



# DAILY NEWS BULLETIN

LEADING HEALTH, POPULATION AND FAMILY WELFARE STORIES OF THE DAY

Friday

202101217

## **Air quality**

### **Air quality in Delhi remains 'very poor' (The Tribune: 202101217)**

<https://www.tribuneindia.com/news/nation/air-quality-in-delhi-remains-very-poor-351413>

According to the Ministry of Earth Science's SAFAR system, Delhi's AQI stands at 339 at 9 am, which falls in the 'very poor' category

It was a cold morning in the national capital on Friday as the minimum temperature settled at 7.7 degrees Celsius while the air quality remained in the "very poor" category.

The India Meteorological Department has forecast mainly clear sky during the day and the maximum temperature is likely to settle around 20 degrees Celsius.

According to the Ministry of Earth Science's SAFAR system, Delhi's Air Quality Index (AQI) stood at 339 at 9 am, which falls in the "very poor" category.

An AQI between zero and 50 is considered "good", 51 and 100 "satisfactory", 101 and 200 "moderate", 201 and 300 "poor", 301 and 400 "very poor", and 401 and 500 "severe".

The relative humidity at 8.30 am was 77 per cent.

The city on Thursday recorded a maximum temperature of 19.8 degrees Celsius, three notches below normal. PTI

## **Moderna Covid vaccine**

### **Moderna Covid vaccine 'highly effective' against coronavirus variants: Study (The Tribune: 202101217)**

<https://www.tribuneindia.com/news/health/moderna-covid-vaccine-highly-effective-against-coronavirus-variants-study-351050>

Omicron variant had not yet been detected in Southern California region at the time of study, say researchers

Moderna Covid vaccine

Moderna Covid vaccine 'highly effective' against coronavirus variants: Study

Photo for representational purpose only. Reuters file

Two doses of Moderna COVID-19 vaccine are highly effective against SARS-CoV-2 variants, but protection against Delta infection decreases over time, according to a study conducted in the US.

At the time of the study, the omicron variant had not yet been detected in the Southern California region, the researchers said.

The research, published in The British Medical Journal on Wednesday, showed the vaccine was effective against COVID-19 hospitalisation associated with the Delta variant.

However, vaccine effectiveness against the variant moderately declined with increasing time after vaccination.

“This study confirmed effectiveness against all variants during the study period, although we did find a drop in effectiveness over time against Delta infection, from 94 per cent effectiveness in the first 2 months after vaccination to 80 per cent effectiveness after 6 months,” said Katia Bruxvoort, from Kaiser Permanente, US.

“Protection against hospitalisation due to the Delta variant remained high at 98 per cent effectiveness,” said Bruxvoort, the lead author of the study.

Beginning in March 2021, Kaiser Permanente in Southern California began sending positive SARS-CoV-2 specimens from both symptomatic and asymptomatic people to a contracted laboratory for whole genome sequencing.

This study, funded by Moderna, included 8,153 people who tested positive for SARS-CoV-2, with specimens collected from March 1 to July 27, 2021.

Among them, 91.3 per cent were unvaccinated, 1.4 per cent had received one dose of Moderna COVID-19 vaccine, and 7.3 per cent had received two doses of the preventive.

The researchers compared people who tested positive with those who tested negative.

People who received the 2-dose Moderna vaccine were strongly protected against COVID-19 hospitalisation associated with the Delta variant, they said.

Among people who had received the 2-dose Moderna COVID-19 vaccine, no hospitalised deaths occurred, according to the researchers.

Vaccine effectiveness of 2 doses of Moderna COVID-19 vaccine against Delta infection was 87.9 per cent among people aged 18 to 64, and 75.2 per cent among people aged 65 and older, they said.

“While this study provides reassuring evidence of the effectiveness of 2 doses of Moderna COVID-19 vaccine in preventing COVID-19 infection and hospitalisation due to variants including Delta, it also has implications for booster shots,” said Hung Fu Tseng, from Kaiser Permanente Southern California Department of Research & Evaluation.

“The findings of moderately reduced vaccine effectiveness of Moderna COVID-19 vaccine over time against Delta infection supports current booster dose recommendations,” Tseng, the study’s senior author, added. PTI

## **Omicron infects**

### **Omicron infects 70 times faster but is less severe, says study (The Tribune: 202101217)**

<https://www.tribuneindia.com/news/health/omicron-infects-70-times-faster-but-is-less-severe-says-study-351039>

The yet-to-be peer-reviewed study provides the first information on how the novel variant of concern infects human respiratory tract

The Omicron variant of coronavirus infects and multiplies 70 times faster than Delta and the original COVID-19 strain, but the severity of illness is likely to be much lower, according to a study.

The yet-to-be peer-reviewed study provides the first information on how the novel variant of concern infects human respiratory tract.

The researchers from University of Hong Kong found that Omicron infects and multiplies 70 times faster than the Delta variant and original SARS-CoV-2 in human bronchus, which may explain why it may transmit faster between humans than previous variants.

A bronchus is a passage or airway in the lower respiratory tract that conducts air into the lungs.

The study also showed that the Omicron infection in the lung is significantly lower than the original SARS-CoV-2, which may indicate lower disease severity.

The researchers used ex-vivo cultures of the respiratory tract to understand why Omicron may differ in transmission and disease severity from other SARS-CoV-2 variants.

This method uses lung tissue removed for treatment of the lung, which is normally discarded, for investigating viral diseases of the respiratory tract.

Michael Chan Chi-wai, Associate Professor at University of Hong Kong, and his team successfully isolated Omicron and compared infection from the variant with the original SARS-CoV-2 from 2020, and the Delta variant.

The team found that the Omicron replicates faster than the original SARS-CoV-2 virus and Delta variant in the human bronchus.

