



**SUPERIOR HEALTH**  
Quality Alliance

# Variant of Concern: What do we know about BA.5?

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# Objectives

- Understand current state of BA.5 infections.
- Discuss BA.5 spread, symptoms, disease severity and hospitalizations.
- Review effectiveness of vaccination and treatment against BA.5.
- Highlight changes to vaccines anticipated fall 2022.

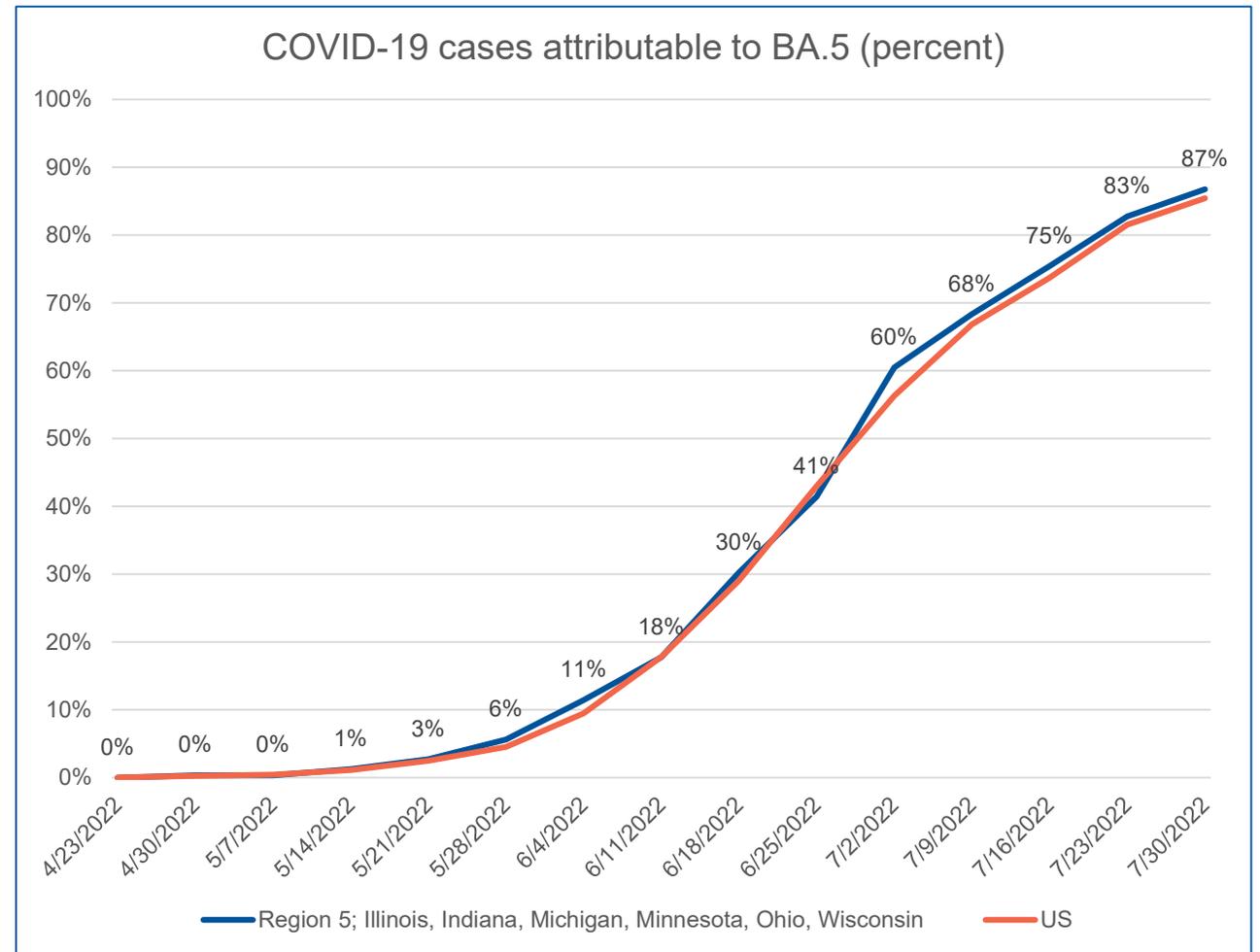
# What is BA.5?

