see such a thing".

According to him, there is reason for apprehension, but not for hysteria. "The Ministry of Health should prevent this strain from entering the country as much as possible, because the possibility that it is more contagious or more evasive of the vaccine is certainly disturbing and frightening, but is that really the case? We do not know, but prefer not to take the risk. "It can really be more problematic than others, but the public should not go into hysteria. The borders should be protected and the public should be vaccinated as soon as possible, because chances are that the vaccine will be a significant protection against this variant as well.

Professor Adi Stern, head of the Laboratory for the Study of Viral Evolution at Tel Aviv University, also emphasized that the new variant is very different from the Delta strain, due to the many mutations it contains: "The vaccine works against it. Some of the modifications are known from the previous strains and some are new and unfamiliar mutations. It is indeed a variant that is looked at and it arouses interest. The concern arose because of the pattern that happened in South Africa.



"The concern needs to be moderated," Professor Stern said. "Because from now on it's not clear what that means. In South Africa, two species popped up in the past and caused a big outbreak on the continent but did not cause epidemics in the world. Sometimes a new variant indeed bounces us, but we are far from knowing what it will do. These mutations, and whether it has significance for the vaccine, is unlikely that there will be a variant that will be able to overcome the vaccine, and we do not know if it is a strain that can spread faster than the delta strain.

"It's true that when you look at the variety it does not look good," she added. "But from here to the jump that it's going to be the next disaster, the distance is huge. You have to have a hand on the pulse. As a country that has one entrance gate, the measures that are taken, which is to isolate returnees from South Africa, are not very high. "Be prepared and start thinking and preparing - but equally it can be anything ".

"When we say variant we mean a new strain that contains mutations compared to the original strain," explained Dr. Nadav Sorek, director of the Laboratory of Microbiology and Outbreaks at Assuta Ashdod Public Hospital. "Mutations are different. We have a new strain that is different from the previous strain. We do not know how it is different. Why did this variant bounce the whole world? Because usually when we see variants, we see a small number of mutations within it, i.e. two, three mutations. The Delta for example, contains a limited number of modifications, and a more contagious delta.

In Focus

GISAID Community rapidly shares genomes of new variant of concern Omicron of the pandemic coronavirus

The unique mix of spike amino acid changes in Omicron GR/484A (B.1.1.529) is of interest as it comprises several that were previously known to affect receptor binding and antibody escape. As with all low frequency variants with potentially relevant changes, these need to be monitored closely to study if they spread more widely as a consequence of immune escape, or altered receptor interactions.

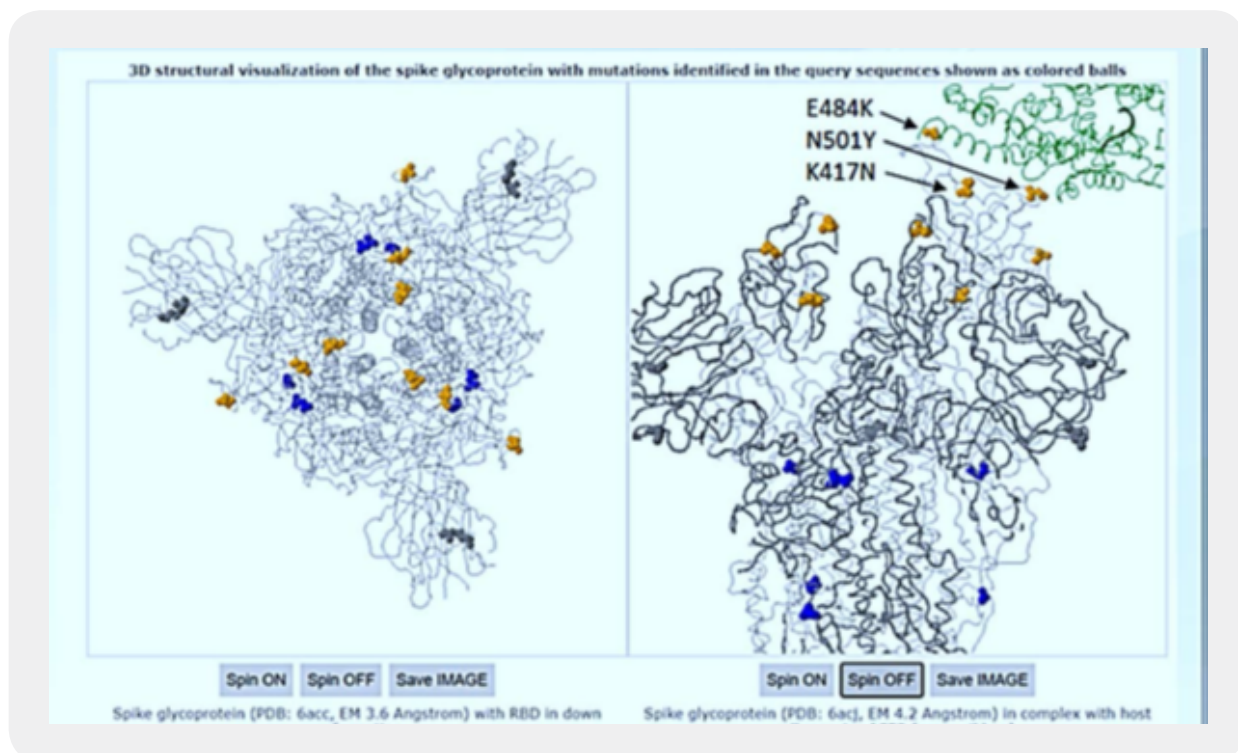
Real-time sharing of these strains by GISAID contributors in Botswana, South Africa and Hong Kong allowed timely detection of this new variant, critical for tracking of variants.