At 24 hours after infection, the Omicron variant replicated around 70 times higher than the Delta variant and the original SARS-CoV-2 virus, the researchers said.

Omicron replicated less efficiently—over 10 times lower—in the human lung tissue than the original SARS-CoV-2 virus, which may suggest lower severity of disease, they said.

“It is important to note that the severity of disease in humans is not determined only by virus replication but also by the host immune response to the infection, which may lead to dysregulation of the innate immune system,” Chan said in a statement.

“It is also noted that by infecting many more people, a very infectious virus may cause more severe disease and death even though the virus itself may be less pathogenic,” he explained.

Taken together with the recent studies that showed Omicron can partially escape immunity from vaccines and past infection, the overall threat from the variant is likely to be very significant, the researchers added. PTI

### **Omicron Case (The Asian Age: 202101217)**

<http://onlinepaper.asianage.com/article/detailpage.aspx?id=16038301>

# Omicron cases surge in India: 4 more in Delhi; tally now 83

*7,974 new Covid-19 cases, 343 deaths reported in 24 hours*

**SANJAY KAW**  
with agency inputs  
NEW DELHI, DEC. 16

With 10 fresh Omicron cases in Delhi, Karnataka and Gujarat, the number of patients detected with the highly-infectious Covid-19 variant in the country has risen to 83. Delhi also logged 85 new Covid-19 cases, the highest single-day rise in the last 137 days.

Amid the surge in Omicron cases, Union home secretary Ajay Bhalla held a review meeting on preparedness of the health infrastructure in all Union territories. Health

MAHARASHTRA has so far reported the highest number of Omicron cases at 32, followed by Rajasthan at 17, Karnataka (8), Gujarat (5), Kerala (5), Telangana (2), Tamil Nadu (1), West Bengal (1) and Andhra Pradesh (1)

secretary Rajesh Bhushan, who pulled up some states on Wednesday over delays in dispatching crucial medical oxygen devices to districts, and other senior officials were also present.

Maharashtra has so far reported the highest number of Omicron cases at 32,

followed by Rajasthan at 17, Karnataka (8), Gujarat (5), Kerala (5), Telangana (2), Tamil Nadu (1), West Bengal (1) and Andhra Pradesh (1). Delhi has reported 10 cases and Chandigarh one. The country's first two Omicron cases were reported in Karnataka on December 2.

In Delhi, health minister Satyendra Jain said four new Omicron cases have been detected, taking the number of patients infected with the new strain in the city to 10. He, however, said none of the patients had so far developed any

■ **Turn to Page 2**

**Health Safe (The Asian Age: 202101217)**

<http://onlinepaper.asianage.com/article/detailpage.aspx?id=16038310>

# *Health Safe Today launches 'Keypr', a digital platform for medical records*

**AGE CORRESPONDENT**  
NEW DELHI, DEC. 16

A digital healthcare application, which aims to help patients to improve their decision making, will be launched in the national capital on Sunday. Called "Keypr", the application will help people to keep their medical records in a secure digital format so that they can share them with their doctors, family members, and other health service providers.

The application has been developed by a new age digital startup, Health Safe Today, which has

been founded by neuroscientist and public health researcher Dr Sulekha Kapoor.

Keypr employs advanced Behaviour Science principles and Human-Computer Interaction frameworks to create a seamless experience for patients and health service providers.

The motto of the digital start up is "Your Health Data. Own it, Secure it, Use it."

The highly gamified platform, which uses a multitude of reward systems to augment the users' experience and

streamline the overall impact of digital health services, will be launched by a Cyclathon from Priya Cinema complex park in Vasant Vihar to Nehru Park in Chanakyapuri, from 8.00 am to 12.00 pm on Sunday. The launch will be followed by a discussion with doctors, patients, and other stakeholders at Greenr in Vasant Vihar.

The event is organised in partnership with Decathlon, the All India Cycle Manufacturers' Association, and also the famous plant based artisanal cafe Greenr.

**Virus Injects (The Asian Age: 202101217)**

<http://onlinepaper.asianage.com/article/detailpage.aspx?id=16038016>

# VIRUS INJECTS URGENCY INTO EU MEET

Leaders struggle to present a unified, bloc-wide approach in the wake of lightning spread of Omicron

Brussels, Dec. 16: The lightning spread of Omicron in Europe and elsewhere added a sense of urgency to an EU summit on Thursday, with leaders struggling to present a unified, bloc-wide approach. Projections that the highly infectious Covid strain could be dominant in the EU as early as next month have pushed the issue to the top of the agenda and ignited fears of a health crisis.

Arriving at the Brussels meeting, Irish premier Micheal Martin said Omicron was "of significant concern obviously in terms of the capacity of that variant to spread rapidly and create pressure on our societies and our health systems. "So today we'll be looking for greater coordination on a number of fronts," he said.

As France imposed drastic new restrictions on arrivals from Britain, which is outside the EU and particularly hard hit by the variant, Greece's Prime Minister Kyriakos Mitsotakis said Europe would have to expect "new measures". "The one answer to Omicron right now is the acceleration of our vaccination programmes with particular emphasis on the booster shots," he said, describing the measures as "a battle against time". The summit will also tackle other big topics pressing hard on EU capitals, in particular the Russian military build-up that could presage an invasion of Ukraine.

That risk dominated a get-together on Wednesday between EU leaders and their neighbouring eastern European counterparts, including Ukrainian President Volodymyr Zelenskyy. An ongoing confrontation with Belarus

## COVID AT A GLANCE

**TOUR CUT SHORT**  
A positive Covid-19 test among US Secretary of State Antony Blinken's travelling party has cut short the top diplomat's first official tour of Southeast Asia.