- The newest variant of concern.
- Omicron sub-variant.
- Fueling a global surge in cases.

Source: [University of Minnesota; Center for Infectious Disease Research and Policy](#)

# BA.5 Infections

- Globally: BA.5 accounted for 50% of new infections between July 1 – July 14.
- United States: BA.5 is currently responsible for 84% – 87% of COVID-19 cases.



Data labels displayed are for Region 5.

# BA.5 Infections, continued

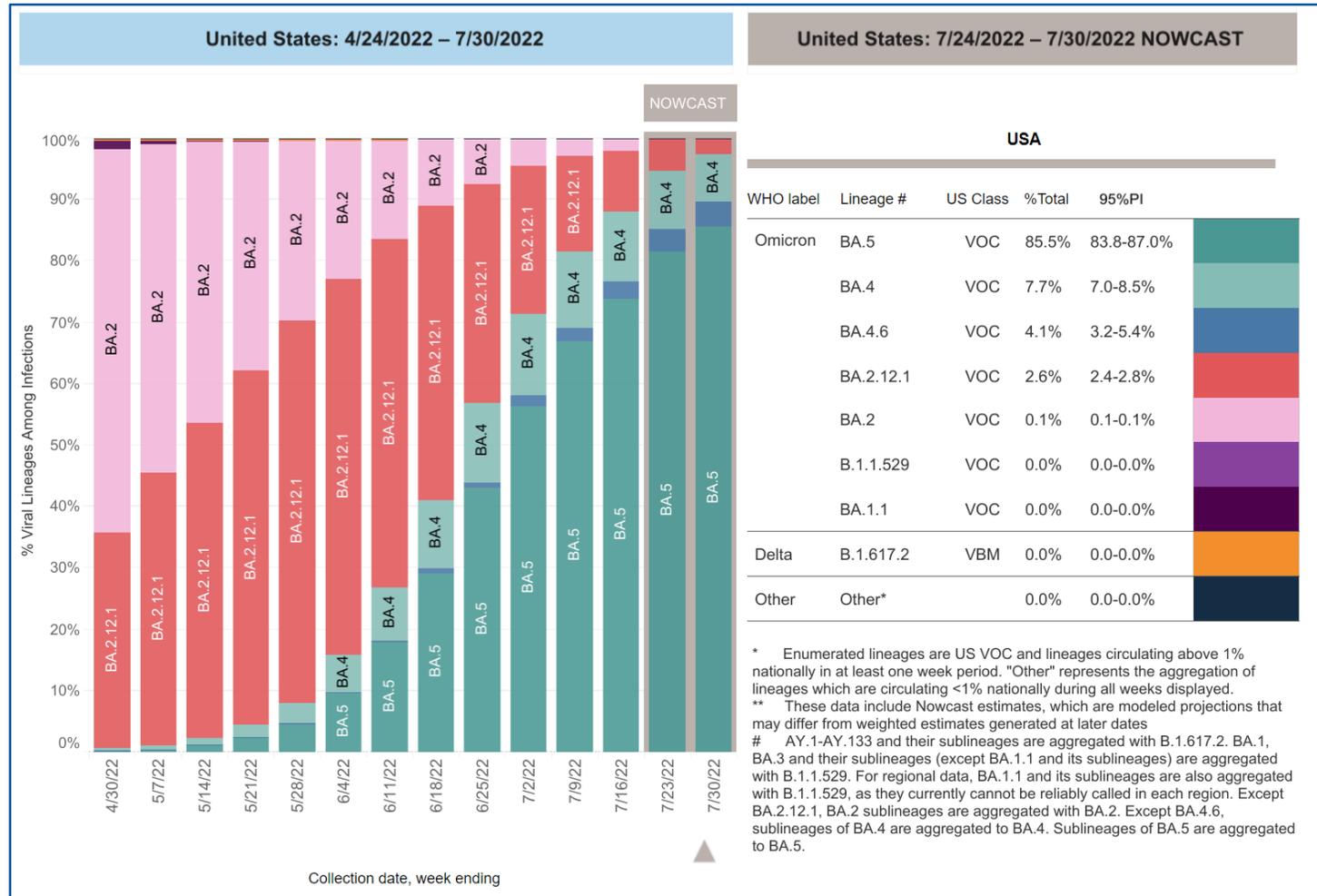
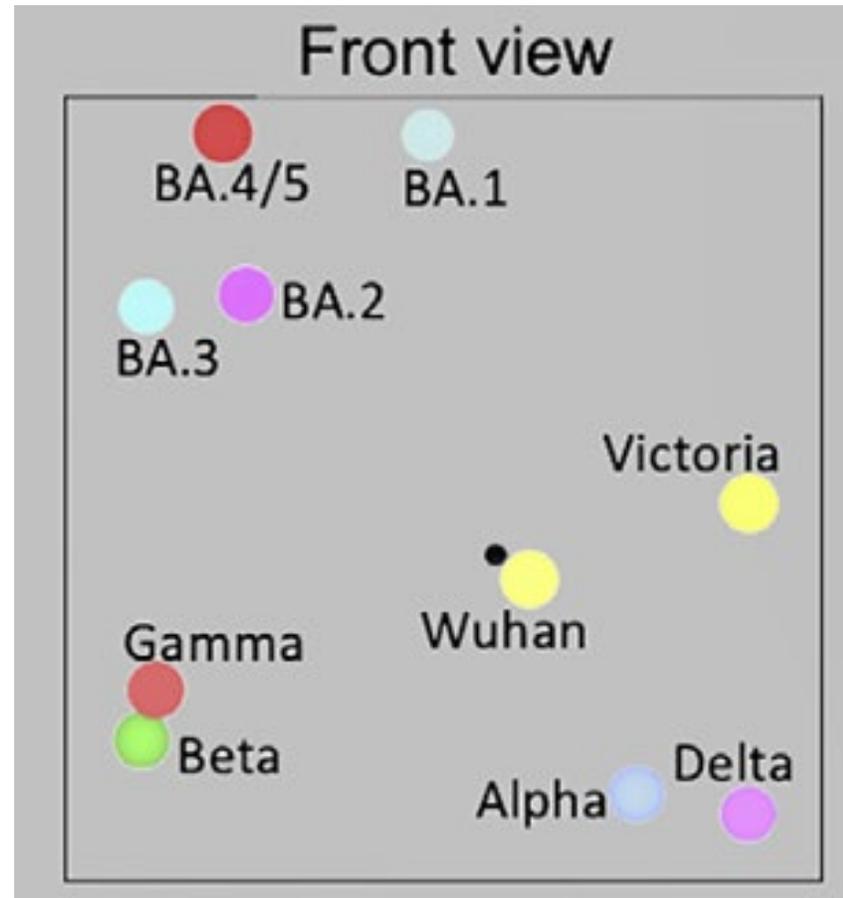


Image generated Aug 3.

# BA.5 Characteristics

# SARS-CoV-2 Variant Antigenic Map



Source: [Antibody escape of SARS-CoV-2 Omicron BA.4 and BA.5 from vaccine and BA.1 serum \(cell.com\)](#)

# Changes in BA.5

- Spike protein mutation.
- Enhances viral replication.
- Suppresses immunity.