[Track the variant >>](#)



3D structure of spike with amino acid changes in Omicron

The spike protein 3D structure of Omicron (credit ref. [3]).



Detailed structure of Omicron spike envelope protein (credit ref. [4]).

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Testing Vaccines against Omicron

Pharma groups conduct laboratory tests. The World Health Organization warns against stress with an alarming range of mutations. Vaccine manufacturers have prepared for new strains, but this is the first time a version introduces so many mutations in the spike protein 'it uses to infect human cells Save Hannah Kuchler in London Yesterday. Delivered 3 times a week. While many countries are closing borders to travelers from South Africa for fear of spreading the new variant of the virus causing COVID-19, vaccine manufacturers have been quick to get their hands on it to see if their products will still work. The World Health Organization officially raised the alarm on Thursday regarding version B.1.1.529 - now known as "Omicron" - which has a disturbing range of mutations. But Moderna said her team has been working "non-stop" on it for the past few days, while researchers at BioNTech use a pseudo-virus - engineered to look like the new strain - to check if their vaccines will be less effective against the strain over the next two weeks. Johnson & Johnson said they are already testing its vaccine against the strain, while scientists at Oxford University expect the virus to be delivered soon, according to a person familiar with the subject. AstraZeneca said it is already conducting research in Botswana and Aswatini, where the version exists, to assess how its vaccine stands in the new version. Vaccine manufacturers are reviving a familiar rodeo: They ran the same lab tests that showed alpha, beta, and delta strains. They expected new versions and prepared by running many trials to test new versions.

AstraZeneca is set to deliver results on its first customized vaccine, for beta, soon, and Pfizer and BioNTech are leading trials of vaccines adapted for alpha and delta versions. But this is the first time a version introduces so many mutations in a central place: the "spike" protein. It uses to infect human cells via the ACE2, located in thre cell wall receptors of humans. François Blox, a professor at the UCL Institute of Genetics, said: these epitopes modifications imply that the spike neutralizing antibodies that protected people who had been vaccinated or infected in the past were less likely to detect this version. Joe Walton, an analyst at Credit Suisse, said all of the currently approved vaccines have focused on the spike protein, so everyone can prove a little less protective. But mRNA vaccines need to be easier to adapt because they simply provide genetic codes in microscopic bubbles of fat, and then use the body as a plant to produce the protein that the immune system needs to detect. These codes can be replaced quickly and there is no need for a time-consuming process of growing cells in containers required for other types of vaccines. "mRNA should be the easiest: you can get a new tape and insert it, so if one needs it, one should be able to produce a modified vaccine," Walton said. Shares of mRNA vaccine makers soared Friday: Moderna up 21%, BioNTech up 17% and Pfizer up 7%. CureVac was up 12.5 percent even though he had not yet been vaccinated. The German company said it would be able to test its vaccine candidate with partner GSK within two weeks. BioNTech said it and Pfizer took action "months ago" to match the mRNA vaccine they developed together within six weeks and send initial batches within 100 days, in case there was an "escape variant."

Pfizer recently said it has cut time from the start of the process to the introduction of vaccines into vials from 110 days to 31 days. While adenovirus vector vaccines like Oxford / Astra-Zenka and Johnson & Johnson are also fairly easy to adapt, they are far-fetched. Harder to increase. UBS analyst Michael Levichten said this was reflected in AstraZeneca's struggles with production earlier this year. "Adenovirus vectors do not like scale. They harm it personally," he said. Regulators are currently testing one vaccine that can be beneficial.