**BOOSTER DOSE**  
New York's Metropolitan Opera said it will demand that all musicians and audiences have received a booster dose of the Covid-19 vaccine, as the contagious Omicron variant spreads.

**CURFEW TO RETURN**  
South Korea said Thursday it will reimpose coronavirus curfews on businesses and limit the size of gatherings again as record infections forced the government to pause its plan to live with Covid.

## SHORTAGE OF SANTAS

Christmas is just around the corner but you may struggle to spot a Santa spreading joy in the United States this holiday season. That's because the pandemic has caused a shortage of Father Christmases, according to a booking company and Santa Claus training school.



Russia's State Duma building, where lawmakers are holding the first reading of a bill that will introduce mandatory health passes to access public places, reflects in a coffee bar window in Moscow on Thursday. — AFP

## DUTCH ROYALS REGRET PARTY

The Dutch royal family expressed regret after it last week invited 21 people to celebrate the 18th birthday of the future queen contrary to coronavirus health guidance. "The king informed me that on reflection it was not a good idea to organise (the gathering)," Dutch Prime Minister Mark Rutte wrote in a letter to parliament.

## 'AVOID FOREIGN TRAVEL'

The Canadian government urged citizens to avoid foreign travel over the Christmas holidays, saying the Covid-19 Omicron variant "makes us fear the worst".

## PORTUGAL BORDER RULES

Portugal's prime minister Antonio Costa says he intends to keep tighter Covid-19 border controls in place beyond their planned end on January 9 because of the threat from the highly infectious new Omicron variant.

## Gatherings scaled back as Omicron surges in UK

London, Dec. 16: The British public are being urged to scale back their pre-Christmas parties and gatherings on Thursday to try and manage the surge in Coronavirus cases due to the rapidly transmitting Omicron variant of Covid-19. Downing Street has denied plans for further lockdown restrictions being imposed any time soon beyond the current work from home guidance where possible guidance, compulsory face masks in indoor settings and Covid vaccine certifications for large venues.

Prime Minister Boris Johnson has reiterated the government's top-up vaccine "Get Boosted Now" approach as he led a team of ministers and experts to advise people to self-conduct a lateral flow test before attending events or gatherings as the UK recorded 78,610 Covid cases on Wednesday — the country's highest since the pandemic began last year. "Think carefully before you go," said Johnson. "Let's carry on giving Omicron both barrels. Let's slow its spread and give the vaccines more time. Wear masks indoors, use ventilation, get tested if you're going to an event where you're likely to meet lots of people, and

get tested if you're going to meet elderly and vulnerable relatives," he said. England's Chief Medical Officer (CMO), Professor Chris Whitty, went further to urge the public not to "mix with people you don't have to" as he ominously predicted that more Covid records would be broken in the coming weeks as the UK is undergoing "two epidemics on top of one another", one driven by the "very rapidly growing" Omicron and the other by the already dominant Delta variant. "I'm afraid we have to be realistic that records will be broken a lot over the next few weeks." — PTI

## Russia for passes in public places

Moscow, Dec. 16: Russian lawmakers on Thursday approved legislation in a first reading that will require people to show health passes to access public places like bars and restaurants, as the country gears up for a winter Covid wave. Russia is one of the hardest-hit countries with more than 10 million infections and Europe's highest death toll.

But officials have faced a vaccine-sceptic population and have sounded the alarm over Omicron and winter holidays that they say could bring a new surge in infections. Russia's lower house of parliament on Thursday approved legislation requiring health passes for public places

such as bars, restaurants, museums and theatres. From February 1 next year people will have to prove they have been vaccinated, have recovered from the virus or have medical conditions preventing them from getting jabbed. The draft leaves it to local authorities in Russia's 85 regions to determine where people must show health passes.

The measure, which will not cover essential shops like pharmacies and grocery stores, will be in place until June 1, 2022. Public resistance to health passes has seen a separate bill shelved that would have introduced the measure for public transport. — AFP

## France to restrict travel from UK

Paris, Dec. 16: France will restrict arrivals from Britain because of fast-spreading cases of the Omicron Coronavirus variant, putting limits on reasons for travelling and requiring 48-hour isolation upon arrival, the government spokesman said Thursday.

The new measures are expected to take effect over the weekend. The government is holding a special virus security meeting Friday that will address growing pressure on hospitals in France from rising infections in recent weeks. Delta remains the dominant variant in France, but Omicron is spreading so fast in Britain that it's raising concerns across the Channel.

French government spokesman Gabriel Attal said that tourism or business trips from Britain to France "will be limited", though French citizens will still be able to make the journey. All those arriving from Britain will need to have a negative virus test less than 24 hours old, and to test again upon arrival and isolate. — AP

## ISRAEL TO DONATE 1 MN COVID VAX TO AFRICAN NATIONS

Jerusalem, Dec. 16: The Israeli government on Wednesday said it was donating 1 million Coronavirus vaccines to the UN-backed Covax programme.

The Foreign Ministry said the AstraZeneca vaccines would be transferred in the coming weeks, a decision that was part of Israel's strengthening ties with the African countries. "I am delighted that Israel can contribute and be a partner in eradicating the pandemic around the world," said Foreign Minister Yair Lapid.