Source: [SARS-CoV-2 Omicron BA.5 \(Australia\)](#) and [CAS; American Chemical Society](#),

# Transmissibility

- BA.5 is the most contagious version of the virus yet.
- R0
  - Flu: 0.9 – 2.1
  - COVID-19: 1.5 – 3.5, 4 – 9
    - BA.5: ???
  - Smallpox: 5 – 7
  - Measles: 12 – 18

# Transmissibility: Outdoor Spread

- It is not known whether the outdoor spread for BA.5 is any different than prior variants.
- Since it is more transmissible indoors, we can speculate it is likely more transmissible outside as well.

“It appears that outdoor transmission has become more likely with the newer variants over the past year (i.e., since Delta) as they have become more transmissible, but outdoors remains a much lower-risk setting than indoors,” Dr. Marr explains.

# Incubation Period

7–10 days → 3–5 days

The period of time between infection and initial symptoms is shorter in omicron variants than in delta — around three days on average.

# Symptoms

- Sore throat
- Headaches
- Coughing
- Runny nose
- Nasal congestion
- Hoarse voice
- Muscle aches (back and neck aches)
- Fatigue
- Fevers\*
- Loss of taste/smell\*

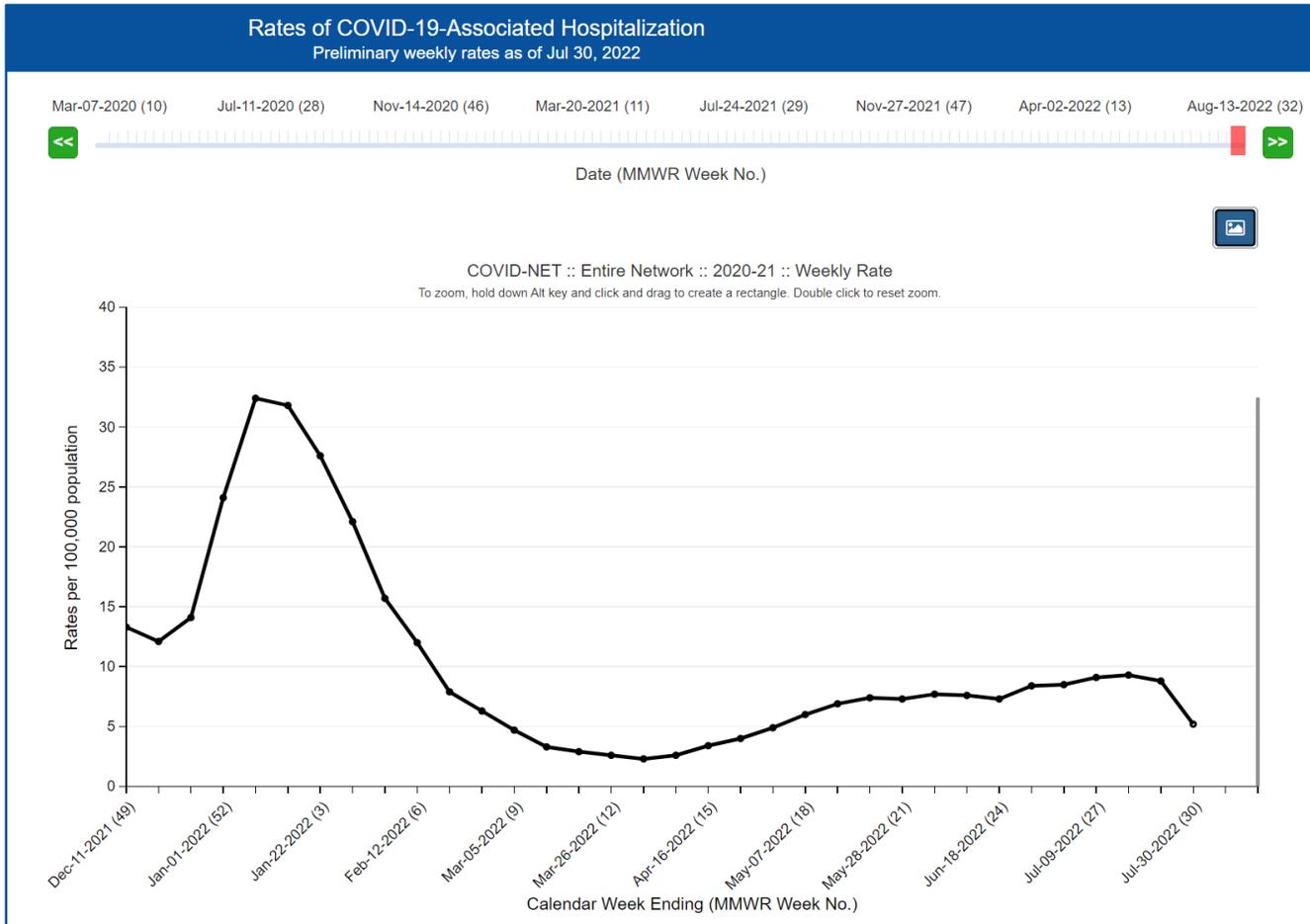
\* becoming less common

New variant has more upper respiratory symptoms, and less lung involvement.

# Disease Severity

- There is no evidence to suggest BA.5 is associated with more severe disease.
- BA.5 has not changed risk of hospitalizations compared to earlier versions.
  - Emerging research from [Denmark](#) shows BA.5 has an increased risk of hospitalization compared to BA.2.