Valneva's entire killed vaccine teaches the immune system how to recognize other key proteins as well as the spike. Shares of French vaccine maker rose 8.5% on Friday on hopes it could better deal with the problem [5].

Dr. Elrai Price: “Enter Very Exceptionally, Today There Will Be Preliminary Data on Efficiency”

After the modern director-general estimated that "there will be a significant decrease" in the vaccine's effectiveness, the head of the public health services stressed the need for GSS location. Deputy Spokesman: "The use of the GSS is extremely problematic, but every rule has exceptions." 4 ministers opposed the vote, coalition MKs demanded answers.

The Public Health Services Fire explained this morning (Tuesday) in the Knesset's Foreign Affairs and Defense Committee the importance of GSS locating verified in the new strain of corona omicron. According to her, preliminary data on the effectiveness of the vaccine are already expected today.

Afterwards, Deputy Attorney General Raz Nizri spoke and said that "there are very problematic things in the use of the GSS - but every rule has exceptions." GSS Ministers Gideon Saar, Yifat Shasha Bitton, Orna Barbibai and Eli Avidar voted against.

- Prof. Eran Segal: "We believe that the effectiveness of the vaccine against the variant will remain good"
- Modern CEO Pessimistic: "There will be a significant decrease in vaccine effectiveness."
- The experts' message to worried parents: "Waiting with the children's vaccine is a mistake."

"The most worrying matter for us is the very rapid spread of this variant in South Africa," said Dr. Sharon Elrai Price at the beginning of her remarks. They described events in which one person infected a great many people, some of whom were not vaccinated but also vaccinated. From what we hear, vaccines have no significant symptoms, it is a mild disease - but in the meantime, it is preliminary information. "She noted that" today there will be insufficient data on the effectiveness of the vaccine."

"The variety of mutations in this variant make it very unusual; it's just like a new strain," she added. GSS Icons are one of our tools to identify and interrupt the chain of infection. The time we are buying helps us vaccinate the population, buying us time to get our citizens to be in a more protected position."

According to her, in investigations conducted to examine the contacts of the two vertebrae for the new strain and the 11 other suspects who were also infected, "we reached 186 contacts of those 13 suspects and by technological means, we reached an addition of 42 more suspects. A person you are interrogating." She noted that "the first verified was confused, gave us an incorrect date - and that's part of the challenge in this plague" [6].

WHO Update on Omicron

November 28 2021

On November 26, 2021, the WHO defined version B.1.1.529 as a version of concern, It is named Omicron, on the advice of the WHO Technical Advisory Group on Virus Development (TAG-VE). This was based on the evidence presented to TAG-VE that Omicron has a number of mutations that may affect how it conducts, for example, the degree of ease it spreads or the severity of the disease it.

Up-to-date Knowledge of Omicron

Researchers in South-Africa and around the world are conducting studies to understand many aspects of Omicron better and will continue to share the findings of these studies as they become available.

Transfer: It is unclear if Omicron is transferred more (e.g., spreads more easily from person to person) than other versions, including Delta. The number of tested positive has increased in South African regions affected by this version. Still, epidemiological studies are being conducted to understand whether this is due to Omicron or other factors.

The severity of the COVID disease: It is still unclear whether omicron infection causes more severe illness than infections with other variants, including Delta. Preliminary data indicate a remarkable increase in hospitalization rates in South Africa, but this may be due to a rapid increase in the overall numbers of people being infected, rather than a result of specific omicron contamination. There is currently no solid information indicating that the symptoms associated with Omicron are different from those of other versions. Primary infections reported were among university students - younger people prone to mild illness - but comprehending the severity of the Omicron variant will take days to several weeks. All variations of COVID-19, including the world's dominant delta variant, can cause severe illness or death, especially.

Efficacy of Previous Infection in SARS-CoV-2

Gathered data suggest that there may be an increased risk of re-infection with the Omicron (i.e., people who have had COVID-19 previously may be re-infected more easily with the Omicron), compared to other versions of concern, but the information is limited. More details on this will be published in the coming days and weeks.

Vaccine Efficacy: The World Health Organization is working with technical partners to understand the potential impact of this version on our existing countermeasures, including vaccines. Vaccines remain critical to reducing serious illness and death, including against the dominant cycle, Delta. Current vaccines remain effective against serious illness and death.

Efficacy of current tests: Widely used PCR tests continue to detect infection, including infection with Omicron, as we have seen in other versions. Invesy are ongoing to determine if there is any effect on other types of tests, including rapid antigen detection tests.

Effectiveness of current therapies: Corticosteroids and IL6 receptor blockers will still be effective in treating patients with severe COVID-19. Other treatments will be evaluated to see if they are still equally effective given the changes in parts of the virus in the Omicron version.