The announcement said the vaccines would reach close to a quarter of African countries, though it did not provide a list. Israel has close ties with a number of African nations, including Kenya, Uganda and Rwanda. — AP

## AUSTRALIA'S NEW SOUTH WALES SETS RECORD FOR NEW COVID CASES

Sydney, Dec. 16: Australia's New South Wales sets record for new Covid cases. Australia's New South Wales state recorded 1,742 new cases of Covid-19 on Thursday, its highest daily total since the pandemic began. Hospitalisations were also up across the state. There were 192 Coronavirus patients in New South

Wales hospitals on Thursday, up from 166 the day before. Of those, 26 were in intensive care. The previous peak for new infections in one day in Australia's most populous state was 1,599 on September 11. The state's Health Minister Brad Hazzard on Wednesday said cases are doubling every two to three days. — AP

## Ayurveda

Should you cover your head during winter to prevent cold, cough? Here's what Ayurveda says (The Indian Express: 202101217)

<https://indianexpress.com/article/lifestyle/health/winter-tips-cover-head-during-winters-ayurveda-7674182/>

Ayurvedic practitioner Dr Nitika Kohli took to Instagram to bust the 'winter hat' myth winter-hats-pexelsDo you wear winter hats? (Source: Pexels)

Seasonal infections like cold, cough and fever become increasingly common during winter, and there are a thousand pieces of advice that exist when it comes to protecting yourself against the cold winds.

ALSO READ |Combat common winter ailments like pain and cold with these expert tips

A more common suggestion is to cover your head during winter to preserve heat. But does it help? Dr Nitika Kohli took to Instagram to shed some light on the matter. Take a look here:

## **Nutrition check**

### **Nutrition check: Is brown rice actually healthier than white rice? (The Indian Express: 202101217)**

<https://indianexpress.com/article/lifestyle/food-wine/brown-rice-nutrition-health-benefits-7672747/>

"All white rice starts out as brown rice before it is polished. All unpolished rice is nowadays sold under the term brown rice," nutritionist Bhuvan Rastogi said

brown-rice-pexelsHave you ever tried brown rice? (Source: Pexels)

There is often a debate around the numerous health benefits of brown rice as compared to the white grained variety. But is one type actually healthier than the other, or it is just a fad?

Answering these questions is nutritionist Bhuvan Rastogi, who recently took to Instagram to share the advantages of incorporating brown rice in your regular diet

ALSO READ |Nutritionist shares simple rule to choose healthy bread

He explained that all white rice starts out as brown rice before it is polished, and that all unpolished rice is nowadays sold under the term brown rice. "Brown rice is the whole grain food and white rice is processed. When the rice grain is polished, the parts called bran and germ are removed. Germ is the part of rice grain that is rich in minerals and bran has most of the fibre. Without them white rice loses most of its fibre, vitamins and minerals," he said.

The expert also shared that the glycemic index of cooked white rice is 70+ (high GI) and brown rice is about 50 (low to medium GI – very close to atta roti). "This means brown rice does not raise blood glucose levels as much as white rice, and is better for people with diabetes," he pointed out.

ALSO READ |Whole grains vs refined grains: Which is better for you?

But "reduction in fibre is a major issue", said Bhuvan, adding especially is the staple diet is mostly rice. "It becomes difficult to meet approximately 25 to 30g fibre/day demand of the

body. As a thumb rule, we should not make anything which are empty calories part of our regular diet (calories without nutrition),” he said.

He suggested switching to the unpolished variety of the rice you already use, if taste is a concern. “Keep it as close to whatever you are comfortable for sustainable long term change,” he continued.

Concluding, the expert also shared a historical fact. “Beri beri, an endemic in the early 1900s, was caused due to the push for white rice over brown, causing a deficiency in Vit B1, especially in people whose staple food was rice. So brown rice preference over white rice is not a health trend, it’s actually going back to the roots, to a less processed version of rice,” he said.

### **Global Omicron (Hindustan Times: 202101217)**

<https://epaper.hindustantimes.com/Home/ArticleView>

**Understanding the global Omicron threat**By Jamie MullickOn Wednesday, the World Health Organization said that preliminary evidence appears to indicate that vaccines may be less effective against infection and transmission linked to the Omicron variant of Sars-CoV-2, which also carries a “higher risk of re-infection”. According to data compiled by GISAID, a global science initiative that provides open-access to genomic data of influenza viruses, 60 countries have so far submitted to it sequencing data that shows the presence of this highly mutated variant on their shores. With its ability to evade vaccines and higher transmissibility, the new variant has sparked concerns that it could drag the fight against the pandemic back several months.

# 1 The expanding global spread of Omicron

Of the 60 countries that have confirmed Omicron infections to GISAID, the United Kingdom has the largest share with 4,120 confirmed sequences of the variant till December 13, the latest date for which this information is available. It is followed by South Africa with 1,000 samples, the United States with 321 samples, Denmark with 216, and Switzerland with 125.

**COUNTRIES WITH IDENTIFIED OMICRON INFECTIONS** (as per data submitted to GISAID)



**OMICRON CASES IN % OF OVERALL CASES IN 4 WEEKS ENDING DEC 13** (as per data submitted to GISAID)



A better picture is provided by looking at the share of Omicron in all cases in these countries in this period. South Africa, unsurprisingly, with 90.1% of all infections being Omicron features among the top, closely behind Mozambique where the heavily mutated variant constituted 94.4% of all samples sequenced. To be sure, the Delta variant still easily remains the world's most dominant variant, accounting for 97.9% of the nearly 3.17 million genome sequences uploaded in the four weeks ending December 13 to GISAID. But the real cause of

