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Review Article

## The new alarming corona virus strain: EG.5

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### Abstract

Worldwide, COVID-19 immunizations have avoided millions of fatalities, hospitalizations, and severe diseases since they were first made available. Vaccines can protect against dangerous diseases, but even so, after receiving a shot, it's still possible to spread SARS-CoV-2 to other people.

It was only a matter of time before yet another new COVID-19-causing SARS-CoV-2 strain appeared and spread. The evolution of coronaviruses is well documented. The strain for this summer is known as EG.5, often called Eris (a moniker for the Greek goddess of strife and discord). The number of infections caused by Eris, an ancestor of Omicron, has already overtaken that of all other coronavirus subvariants in the country. EG.5 viruses have not yet aroused any alarms over the severity of the illness, There are early signs that it might spread more quickly. It is currently more common than XBB.1.16, another extraordinarily contagious Omicron subvariant that grabbed headlines just a few months ago (also known as Arcturus). Early indications indicate that EG.5 is currently spreading more quickly than any other virus.

**Keywords:** corona virus, new strain, EG.5

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### Introduction

COVID-19 is brought on by the SARS-CoV-2 coronavirus. It frequently spreads among those who are nearby. The COVID-19 vaccine provides great protection against deadly illness and death. After vaccination, COVID-19 is still contagious, although symptoms are usually mild or nonexistent. Although the majority of individuals heal on their own, everyone who contracts COVID-19 has the potential to suffer from a serious illness or pass away. People over 60 and those who already have disorders are more likely to get serious illnesses. Among these conditions

are pregnancy, high blood pressure, diabetes, obesity, immunosuppression, cancer, and HIV. Unvaccinated people are also more prone to have severe symptoms.<sup>(1)</sup>

### Symptoms:

Various COVID-19 symptoms may be experienced by different persons. Usually, symptoms start to show up 5–6 days after exposure and remain for 1–14 days.

Sore throat, chills, and a fever are common symptoms. The following symptoms are less

frequent: headache, sore eyes, dizziness, new and persistent cough, tightness in the chest or chest pain, shortness of breath, hoarseness of voice, numbness or tingling, loss of appetite, nausea, vomiting, abdominal pain or diarrhea, loss of taste or change in sense of taste or smell, and difficulty sleeping.<sup>(2)</sup>

In case a person suffer any of the following signs, medical help should be sought right away: Confusion, drowsiness, loss of awareness, difficulty breathing, particularly while at rest; inability to talk in whole phrases; cold or clammy skin; skin that turns pale or bluish; loss of voice or movement.<sup>(2)</sup>

People who already have health problems are more likely to develop COVID-19; as a result, they should seek medical attention as soon as they have concerns about their condition. These people comprise those who are taking immunosuppressive drugs, have persistent liver, heart, lung, or rheumatologic conditions, as well as those who have dementia, HIV, diabetes, cancer, or obesity.<sup>(3)</sup>

Some COVID-19 patients continue to have symptoms whether they require hospitalization or not. These enduring consequences are known as "long COVID" (or "post COVID-19 condition"). The most common symptoms of chronic COVID include fatigue, shortness of breath, and cognitive impairment (such as disorientation, forgetfulness, or a lack of mental focus or clarity). A person's ability to perform daily duties like work or housework may be compromised by prolonged COVID.<sup>(4)</sup>

### **The newest corona variant (EG.5):**

The spike amino acid profile of EG.5's ancestor, XBB.1.9.2, is the same as that of XBB.1.5. On February 17, 2023, the first case of EG.5 was recorded, and on July 19, 2023, it was labeled as a variant under monitoring (VUM). Based on this risk evaluation, we are classifying EG.5 and its sub-lineages as a variant of interest (VOI).<sup>(5)</sup>

When compared to XBB.1.5 and its parent XBB.1.9.2 sub variant, EG.5's spike protein carries an additional F456L mutation. The sub variant EG.5.1 of the EG.5 lineage makes up 88% of the sequences currently available for EG.5 and its child lineages and has an additional spike mutation Q52H. 7354 EG.5 sequences from 51 different countries had been submitted to GISAID

as of August 7th, 2023. The majority of EG.5 sequences (30.6%, 2247 sequences) come from China. The other countries with at least 100 sequences include the United States (18.4%, 1356), Republic of Korea (14.1%, 1040), Japan (11.1%, 814), Canada (5.3%), Australia (2.1%, 158), Singapore (2.1%, 154), United Kingdom (2.0%, 150), France (1.6%, 119 sequences), and Portugal.<sup>(6)</sup>

Across the board, the proportion of EG.5 reported has been rising gradually. 17.4% of people worldwide have EG.5 according to epidemiological week 29 (17–23 July 2023) data. Four weeks earlier (week 25, 19 to 25 June 2023) there were 7.6% of cases worldwide, which is a considerable increase.<sup>(7)</sup>