Studies in Progress

As for now, the WHO is coordinating with many researchers around the world to understand Omicron better. Studies that are taking place or are taking place soon include evaluations of transmission, severity of infection (including symptoms), vaccinations and diagnostic tests and the effectiveness of treatments.

The World Health Organization encourages countries to collect and share inpatient patient data through the World Health Organization's Clinical Data Platform COVID-19 to describe clinical characteristics and patient outcomes quickly.

More information is to be published in the coming days and weeks. The World Health Organization's TAG-VE will continue to monitor and evaluate the data as it becomes available and evaluate how mutations in the Omicron alter the virus's behavior.

Recommended Actions for Countries

Omicron is defined as a version of concern. There are several actions that the WHO recommends countries take. This includes: increasing surveillance, case sequencing.

1. Sharing genome sequences in publicly available databases, such as GISAID; Reporting initial cases or clusters to the WHO.
2. Perform field investigations and laboratory evaluations to better understand whether Omicron has different transmission or disease characteristics, or affects the effectiveness of vaccines.
3. Treatments, diagnoses or public and social health measures.

Countries need to continue to implement effective public health measures to reduce overall COVID-19 prevalence, using risk analysis and a science-based approach [7].

Pidemiological Update: Omicron (Voc) Concern Version - Data as of Epidemiological Update [8]

November 30, 2021

As of November 30, 2021, 44 approved cases of SARS-CoV-2 Omicron VOC have been reported by eleven EU and EU / EEA countries (Austria, Belgium, Czech Republic, Denmark, France (Reunion), Germany, Italy, the Netherlands, Portugal, Spain, and Sweden) according to information from public sources.

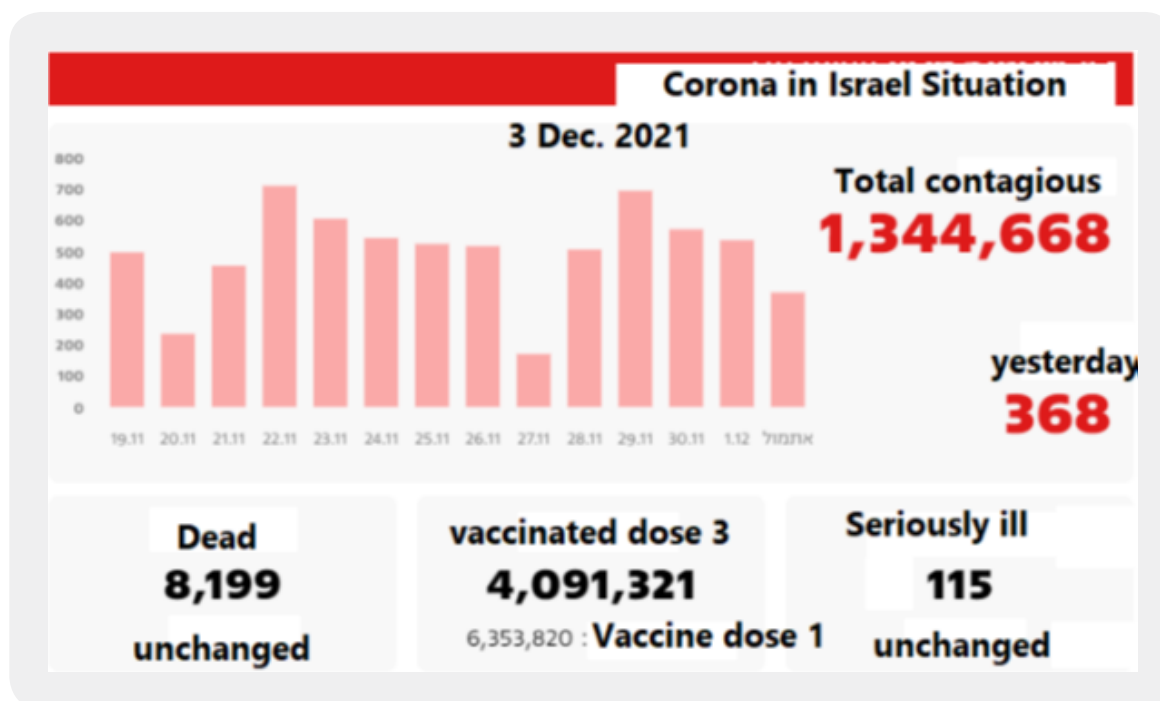
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Israel Investigates 15 Potential Cases of COVID Omicron Variant [9]



Corona in Israel 3 Dec. 2021 (credit ref. [10])

Suspicion of cases includes several people who have not recently been abroad ■ 25,000 COVID tests taken on Sunday at Israel International Airport and did not raise suspicion of Omicron cases.