# Hospitalizations and ICU Admissions

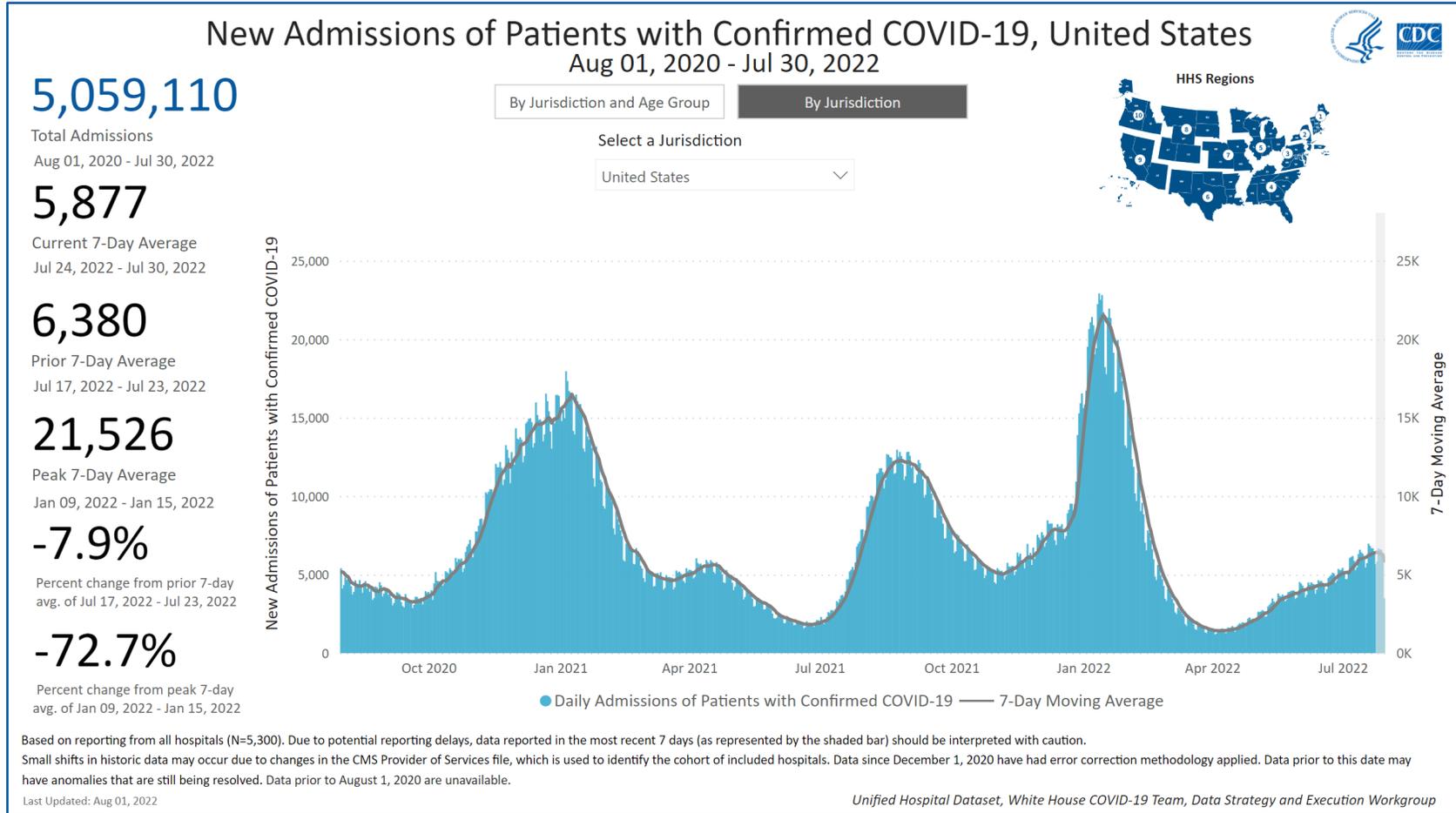


“One good thing is it doesn't appear to be accompanied by the ICU admissions and the deaths as previous variants.”

- Dr. Eric Topol, Scripps Research Institute (July 11)

Source: [CDC: Laboratory-Confirmed COVID-19-Associated Hospitalizations](#) and [CNN: Undercounted COVID-19 cases leaves US with a blind spot](#)