### **Prevalence of EG.5, the latest coronavirus subvariant:**

The Centers for Disease Control and Prevention (CDC) determined that EG.5, more than any other single SARS-CoV-2 strain in circulation, was in charge of 20.6% of COVID-19 cases in the United States as of the end of the third week of August. A strain known as FL 1.5.1 (or Fornax), which is supposedly expanding swiftly in the U.S., was in second place the same week and accounted for 13.3% of cases, following a mixture of various XBB strains and children of Omicron.<sup>(8)</sup>

### **Differences between EG.5 and other recent coronavirus strains:**

It is not significantly different from other recent strains. The progenitor of the EG.5 variety, identified in February, is the Omicron variant, which first manifested in November 2021 and has undergone multiple subvariants. (It might be significant to note that the original strain of Omicron, the SARS-CoV-2 virus, and the earlier, more hazardous Alpha and Delta strains are no longer in circulation, except in exceedingly rare instances).<sup>(9)</sup>

However, a unique mutation in the EG.5 spike protein (the element that facilitates virus entry into the host cell) may allow the virus to partially evade the protection produced by infection or vaccination. This variation displays a little bit greater immunological evasiveness than the others due to a little genetic change.<sup>(10)</sup>

The World Health Organization (WHO) has classified EG.5 as a "variant of interest," meaning

that states should examine it more closely than other strains because of changes that could make it more contagious or severe. The CDC's page on variant categorization (8) has not yet undergone any revisions.

### **How much is it circulating?**

The distribution of EG.5, which was first fueled by circulation in China, Japan, and South Korea, has increased throughout North America and Europe. According to Public Health France, EG.5 made up 26% of sequences in France on July 17 compared to 15% the week before, which is "consistent with the global situation." Particularly in the UK, EG.5.1, which accounts for 14% of cases, has the greatest growth rate for variations in the nation. Data from the Centers for Disease Control and Prevention (CDC) (9) show that EG.5 accounts for around 17% of cases in the United States, more than any other lineage of Omicron that is being tracked. (11)

"Several countries with rising EG.5 prevalence have seen increases in cases and hospitalizations, though at this time there is no evidence of a rise in disease severity directly associated with EG.5"(9), according to WHO's risk assessment of the variant. (12)

### **EG.5 as a contributing factor to an uptick in COVID-19 hospitalizations:**

Without a doubt. In the first week of August of this year, the CDC noticed a 14.3% rise in hospitalizations associated with COVID. This increase in incidence and hospitalizations is far less than in previous summers, albeit. (13)

Over the previous three years, these COVID-19 summer surges have been noticed, most likely as a result of increasing travel. The new strain, which has a greater ability to bypass people's immune systems, and the waning effectiveness of the booster dosages administered last fall are both likely contributors to the present surge. (14)

### **Difference between EG.5 symptoms and other coronavirus subvariants symptoms:**

No, not yet. In contrast to lower respiratory tract symptoms, EG.5 tends to affect the upper respiratory system, resulting in runny nose, sore throat, and other cold-like symptoms. However,

the virus is more likely to spread to the lower respiratory tract in those 65 years of age or older or those with weakened immune systems. (15)

### **New booster shot role in protection against EG.5:**

Because Pfizer, Moderna, and Novavax are all developing versions of the booster that are intended for Omicron's close relative, XBB 1.5, the new booster won't be a great match for EG.5. Early results from clinical trials show that Moderna's booster shot will effectively target both the EG.5 and FL 1.5.1 subvariants, the company stated in August. (16)

The two strains, EG.5 and XBB.1.5, resemble one another considerably but not exactly. "I have a strong feeling that there will still be a significant amount of protection from the booster given the genetic similarities. Cross-protection will be much more effective if Omicron subvariants share a genetic code rather than a bigger change as there was from the more severe Delta to Omicron, as we have found throughout the pandemic. (17)

Future seasonal COVID-19 booster doses will probably be based in part on that idea. A new booster will be introduced again next fall. COVID-19 is probably analogous to the flu, where the virus mutates considerably every year and we develop a vaccine before we know precisely which changes will be circulating in many months. Always based on the circumstances at hand, it's a calculated assumption. (18)

Antiviral drugs like Paxlovid ought to be effective against EG.5, and at-home quick tests ought to be able to identify it.

### **Treatment**

Most people recover without requiring hospital treatment. Doctors will advise COVID-19 therapy for patients who need it depending on the severity of the condition and chance that it will get worse. They will consider the person's age and any additional medical conditions. (19)

### **Prevention**

Everyone should take their shots as soon as it is their turn. They ought to follow local guidelines for vaccination and COVID-19 preventative actions. The COVID-19 vaccine offers effective defense against critical sickness, hospitalization, and demise. (20)

To stop the COVID-19 virus from spreading:

- Wear a properly fitted mask on feeling sick, have been around sick people, at high risk, or in crowded or poorly ventilated areas. Wash hands frequently with alcohol-based hand rub or soap and water. Avoid crowds and keep a safe distance from others, even if they don't seem sick.
- cover mouth and nose with a bent elbow or tissue when you cough or sneeze.
- dispose of used tissues right away and clean your hands.
- If you develop symptoms or test positive for COVID-19, self-isolate until you recover.