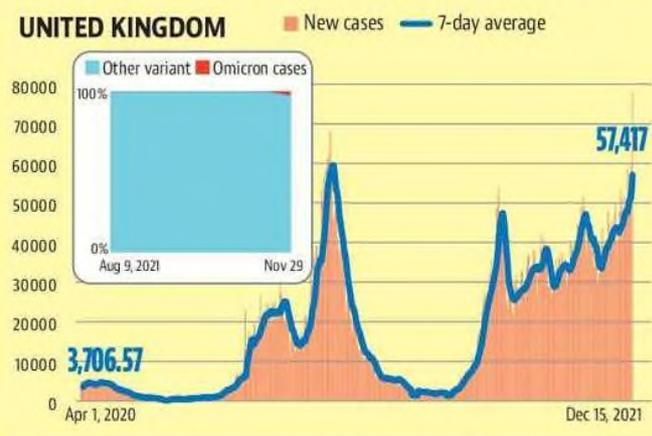
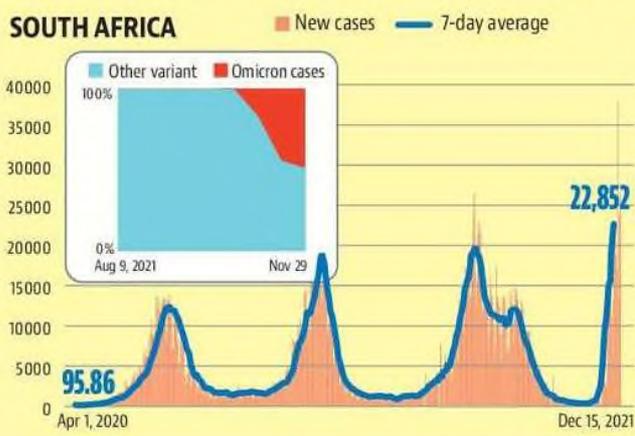
worry is that despite Omicron barely being flagged in even half GISAID's 60-day sample period, it has already outstripped the combined proportion of the Alpha, Beta and Gamma variants. A total of 6,700 samples – about 2.1% – were Omicron and the other three variants of concern together numbered 22, less than 0.01% each in GISAID's database. A week ago, Delta's share was 99.2% while Omicron's share was 0.4% in the same database.

# 2 Regions where the new variant is taking hold are not faring well

A key characteristic of Omicron that has been observed is that it can lead to a massive spike in new cases. For instance, in South Africa, on average, there have been 22,852 new Covid-19 cases every day in the past week – far surpassing the previous peak of 19,766 cases a day in the first week of July this year. South Africa, however, is far from being the only that has seen a record spike at the same time that Omicron infections have seen a spike. On Wednesday, the United Kingdom recorded 78,610 new Covid-19 cases – the highest in a single day since the start of the pandemic. This has pushed the seven-day average of daily infections to 57,417 – just below the peak of 59,508 touched on January 8.

Similar peaks can be seen even in smaller countries such as Norway and South Korea where the share of Omicron cases in the overall new infection tally has been rising in recent days. In each of these countries, the seven-day average of daily infections is currently at the highest ever, according to data gathered by Our World in Data. In Norway, there has been an average of 4,925 new cases a day in the past week, while in South Korea this number is 6,790. The corresponding charts also show that the share of Omicron cases have been increasing at the same time in these countries.

## NEW COVID-19 INFECTIONS AND PROPORTION OF OMICRON CASES IN SOUTH AFRICA, THE UK, NORWAY



## TB

### **Need a gender-sensitive approach to eradicate TB: Naidu (The Hindu: 202101217)**

<https://www.thehindu.com/sci-tech/health/need-a-gender-sensitive-approach-to-eradicate-tb-naidu/article37973360.ece>

Vice President M. Venkaiah Naidu addresses the National Conference on Women Winning against TB, at Vigyan Bhawan, in New Delhi, on December 16, 2021. | Photo Credit: PTI

Women more susceptible as priority is not given to their health and nutrition, he says

Vice-President Venkaiah Naidu on Thursday urged parliamentarians, MLAs and heads of local bodies to be catalysts in the campaign against tuberculosis and ensure a gender-sensitive approach to eradicate it.

“While the prevalence of TB is higher among men, it can have a disproportionately higher impact on women. Women are more susceptible because adequate priority is not given to their health and nutrition. TB is responsible for more deaths among women of reproductive age than all causes of maternal mortality combined. Facing the misery of abandonment and violence if found to have TB, it is not surprising that there are a large number of unreported and therefore untreated cases of TB amongst women,” Mr. Naidu said at a national conference on “Women Winning against TB”.

He said only 18 lakh of the 26 lakh estimated new TB cases in 2020 were reported to the TB programme signifying a wide gap of 8 lakh because of the stigma attached to the disease.

He also underlined that ensuring nutrition to women and children will be key in the fight against TB.

Secretary, Ministry of Health and Family Welfare, Rajesh Bhushan, said his Ministry was working with the Ministry of Women and Child Development to explore possibilities of additional nutritional support for pregnant women and lactating mothers and children to achieve the target of eradicating TB by 2025.

“If our country is to achieve TB elimination goals, exhaustive and inclusive collaborations are imperative to reach more vulnerable populations and increase the depth of TB services. TB affects over 10 lakh women and girls and more than 3 lakh children every year in our country. Hence it is vital to ensure women and children not only have equitable access to healthcare but also actively seek and complete appropriate TB regimen,” Mr. Bhushan said.

## Omicron

### **Explained: A recap of emerging evidence on Omicron (The Hindu: 202101217)**

<https://www.thehindu.com/sci-tech/health/explained-a-recap-of-emerging-evidence-on-omicron/article37953370.ece>

Its rapid spread is likely to test public health systems and their ability to react efficiently

It has been two weeks since the World Health Organization (WHO) designated Omicron as a Variant of Concern (VOC) in the ongoing SARS-Cov-2 coronavirus pandemic. Efforts by researchers from Africa and across the world over this time have provided immense insights into the epidemiology as well as biological properties of the virus. We provide a brief overview of the current understanding on the Omicron variant.