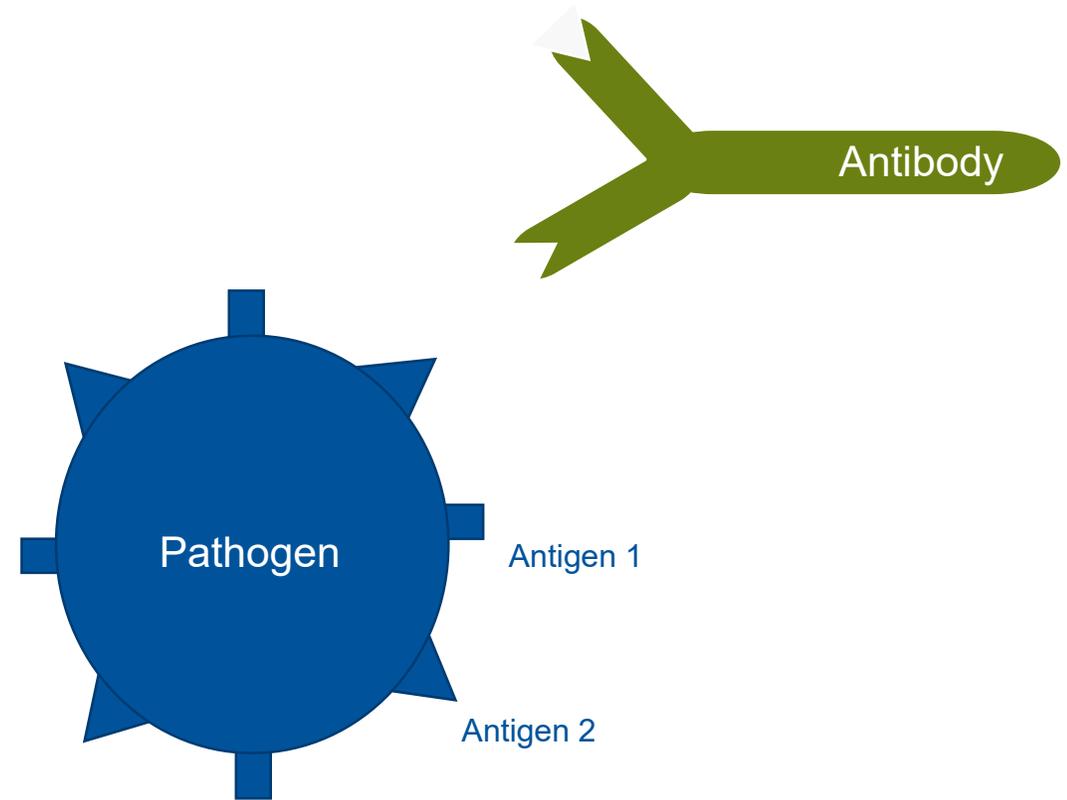
# Hospitalizations



# Immune Response

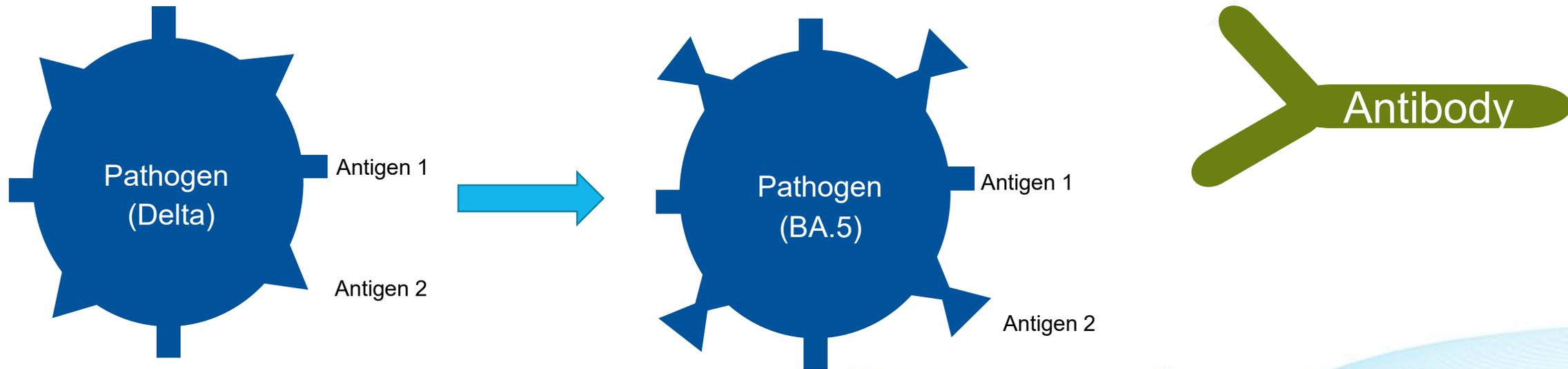
# Quick Recap: Immune Response

When people are vaccinated or infected, they develop antibodies that can neutralize the coronavirus by sticking to its spike proteins.



# Immune Evasion

- BA.5 "substantially" evades antibodies from prior infections and vaccines.
- Changes to spike protein results in their ability to evade neutralizing antibodies.



[Nature; BA.22.12.1, BA.4 and BA.5 escape antibodies elicited by Omicron infection](#)  
[CNET; Another COVID Wave is Here](#)

# Antibodies

- Antibodies are three to four times less effective against new subvariants (BA.5) than they were against the original Omicron strains.
- Antibodies for people vaccinated against COVID-19 are more effective than those who recovered from natural infection alone.

Source: [GAVI; Five things we've learned about BA.4 and BA.5 Omicron variants](#)  
[Cell; Antibody escape of SARS-CoV-2, Nature; BA.22.12.1, BA.4 and BA.5 escape antibodies elicited by Omicron infection, New England Journal of Medicine; Neutralization Escape by SARS-CoV-2 Omicron Subvariants](#)

# Vaccines

- Do not offer ‘as much’ protection against BA.5.
- Being up to date is still protective against severe disease and death.
  - Data from South Africa shows the vaccine provided 87% protection against hospitalization with BA.5.