Ages 60 and older, people with underlying medical conditions like high blood pressure, diabetes, chronic health problems, immunosuppression (including HIV), obesity, cancer, and people who have never received the vaccine are among the priority populations for the COVID-19 vaccine. In March 2023, the WHO updated its recommendations for primary series vaccination (two doses of any vaccine) and the need for booster shots.<sup>(21)</sup>

Depending on the extent of SARS-CoV-2 activity in your country or region, this advice is merely a suggestion and could change at any time.<sup>(21)</sup>

It is imperative to follow any recommendations and policies published locally by your local health authority. Age 60 and older, people with underlying medical conditions like high blood pressure, diabetes, chronic health problems, immunosuppression (including HIV), obesity, cancer, and people who have never received the vaccine are among the priority populations for the COVID-19 vaccine. In March 2023, the WHO updated its recommendations for primary series vaccination (two doses of any vaccine) and the need for booster shots. The level of SARS-CoV-2 activity in your country or region will determine how long this advice will remain valid and whether it will be updated. Keep up with any local suggestions and rules published by your local government.<sup>(22)</sup>

### **Prevention and control of SARS-CoV-2 and other viruses this winter:**

Due to the probability of three viruses—SARS-CoV-2, influenza, and respiratory syncytial virus (RSV)—all striking at once during the fall and

winter seasons, there have been worries about a "triple-demic" for the previous three years.<sup>(23)</sup>

This year, stronger defenses might be offered by new COVID-19 boosters and RSV prevention techniques. RSV can have catastrophic effects on those who are vulnerable, such as infants and the elderly. This summer, the CDC recommended two RSV vaccines for those over 60 and a monoclonal antibody for infants and toddlers, all of which were approved by the Food and Drug Administration (FDA). All three are planned to be offered in the fall.<sup>(23)</sup>

Although the recently created COVID-19 boosters have not yet been approved, Dr. Roberts advises anyone who gets one in the fall to plan on having adequate protection by the beginning of the following year because the shots take about three months to achieve their greatest strength.<sup>(24)</sup>

It is anticipated that there will be the typical winter uptick in COVID-19 cases, but it is hoped that there will be a much smaller increase in COVID-19 hospitalizations than in previous winters because EG.5 is a mild strain, there are COVID-19 treatments like Paxlovid available, and there is a new booster shot.<sup>(24)</sup>

Nevertheless, precautions may still be necessary, especially if you are 50 years of age or older, immunocompromised, or have underlying medical conditions like obesity or chronic obstructive pulmonary disease (COPD) that raise your risk for contracting a serious illness.<sup>(25)</sup>

The COVID-19 vaccination is the most effective means of protection, despite the fact that preventive strategies including avoiding ill people and wearing masks while around people in confined spaces may be beneficial.<sup>(25)</sup>

### **Why we still have to 'keep an eye' on COVID?**

People are mostly protected from vaccines, but also from prior illnesses, so we already have some immunity. Because of this, we aren't seeing the same amount of effect in terms of hospitalizations and fatalities at the end of July.<sup>(25)</sup>

However, there is a worry that "we could potentially see new variants that could be more severe and that's something we have to keep an eye out for."

The epidemiologists issued a warning, advising nations to continue monitoring the COVID-related hospitalizations, fatality rates, and cases need

critical care. Only 11% of nations provided information on severe cases, and only 25% of nations sent WHO statistics on death rates.<sup>(25)</sup>

Continued sequencing is essential since the virus has not disappeared and because it is currently unknown if EG.5 is to blame for the most recent increase in COVID cases. Although it was crucial to "track the evolution" of the virus, a US-based doctor and scientist noted that there was "no clear cause and effect relationship with the current (small) increases in wastewater, cases, and hospitalizations."<sup>(25)</sup>

## Conclusion

Like other viral variants in the omicron lineage, EG.5 has the potential to "cause a rise in case incidence and become dominant in some countries or even globally." That's due to its "growth advantage and immune escape characteristics."

EG.5 is thought to be relatively safe at the moment. The surge in cases could be related to the summer COVID wave that individuals in the Northern Hemisphere are currently experiencing. During the scorching heat, people prefer to stay in air-conditioned spaces. As the virus continues to evolve and defenses against earlier infections erode, the probability of getting a new infection increases.

It acts as a handy reminder to keep COVID-19 under your radar and in your control.

The most recent studies indicate that updated COVID immunizations for protection against new variants, including EG.5, should be available soon.

The enhanced COVID-19 booster shots will specifically target EG.5. However, any new booster vaccines will certainly provide protection against both varieties since they will be based on XBB.1.5, a Variant of Interest, and given that it resembles EG.5.

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