Timeline recapped

The earliest genome for what is now designated as the Omicron variant was sequenced from a viral isolate collected from Gauteng, South Africa in early November, 2021 and was made publicly available by the National Institute for Communicable Diseases, South Africa through GISAID, a database for sharing genomes of viruses. Further analysis revealed similar genomes deposited from Botswana and Hong Kong, characterised by a large number of mutations, particularly in the spike protein. This led researchers to report the cluster of genomes on the Pango Network, an open community of researchers working together to annotate lineages of SARS-CoV-2, and the lineage was thus designated as B.1.1.529.

The unique cluster, epidemiologically linked with the uptick of cases in Gauteng, and the configuration of mutations, many of which have been previously linked with immune escape and recommendations by the Technical Advisory Group on SARS-CoV-2 Virus Evolution (TAG-VE), led to the designation of the lineage as a VOC.

Since its designation, owing to added genomic surveillance and deposits of genomic data from across the world, over 2,700 sequences of the Omicron variant are presently available in GISAID, a database which shares genomic sequences deposited by researchers from across the world. As more sequences were submitted to GISAID, it was observed that a number of genomes did not have the full set of mutations that define Omicron while having many of the characteristic mutations. The originally designated B.1.1.529 lineage was thus split by the Pango Network into two sister lineages, BA.1 and BA.2 (where BA is an alias for B.1.1.529). While both these lineages have almost all important spike protein mutations that were initially defined for Omicron, the lineage BA.2 does not have a deletion in the spike protein which is present in the original lineage (BA.1).

The transmission rate, immune evasion and the proportions of patients developing severe disease and death are the useful parameters which would enable broad assessments on how the variant would impact the population. In the following sections, we detail the evidence on each of these parameters.

### Immune evasion

The immune system has two arms. The first arm is mediated by antibodies — proteins which can recognise and bind proteins on the surface of microorganisms thereby neutralising them. The second type is mediated by T-cells which can recognise and kill cells infected with viruses.

It is widely believed that the antibody mediated response determines the initial barrier of infection while the cellular response is decisive in the development of disease severity to COVID-19. The corpus of evidence at hand for Omicron is largely based on antibodies and neutralisation.

The Omicron variant has about 32 mutations in the spike protein, many of which have been associated with binding sites of antibodies, indicating that it would escape antibodies from previous infections, vaccines and many monoclonal antibodies used in the treatment.

While clinical estimates of vaccine efficacy can only occur after sufficient number of tracked infections with well-defined vaccination status have occurred, early assessments of immune evasion could be assessed in the lab by performing neutralisation tests. In these experiments, whole virus or virus-like particles (pseudoviruses) are tested with sera from people who have been vaccinated or previously infected. This assesses whether the virus can evade the antibodies present in the sera of these individuals. While these are not surrogates of vaccine efficiency, they can provide early insights.

A total of six studies are now available in public domain from across the world. While the ranges of neutralisation compared with the ancestral lineages as well as Delta provide a wide range, it is unequivocal that the neutralisation of Omicron is significantly less than that of the ancestral lineage (B.1, 20-40-fold lower) or Delta (about five-fold lower). The only silver lining is that antibodies from individuals with boosters, or individuals with infection prior to vaccination (hybrid immunity), seem to neutralise the virus to some extent.

Early evidence on vaccine efficiency has also emerged from the United Kingdom Health Security Agency, which evaluated efficiency for vaccines against symptomatic infection, that also corroborated quite well with the observations in the laboratory. Two doses of AstraZeneca (ChAdOx1) seemingly provides practically no protection against symptomatic infection, while an added booster with mRNA vaccine seemingly provides much better protection against symptomatic infection. The estimates for protection against severe disease and death would be estimated much later as these are delayed events.

In the perspective of public health, this would mean a significant number of people with pre-existing immunity from COVID-19 infections or from two doses of vaccines could still have symptomatic re-infections and vaccine breakthrough infections.

## Transmission rate

The rate of transmission is another major parameter which could be useful in understanding how fast the variant would spread in a region, and is critical in making appropriate plans for testing and management, including hospitalisation. One of the useful estimates for assessing the rate of transmission is the doubling time. Early data in this regard has been made available from South Africa, the United Kingdom and Denmark. Early assessments suggest the doubling time for the Omicron variant is approximately 2.5 to 3 days, which is much shorter than the Delta variant. This significant advantage of Omicron over Delta means that in regions where ongoing and high transmission of the Delta variant is occurring, including in the U.K., the Omicron would emerge as the dominant lineage in a very short period of three to four weeks.

From a public health point of view, a higher rate of transmission would mean a large number of people could be infected in a short period of time. This would have implications in the ability of the system to test as well as offer adequate care to the needy. This is important since such a wave of infections can quickly overwhelm established healthcare capacity in no time.

## Disease severity

Disease severity is another important parameter for public health and possibly the most difficult to assess accurately, since severity of disease, and deaths, occur late in the course of disease, and therefore, accurate assessment takes time. Additionally, there could be biases such as demographics, reinfections or vaccination, which could make the observations non-generalisable to other settings. Within these limitations, early and preliminary estimates from South Africa suggest that the proportion of patients requiring hospitalisation for the Omicron variant in Gauteng province is much lower than in the previous waves. Similar trends have been observed for oxygen requirements as well as Intensive Care Unit admissions.

While this indeed is a silver lining, a sufficiently high rate of transmission could quickly saturate existing healthcare capacity with consequent more than expected deaths (excess deaths). Such healthcare stress may also increase unnecessary deaths that are not directly related to COVID-19.

## Impact in diagnostics

The RT-PCR test widely used in the diagnosis of SARS-CoV-2 infections rely on pieces of DNA (also known as primers) which bind to the genome of the virus to specifically amplify a genomic region. A typical RT-PCR kit has two or more of such sets of primers which target the genome at two or more genes to increase the sensitivity and specificity of diagnosis. Mutations in the virus genome, which could be incidentally where the primers bind, could make these primers inefficient. This is called a target failure or dropout.