Israeli health authorities are examining 15 coronavirus patients suspected of carrying the omicron version, including several people who have not recently traveled abroad.

Among the infected individuals are residents of Bedouin villages in southern Israel. At this preliminary stage, it is not clear how they would have been exposed to the version if it turns out that they are infected with it. However, one senior official involved in analyzing the results of the COVID tests said he thought most of the cases would turn out to be non-micron variants. A number of moderate cases have also been reported from across the region, but these are still under investigation. Most of the happy patients have a history of travel to African countries, with some having made connecting flights to other destinations

between Africa and Europe. All cases for which information is available on hardware were asymptomatic or with mild symptoms. No severe cases or deaths were reported among these cases.

Who: These Are the Symptoms of Someone Infected with the Omicron Variant [11].

An official in the World Health Organization claims that the vaccines developed are also suitable for the Omicron strain discovered in South Africa. "Ineffective" in preventing its spread.

According to a briefing given tonight (Wednesday) by the World Health Organization, the new Omicron discovered in South Africa. However, the organization noted that there is still no definite information as to the severity of the disease that the variant causes.

A World Health Organization official told the Reuters news agency that the corona vaccines developed so far are likely to be suitable for Omicron as well. According to him, even if they have to make changes in the component of the vaccine - these are very minor changes.

To date, the variant has been identified in 23 countries around the world, but it is estimated that it will be discovered in more countries soon. Although many countries have ordered the closure of borders against foreigners in an attempt to prevent the spread of the virus, the health organization has stressed that the same flight bans are "ineffective" in preventing the spread of the variant. It was further claimed that flight restrictions from Africa made it difficult to send samples of the virus for testing in various laboratories elsewhere in the world.

A representative of the South African country of Botswana reported that out of 19 infected with the new variant, 16 were asymptomatic and their tests were already negative. The rest of those infected experienced a mild illness. Epidemiologist Maria van Krakow explained that the new variant may be more contagious, but it is unknown how severe the infection is. "In the coming days, we may have more information," she added.

The World Health Organization has repeatedly called for a more effective distribution of vaccines and drug treatments to advanced countries to combat the epidemic effectively. The organization also called for action to expand vaccination campaigns, especially for at-risk populations and those aged 45 and over.

The Mystery of the Omicron and the Fear in South Africa: The Number of People Infected Is Doubling Every Day

Already in 25 countries around the world: The modern director general said that there is no chance that the vaccines will be as effective, but the health organization said that "only minor adjustments will be required". The source of the strain is not yet known - In the country.

A week has passed since the first verification was identified for Omicron, but the mystery surrounding the new strain remains: Modern CEO said there was no chance the vaccines would be as effective against him, but the World Health Organization said only "slight adjustments" to the vaccines would be required. A few

Omicron cases have been reported worldwide, but in South Africa where the number of people infected with corona was first detected, it is alarmingly rising and doubling daily.

In addition, it is still unclear where the verified initials came from in nearby Botswana - four diplomats who entered the country on November 7. They were found positive for Corona on November 11 and on the 24th of the month it turned out that they had contracted the new strain. In Botswana, however, they did not say where they came from, and the fog regarding the origin of the Omicron has not yet dissipated.

The Positive Rate Yesterday in South Africa - 16.5%

The surge in the number of infected in Corona in South Africa has begun since the discovery of the strain. Scientists in the country said at the briefing that the variant "is rapidly becoming dominant". However, they also clarified that at least for now it seems that the effectiveness of the vaccine in preventing serious illness is also high against this strain: "From what we see Omicron manages to penetrate some of the vaccine protection and cause infections, but the effectiveness of vaccines in preventing serious illness and death is not significantly impaired."

Within a week: from 1,275 infected in the corona per day to 8,561

According to the updated data provided Yesterday, in South Africa there were 8,561 infected in Corona within 24 hours. This is a jump of no less than 95% in one day - and almost 6 times compared to the week before. However, the number of corona patients hospitalized in the country remains relatively stable.

To date: 172 verified omicron cases in South Africa

According to the update, 51,977 tests were performed in South Africa within 24 hours and the positive rate was particularly high - 16.5%. For comparison, the day before there were 10.2% positive for the virus and a total of 4,373 infected, and on Wednesday last week - 3.6% positive and 1,275 verified. The rate of hospitalization in South Africa, on the other hand, rose by only 26% in the last week. Many of the inpatients are unvaccinated.