[Bloomberg; Pfizer Vaccine Protects Against Omicron Sublineages](#)

[NBC; BA.5, now dominant U.S. variant](#)

[GAVI; Five things we've learned about BA.4 and BA.5 Omicron variants](#)

[ABC; Experts reveal how likely reinfection is from COVID](#)

[CNET; Another COVID Wave is Here](#)

# Reinfection

- Rate of reinfection has doubled since May – now 6.4%
- Increase due to:
  - Emergence of BA.5 variant.
  - People previously infected are dropping mitigation measures.
  - Increase in total infections.
  - Mitigation mandates (e.g. mask mandates) have ended.

# Reinfection, continued

- Due to difference in the BA.5 virus, people who were infected with the original Omicron variant may be susceptible to new subvariants.
  - There have been three subvariants since April – BA.2, BA2.12.1 and BA.5.
- Qatar Study
  - Infection with pre-Omicron variant; 15 - 28% effective against Omicron re-infection.
  - Infection with Omicron variant; >75% effective against Omicron re-infection.

# Treatments and ‘What’s Next’

# Treatments

- Effective against Omicron:
  - Paxlovid
    - Reduce risk of hospitalization and death by 89% (*National Institute of Health*)
  - Remdesivir
    - Reduces risk of hospitalization and death by 87% (*New England Journal of Medicine*)
  - Evusheld
    - Efficacy against BA.5 is less than against prior variants
- Not effective against Omicron treatment:
  - mAb

Source: [NIH; Therapeutic Management of Nonhospitalized Adults with COVID-19](#), [FDA; COVID-19 Update](#), [The White House; Fact Sheet - Biden Administration Outlines Strategy to Manage BA.5](#), [AstraZeneca; Evusheld long-acting antibody combination](#), [New England Journal of Medicine; Early Remdesivir to Prevent Progression to Severe COVID-19](#)

# What's Next? Boosters!

## Omicron-specific boosters

- CAUTION: Creating vaccines around the **current** variant is problematic.

## Nasal Vaccines

- High level of neutralizing antibodies against Omicron.

# If you are eligible for your second booster, should you get what is available now, or wait for the fall/Omicron strain?

Who Can Get a Booster	
<p>Recommended One Booster</p> <ul style="list-style-type: none"><li>• Everyone ages five years and older should get one booster after completing their COVID-19 vaccine primary series, if eligible.</li></ul>	<p>Recommended Two Boosters</p> <ul style="list-style-type: none"><li>• Adults ages 50 years and older</li><li>• Some people ages 12 years and older who are moderately or severely immunocompromised.</li></ul>

# If you are eligible for your second booster, should you get what is available now, or wait for the fall/Omicron strain?

- Food and Drug Administration (FDA) is not considering authorizing a second booster of the current vaccine, for adults <50.
- Why?
  - Delay mass-vaccination campaign to avoid confusion.
  - Wait for omicron specific vaccine.

“Instead of expanding eligibility for a fourth COVID-19 booster shot now, the Biden administration will push this fall to get Americans to take another booster vaccination that is predicted to better protect against the Omicron BA.5 subvariant of the Coronavirus.”

# If you are eligible for your second booster, should you get what is available now, or wait for the fall/Omicron strain?

So... what should you do?

***It's up to you!***

- If you are eligible, you can still benefit from existing booster options and can get an updated booster in the fall. ([Reuters](#))
- Others would try and wait. ([ABC](#))

# Questions?

# Upcoming Sessions

**August 17:** Dr. Buffy, Session 4 | *Top 5 areas of opportunity for Infection Prevention*

**August 24:** Immunization Series Part 1 | *The Importance of Vaccines Including Tools You Can Use*

**August 31:** Immunization Series Part 2 | *Vaccine Conversations*

**September 7:** Immunization Series Part 3 | *Creating a Culture of Immunization*

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