This would typically not affect the diagnosis, since the other sites would work as expected. Some of the kits widely used across the world have one such primer targeting, the S gene, and one of the mutations in the Omicron variant is right at this primer binding site. Therefore, the Omicron variant will cause the spike primers to not function as expected. This is called a Spike

Gene Target Failure or S-dropout and has been used as a surrogate to look at Omicron variants in surveillance.

The important point to note is that the S-dropout is only applicable to the BA.1 cluster of Omicron as the BA.2 cluster, though presently only a very small fraction of Omicron, does not cause S-dropout and therefore may be missed out. This also highlights the importance of genomic surveillance for accurate assessments for surveillance.

The silver lining

It is reassuring that early evidence suggests that individuals who have attained hybrid immunity (infection as well as vaccination) are likely to be better protected at least against severe disease and deaths. With a significant population in India being infected as suggested by serosurveys, and at least an additional 50% and more of the population having accessed both doses of vaccine, could potentially be the silver lining.

The early evidence from South Africa suggests that the proportion of patients infected requiring hospitalisation is lower than the previous waves. While this does not necessarily mean that the variant is “milder” than other variants, it does imply that populations similar to South Africa — young and with high prior infections — may be less affected this time.

What does this mean for strategies to manage the upcoming wave of infections ?

Evidence at hand suggests that vaccines indeed protect against severe disease and death, and therefore the immediate need is to cover as many eligible people, especially in the high risk groups, with two doses of vaccines.

With a rapid rate of transmission, even a lower proportion of patients requiring hospitalisation can put enormous strain on existing resources — both for testing as well as for provision of care for the needy. On that account, it is important that measures to slow down transmission through appropriate and concerted public health approaches are planned and implemented in advance, thereby minimising the impact of such interventions on livelihoods.

The current scenario also mandates placing a lot of emphasis on time-tested public health measures. The growing corpus of evidence indicates the effectiveness of non-pharmacological interventions, including masks and ventilation, both of which have not been well-appreciated. There is also convincing evidence suggesting that masks especially, good quality masks (FFP2/N95) are extremely efficient in preventing infection. In light of evidence suggesting a high rate of transmission, it is imperative to think of better ways to protect vulnerable populations, including people over 60 years of age as well as with multiple comorbidities and on immunosuppression, with better masks.

Similarly, the importance of ventilation and social distancing cannot be emphasised more, especially in a scenario where a large number of people are likely to congregate over the festive and marriage season. The emphasis on ventilation in places where multiple footfalls are expected, including schools, public offices and marriage halls, which are likely to be lively over the season, would go a long way in limiting transmission.

Molecular surveillance approaches, including whole genome sequencing and the utility of spike-dropouts as surrogates to assess prevalence, come in enormously handy to understand the prevalence in communities, assess growth, and prepare healthcare systems well in advance to handle the onslaught of cases.

In summary, the emerging evidence on the Omicron variant offers too little to comfort. The rapid spread of the Omicron variant is likely to test out public health systems and their ability to plan and implement strategies well in advance, and also their ability to react efficiently and in a timely manner. For the common man, it is possibly the best time to take their pending doses of vaccine, pull up their masks, let a lot more fresh air into their rooms, and avoid crowds. It is always better to be safe than sorry.

(Vinod Scaria and Bani Jolly are researchers at the CSIR-Institute of Genomics and Integrative Biology in Delhi)

Comments that are abusive, personal, incendiary or irrelevant cannot be published.

Please write complete sentences. Do not type comments in all capital letters, or in all lower case letters, or using abbreviated text. (example: u cannot substitute for you, d is not 'the', n is not 'and').

## **Common drugs found effective against COVID-19,**

### **Two common drugs found effective against COVID-19, in early testing (The Hindu: 202101217)**

<https://www.thehindu.com/sci-tech/health/two-common-drugs-found-effective-against-covid-19-in-early-testing/article37923226.ece>

Representational image only. | Photo Credit: Getty Images/iStockphoto

Researchers from the University of Florida in the U.S. noted that the combination includes diphenhydramine, an antihistamine used for allergy symptoms.

Two over-the-counter drugs have been found to inhibit the replication of SARS-CoV-2, the virus that causes COVID-19, in preliminary tests, according to a study.

Researchers from the University of Florida in the U.S. noted that the combination includes diphenhydramine, an antihistamine used for allergy symptoms.

Explained | Can the Omicron variant of SARS-CoV-2 be identified quickly?

When paired with lactoferrin, a protein found in cow and human milk, the compounds were found to hinder SARS-CoV-2 during tests in monkey cells and human lung cells, they said.

Lactoferrin is commonly used as a supplement to treat stomach and intestinal ulcers, among other uses, according to the researchers.

“We found out why certain drugs are active against the virus that causes COVID-19. Then, we found an antiviral combination that can be effective, economical and has a long history of safety,” said David A Ostrov, an associate professor at the University of Florida.

In lab tests on human and monkey cells, the combination of drugs was particularly potent, the researchers said.

Individually, the two compounds each inhibited SARS-CoV-2 virus replication by about 30%, they said, adding that together, they reduced virus replication by 99%.

The findings, published in the journal *Pathogens*, are a first step in developing a formulation that could be used to accelerate COVID-19 recovery.

Additional research into the compounds’ effectiveness for COVID-19 prevention is already under way in mouse models, the researchers said.

To establish their findings, they focussed on proteins expressed in human cells known as sigma receptors.

Watch | All about the new Omicron coronavirus variant

In COVID-19 cases, the virus “hijacks” stress-response machinery, including sigma receptors, in order to replicate in the body, according to the researchers.