In any case, only 172 omicron cases have been confirmed in South Africa so far and doctors said that in most cases no more severe symptoms appear than in relation to other strains.

"Scary rise in verified, take care of yourself"

Virologist Tulio de Oliveira, who at press conferences last week updated on South Africa's struggle with Omicron, described in a tweet the jump in the number of people infected in Corona as "scary" and urged the public to get vaccinated and wear masks: "God forbid. Put yourself in a position to get vaccinated while all the scientists in the world are trying to better understand the virus."

The new strain has been detected in at least 25 countries, the most recent of which are Nigeria (the first in West Africa), Saudi Arabia and the United Arab Emirates (the first in the Persian Gulf), and the United

States. The first American verified to Omicron is a California resident who returned from South Africa. The test result was verified two days after US President Joe Biden said the variant discovered "is cause for concern, not panic."

"We knew it was only a matter of time before the first verified locator was found at the Micron in the United States," said Dr. Anthony Pucci, an adviser to the United States presidential adviser on the Corona, noting that the verified was resilient in two modern dishes and not yet in a booster. He felt mild symptoms and his condition was improving, and all those who had been in contact with him had meanwhile been found negative in the tests.

The flooring laboratory at Assaf Harofeh Hospital. Two verified in Israel, 17 suspects

Meanwhile, last night the Ministry of Health in Israel updated that so far there are only two in Israel that have been infected with certainty by Omicron, along with 17 suspects who have also been infected with the variant. The two verified workers are the vaccinated foreign worker at Astraznica who returned from Malawi and traveled by bus to Eilat. A 32-year-old Israeli was inoculated with three Pfizer packages and returned from South Africa.

In Israel, of the 17 suspects, whose flooring results have not yet been received, there are three wholly vaccinated and 14 who are defined by the Ministry of Health as unprotected - unvaccinated, recovering six months after recovery and vaccinated with a second dose six months after vaccination [12].

Will the Currently Applied Vaccines Stop Omicron Variant? Scientists Are in a Race to Find Out [13].

The "Frankenstein mixture" of mutations is a cause for concern, but the version may remain vulnerable to current vaccines. If not, repairs will be needed.

While countries have cut off air links from South-Africa amid fears of another global wave of Coronavirus. Scientists on Sunday struggled to gather data on the new version of Omicron, its capabilities, and perhaps most importantly - how the current vaccines will protect it effectively.

The early findings are a mixed picture. For example, the version may be more transmitted and more able to evade the body's immune responses, both to vaccine and natural infection, than previous versions of the virus, experts said in interviews.

Vaccines may well continue to ward off serious illness and death. Though suitable booster doses may be needed to protect most people. Still, the manufacturers of the two most effective vaccines, Pfizer-BioNTech and Moderna, are preparing to reformulate their injections if necessary.

"Necessary it may be to push forward with a variable vaccine," Dr. Bloom said.

Even when scientists began vigorously testing the new version, countries worldwide reduced travel to and from countries in South Africa, where Omicron first identified. Despite the many restrictions, the virus is

found in half a dozen countries in Europe, including the United Kingdom and Australia, Israel, and Hong Kong.

Already, Omicron is responsible for most of the 2,300 new daily cases in Gauteng province, South-Africa, President Cyril Ramaphosa announced on Sunday. Nationwide, infections have more than tripled in the past week, and tests positivity has risen to 9% from 2%.

Scientists have responded quickly to Omicron than to any other version. In just 36 hours of the first signs of a new virus in South-Africa on Tuesday, researchers analyzed samples from 100 infected patients. They collected the data and alerted the world, said Tulio de Oliveira, a geneticist at Nelson R. Medical School. Mandela in Durban.

Within an hour of the first alarm, virologists in South Africa also started test vaccines against the corona virus against the new version. Now, many of research teams around the world - including researchers at Pfizer-BioNTech and Moderna - have joined the chase.

They will have to wait for the results a period of two weeks, at the earliest. But the mutations that Omicron carries suggest that vaccines are likely to be less effective, to an unknown extent, than they were against any previous version.

"Based on work that people have done on other versions and mutations, we can be pretty sure that these mutations will cause a significant decrease in antibody neutralization," Dr. Bloom said, referring to the body's ability to attack an invasive virus.

South African physicians are seeing an increase in recurrent infections in people who have already suffered from a Covid-19 attack, suggesting that the version can overcome natural immunity, said Dr. Richard Lesles, a physician for infectious diseases at KwaZulu-Natal University.

Omicron has about 50 mutations, including more than 30 in spike, a viral protein on the surface that vaccines train the body to recognize and attack.

Some of these mutations have been seen in the past. Some thought to have triggered the beta version's ability to bypass vaccines, while others motivated Delta's severe infection.

"My best guess is that it combines these two components," said Penny Moore, a virologist at the National Institute of Infectious Diseases in South Africa, about the new version.

But Omicron also has 26 unique spike peptide mutations, compared to 10 in the Delta and six in the beta. It seems that many of them will make the version more difficult to identify and thwart the immune system.

Tracking Omicron and other versions of Coronavirus

"There's a lot we've never researched before, but only when you look at the position on the spike, are they in

areas we know are dominant immune," Dr. Moore explains, referring to parts of the spike envelope protein that interact with the ACE2 receptor. The body's immune defenses [13].

Dr. Moore's team is perhaps the furthest in testing how resistant the vaccines are to Omicron. She is preparing to test blood from fully vaccinated people against a synthetic version of the Omicron variant.

Creating such a "pseudo-virus" - a viral stand-in that contains all the mutations - takes a strenuous effort, but the results may be available in about 10 days [14].

The less deadly micron? A possible optimistic scenario that does not yet have a significant basis.

Omicron's symptoms look a little different from those of previous variants, but we're still not sure what these differences mean.

How do pandemics end? Sometimes, if a less fatal but highly contagious strain of the disease becomes dominant, it will quickly and morbidly infect many percentages of the population. Provided that the infection also protects against subsequent versions, the weak version will become a "weakened live virus" type of vaccine over which we have no control.

Could the Omicron be the effort to do this for us? There is possible such a scenario, but at the moment the chances of that are low, and it is certainly impossible to rely on it.

The hope for such a comforting scenario in the corona plague so far has not materialized. The variations that became more contagious and took over the world were no less deadly, though fortunately no more deadly either. First it was the European version that replaced the Huanan version in the summer of 2020; Then the British version Alpha, which replaced the European version in early 2021; Then a Delta version that replaced the Alpha. Each variant caused more suffering and damage than the previous one because it was more contagious, but no more deadly and infected. no less. More or less deadly?

The idea that Omicron may be less deadly comes from South Africa, where the new variant has apparently been present for about a period two months. The question arises - in case the variant is so contagious, how can we have seen an increase in morbidity but not in hospitalizations and mortality? Maybe it's because the variant is less deadly, and if so - it is possible that it infected even higher percentages of the country's population, and in an asymptomatic way [15]?

Faced with these data, other researchers note that the sharp rise in morbidity in South Africa was observed only last week. It is conceivable that the variant has been circulating in the country for two months, but reached a significant outbreak only this week, so there was still no time to accumulate hospitalized and undoubtedly not dead. It should be noted that a relatively young population characterizes South-Africa and that the country's vaccination campaign has recently begun to gain momentum - two additional parameters that may affect the number of critically ill and dead.

Researchers who examined the two variant Omicron patients who arrived in Hong Kong noted that they both underwent one negative PCR test. A few days later, a positive test revealed very high viral load values. This fact actually led the researchers to fear that the variant might be more deadly than its predecessors.

South African doctor Dr. Angelique Coetzee, one of the first to identify the variant, actually recognized it after seeing patients come with corona and symptoms slightly different from usual. Most of them were young and healthy men before corona. They suffered from severe fatigue, but none of them. Lost the sense of taste and smell.

It makes sense that different variants would have slightly different symptoms, and the Delta, for example, was more characterized by gastrointestinal symptoms than its previous variants. Coetzee noted that these symptoms were milder than those of Corona patients she had encountered in the past, but warned that as the variant spread to the elderly or at greater risk, the mix of disease severity in her clinic would change for the worse. This was the case when previous variants spread from the young population to the older one. Symptoms for a longer time.

And What about the Delta Variant?

Meanwhile, in Israel, where there is one verified case of Omicron and seven other suspected cases, morbidity from the Delta variant seems to be under control again. After a slight increase in morbidity last week, which has already led to fears of further wave outbreaks, now the daily number of verified stands again stands at about 500, but a slight increase in the number of new severe patients continues, nevertheless a sign of concern.

The vaccination campaign for children, which started last Tuesday, was expected to help control the disease for another month, but the new variant could devour the cards. Moreover, it is still unclear how the variant will affect the response to the vaccine when on the one hand, it seems that the epidemic is not in decline, and on the other hand, it is still not clear how much the vaccine will protect from the new variant.

On assumed that even if the vaccine's protection decreases, it will not be binary, meaning that the vaccine will not stop protecting ultimately. First answers about the effectiveness of the Omicron vaccine are expected in about two weeks, and then we will probably have more of an idea as to whether in all countries of the world it is indeed superior to the Delta variant.