Interfering with that signalling appears to be the key to inhibiting the virus’s potency, they said.

“We now know the detailed mechanism of how certain drugs inhibit SARS-CoV-2 infection,” Mr. Ostrov said.

Data from the experiments show that a highly specific sigma receptor binding drug candidate and formulated combinations of over-the-counter products have the potential to inhibit virus infection and decrease recovery time from COVID-19, the researchers said.

While the findings are encouraging, Mr. Ostrov cautions against self-medicating with either diphenhydramine or lactoferrin as a COVID-19 prevention or treatment.

Explained | Why has Joe Biden ordered an investigation into the origins of SARS-CoV-2?

The type of lactoferrin used in the research differs slightly from the type that is commonly available to consumers, he added.

## WHO

### **‘Highly unlikely’ existing vaccines will fail against Omicron: WHO (The Hindu: 202101217)**

<https://www.thehindu.com/sci-tech/health/highly-unlikely-existing-vaccines-will-fail-against-omicron-who/article37892111.ece>

There are indications that Omicron is better at infecting people who have been vaccinated or already had COVID-19. | File

In the fight against all COVID-19 variants, WHO emergencies director Michael Ryan said, “the best weapon we have right now is to get vaccinated.”

Omicron does not appear to cause more severe disease than previous COVID-19 variants, and is “highly unlikely” to fully dodge vaccine protections, a top WHO official said.

The World Health Organization’s second-in-command, said that while a lot remained to be learned about the new, heavily mutated variant of COVID-19, preliminary data indicated it did not make people sicker than Delta and other strains.

“The preliminary data doesn’t indicate that this is more severe. In fact, if anything, the direction is towards less severity,” WHO emergencies director Michael Ryan said in an interview, insisting though that more research was needed.

“It’s very early days, we have to be very careful how we interpret that signal,” he said.

At the same time, he said there was no sign that Omicron could fully sidestep protections provided by existing COVID-19 vaccines.

“We have highly effective vaccines that have proved effective against all the variants so far, in terms of severe disease and hospitalisation,” the 56-year-old epidemiologist and former trauma surgeon said.

“There’s no reason to expect that it wouldn’t be so” for Omicron, he said, pointing to early data from South Africa where the variant was first detected that “suggest the vaccine at least is holding up in protection terms”.

The new variant of COVID-19 should be fought with the same measures, including vaccines, masks and physical distancing. | File

The new variant of COVID-19 should be fought with the same measures, including vaccines, masks and physical distancing. | File

Vaccination is the best weapon

Mr. Ryan acknowledged it was possible that the existing vaccines might prove less effective against Omicron, which counts more than 30 mutations on the spike protein that dots the surface of the coronavirus and allows it to invade cells.

But he said it was “highly unlikely” it would be able to evade vaccine protections altogether.

“We have to confirm if there's any lapse in that protection, but I would expect to see some protection there,” he said.

“The preliminary data from South Africa wouldn't indicate that we will have a catastrophic loss of efficacy. In fact, the opposite at the moment,” Mr. Ryan said.

Also read: With Omicron, third wave projected to hit India by Feb, says IIT scientist

In the fight against all COVID-19 variants, he said, “the best weapon we have right now is to get vaccinated.”

Two weeks after first being identified, Omicron has been found in dozens of countries around the world.

Early data from South Africa indicates that the new variant is likely more transmissible than previous variants, Mr. Ryan said, adding that this was not a surprise.

“When any new variant emerges, it will tend to be more transmissible, because it's got to compete with previous variants,” he said.

Same rules for new variant

Mr. Ryan said one could expect Omicron to gradually replace Delta as the dominant strain.

But he pointed out that Omicron had so far been seen spreading especially quickly in South Africa, where Delta had waned, and may just be “exploiting a gap in the transmission of Delta”.

There are also indications that Omicron is better at infecting people who have been vaccinated or already had COVID-19.

“There is some evidence to suggest that reinfection with Omicron is more common than it was with previous waves or previous variants,” Mr. Ryan said.

But, “we're particularly interested in seeing not whether you can be reinfected with Omicron, but whether any new infection is more or less severe,” he said.

Also read: The Omicron response is not making sense

He said that, as the current COVID-19 vaccines aim to prevent severe disease but do not necessarily protect against simply contracting the virus, reinfections with mild or no symptoms were of lesser concern.

In any case, Mr. Ryan said, despite its mutations, the new variant was still COVID-19, and should be fought with the same measures, including vaccines, masks and physical distancing.

“The virus hasn’t changed its nature. It may have changed in terms of its efficiency, but it hasn’t changed the game entirely,” he said.

“The rules of the game are still the same.”

## Omicron Infection

### ओमीक्रोन संक्रमण ने संकट बढ़ाया (Hindustan: 202101217)

कोरोना वायरस का नया वेरिएंट ओमीक्रोन कई और देशों में फैल रहा है। जिन नए देशों में ओमीक्रोन ने दस्तक दी है उनमें इंडोनेशिया, पोलैंड शामिल है। वहीं कनाडा, फ्रांस, स्वीडन और पुर्तगाल ने अपने यहां यात्रा नियमों को और कड़ा कर दिया है। विश्व स्वास्थ्य संगठन के मुताबिक, अब तक 80 से ज्यादा देशों में इस वेरिएंट का संक्रमण फैल चुका है।



ब्रिटेन में ओमीक्रोन के बढ़ते मामलों के बीच गुरुवार को बूस्टर डोज लगाने के लिए टीकाकरण केंद्र पर लगी कतार।



**80** से ज्यादा देशों में  
अब तक फैल चुका  
है नया वेरिएंट