Meanwhile, the Delta variant continues to make names in Europe. For example, in the Netherlands and Germany, morbidity is at an all-time high; And in the UK, Italy and France morbidity is at a record high, the highest since vaccination campaigns began in those countries.

In the UK, the government flag included in the containment of the Delta variant without restrictions. At a cost of about 100 deaths a day, for an average of several months, it was decided for the first time to return the masks in enclosed spaces and return isolations for patients in the new variant, even if vaccinated.

At the world level, the plague has been rising since October, although not back to its peak last April [16].

Also yesterday, more than 75,000 new cases were diagnosed there.

Omicron Strikes South Africa: Jump in Numbers

A dramatic jump in the number of people infected in South Africa, where the Omicron variant was first discovered, is causing concern among residents. In recent days, the number of verified numbers in South Africa has skyrocketed daily by tens and even hundreds of percent. For example, on Tuesday 4,373 new verified patients were diagnosed in South Africa, while yesterday the number jumped twice - with 8,561 new infections per day.

In September, South Africa emerged from the third corona wave that hit it after a daily verified record of more than 21,000 new infections was recorded in the country in July. Since the beginning of October, the number of daily infections in the country has averaged several hundred, while in the ten days there has been an alarming jump - to the peak confirmed by the current wave of more than 8,500 infected yesterday.

Dr Michael Grom of the National Center for Infectious Diseases in South Africa said there had been an "exponential increase" in the number of infections in the past two weeks. "The level of jump in morbidity is extremely worrying."

The National Center for Infectious Diseases in South Africa has made it clear that at least 74% of those infected in Corona in the past month have been infected with the Omicron variant, whose first case was diagnosed on November 8 in Gauteng, the country's most populous province. At this time, in South Africa no information is yet provided on the rate of infection in the new variant among the vaccinated. It should be noted that the immunization rate there is relatively low and less than 25% of the population is fully vaccinated (in two doses, without a booster).

Despite the great concern about the outbreak in South Africa, and despite the fact that the omicron variant is being discovered in more and more countries around the world, the World Health Organization made it clear yesterday that so far Corona vaccines seem to be effective in its face as well. An official in the organization stated that if changes are still required in the components and structure of the vaccine - these will be only minor changes and adjustments.

In Israel, 6 cases of the omicron variant have been identified so far, and tomorrow morning the results of the genetic sequencing of the last four infected are expected to be published. Following the announcement by the World Health Organization yesterday, government officials said that if positive indications continue to be received about the usefulness of the vaccines against the new variant, there will be no justification for continuing restrictions imposed on Ben Gurion Airport. Of three days from any destination abroad, pre-determined for a period of two weeks.

There is also an intention to change policy with regard to the GSS's, which were the subject of a major storm around the use of the variant. Stop this in a verified range of 200-150 [17].

Bibliography

1. <https://www.ynet.co.il/news/article/sk1yrlr00t>

Shimon Shatzmiller, *et al.* (2021). The New Strain Will Be Called "Omicron". Experts: "Be on the Pulse, without Panic. *CPQ Microbiology*, 01-18.

2. Shimon Shatzmiller (2021). General effects of virus variants on COVID-19 vaccines reports from Israel. *Medical & Clinical Research*, 6(11), 647-656.
3. GISAID. <https://www.gisaid.org/>
4. Novel variant 501Y.V2 with triple spike receptor binding site substitutions.
5. Drugmakers race to test vaccines against new coronavirus variant. Financial Times.
6. <https://www.ynet.co.il/news/article/hkag11d7yt>
7. (2021). Update on Omicron.
8. Epidemiological update: Omicron variant of concern (VOC) - data as of 30 November 2021 (12.00).
9. (2021). Israel Investigating 15 Potential Cases of Omicron COVID Variant.
10. <https://www.ynet.co.il/home/0,7340,L-8,00.html>
11. https://www.mako.co.il/news-lifestyle/2021_q4/Article-617f4b626b67d71026.htm?sCh=31750a2610f26110&pId=173113802
12. <https://www.ynet.co.il/news/article/bjhzmlbtt#autoplay>
13. <https://www.nytimes.com/2021/11/28/health/covid-omicron-vaccines-immunity.html>
14. Will the Vaccines Stop Omicron? Scientists Are Racing to Find Out.
15. The less deadly micron? Possible optimistic scenario - still unfounded.
16. <https://www.globes.co.il/news/article.aspx?did=1001392407>
17. https://www.mako.co.il/news-lifestyle/2021_q4/Article-456cdadc8f97d71026.htm?sCh=31750a2610f26110&pId=173113802