COVID Prevention: Omicron Variants

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COVID-Omicron BA.1 (version 1), the new COVID-Omicron variants, BA.2 and BA.3, and how they differ

- Omicron BA.1 symptoms (most common: cough, fatigue or tiredness, congestion or runny nose) differ from previous variants (fever or chills, cough, shortness of breath or difficulty breathing, fatigue, muscle/body aches, headache, loss of taste or smell, sore throat).
- Omicron BA.1 has 34 mutations in its spike protein and other mutations making it 70X more efficient at infecting our respiratory tracts. BA.2 has an additional 20 mutations which appears to give it a transmissibility advantage over BA.1.
- Most of these mutations have evolved against immunity provided by previous infections and vaccinations. Booster shots restore vaccine efficacy against infection.
- Omicron BA.1 causes less severe disease, but it causes a lot more infections in a shorter time period (compared to previous variants) causing hospital capacities to be exceeded. BA.2 and BA.3 will likely be similar, but it’s too early to know for sure. Early evidence from Denmark indicates BA.2 has similar severity as BA.1. BA.3 appears to be less of a concern.

Genomic differences between BA.1 & BA.2. ORF1ab codes for a complex of proteins affecting how the virus acts in the host. RBD is where the virus binds to ACE2 receptors on the host's cells. S1 is the spike protein. Thanks to Dr. Shay Fleishon and Dennis Reichel.
COVID-Omicron BA.1 (version 1), the new COVID-Omicron variants, BA.2 and BA.3, and how they differ

- Currently, almost half of Oklahomans have active COVID infections, 98% of which are from Omicron BA.1 (see charts on slides 21-22).
- We are already seeing repeat infections from Omicron, so the high infection rate may not protect those previously infected from getting COVID again.
- Omicron BA.1 surge in Oklahoma has caused by far the highest number of active cases since the pandemic began.
- We have record numbers of people in the hospital due to COVID Omicron.
- The percent of people hospitalized who then die from COVID is nearly as high as it was before therapies were available and treatment methods had improved.
- We will continue to see high numbers of deaths over the next 2-3 weeks.
Based on the most recent CDC guidelines (2022-01-04) for the current COVID-19 Omicron surge, we recommend:

1. All employees receive COVID booster shots or complete primary doses ASAP (see chart on page 7).
2. All employees provided with and required to wear KN-94, KN-95, or N-95 face masks.
3. Temporarily (30 days) reinstate universal mask requirements for all within Tribal and Lucky Star Casino facilities. Those with recently (<2 months) completed vaccine series or boosted may remove masks in offices.
4. All HVAC return air filters be upgraded to high-flow-capacity HEPA and fans set to always on for continuous filtering.
5. Follow updated guidance decision chart based on CDC guidelines and emerging science (see page 3).
6. Follow best practices for COVID prevention (see pages 5-16).
Decision Tree for COVID + or Direct Contacts

Has contact received a booster shot or received their 2nd mRNA <5 months or a J&J shot <2 months ago?

- Yes
  - Are this specific contact’s responsibilities critical to business operations?
    - Yes
      - Must their work be performed on-site?
        - Yes
          - Do they have symptoms?
            - No
              - May continue working but must always wear well-fitted KN-94/5 or N95 mask. At day 4 or 5, or if symptoms develop...
            - Yes
              - Test (antigen preferred) for COVID-19.
                - Positive test
                  - Quarantine/isolate for 5 more days. Then...
                - Negative test
                  - Return to work following current guidelines
        - No
          - Quarantine/isolate for 5 days. Then...
    - No
      - Quarantine/isolate for 5 days. Then...

- No
  - Quarantine/isolate for 5 days. Then...
  - Test (antigen preferred) for COVID-19.
    - Positive test
      - Quarantine/isolate for 5 more days. Then...
    - Negative test
      - Return to work following current guidelines
Best Practices to Reduce COVID Transmission

- GET VACCINATED & GET A BOOSTER
- INCREASE VENTILATION & FILTRATION INDOORS
- WEAR A KN94 or N95 MASK INDOORS
- AVOID CROWDS ESPECIALLY IF THEY’RE UNVACCINATED
- GET TESTED IF YOU HAVE SYMPTOMS OR BEEN EXPOSED
- ISOLATE/QUARANTINE IF YOU HAVE COVID-19 OR BEEN EXPOSED
- SPEND TIME OUTSIDE PHYSICALLY DISTANCE INDOORS
- DON’T PANIC BUT REMAIN VIGILANT
This is the most important thing to do to prevent getting and spreading COVID. Vaccines help inform our immune system of a threat to our health before we come under attack.
# COVID-19 Booster Recommendations

## WHAT COVID-19 VACCINE BOOSTER SHOULD I GET?\(^1\)

<table>
<thead>
<tr>
<th>First Vaccine</th>
<th># Vaccine Doses</th>
<th>Booster Options</th>
<th># Antibodies</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pfizer</td>
<td>2</td>
<td>moderna, BioNTech</td>
<td>17.3 x</td>
<td>1st</td>
</tr>
<tr>
<td>BioNTech</td>
<td></td>
<td>Pfizer, Janssen</td>
<td>14.9 x</td>
<td>2nd</td>
</tr>
<tr>
<td>moderna</td>
<td></td>
<td>BioNTech, Pfizer</td>
<td>6.2 x</td>
<td>3rd</td>
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<tr>
<td>Janssen</td>
<td>1</td>
<td>moderna, BioNTech</td>
<td>9.7 x</td>
<td>1st</td>
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<tr>
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<td></td>
<td>Janssen, moderna</td>
<td>7.9 x</td>
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</tr>
<tr>
<td>BioNTech</td>
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<td>4.7 x</td>
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<td>BioNTech</td>
<td></td>
<td>BioNTech, Pfizer</td>
<td>4.6 x</td>
<td>3rd</td>
</tr>
</tbody>
</table>

*Reference: “Heterologous SARS-CoV-2 Booster Vaccinations - Preliminary Report” (SARS-CoV-2 Vaccine Booster Trial), Table 2, SARS CoV-1 IgG Binding and Neutralizing Antibody Assays, Geometric mean fold rise. Copyright © 2021 Rob Swanda, PhD, drswanda.com.*
Why Are Vaccinations Needed?

- Vaccination substantially reduces cases, hospitalizations, and deaths due to COVID across age-groups, gender, and health status. While the chart to the left is for Switzerland, the pattern is very similar in the US and worldwide.

- Source: Our World in Data
  [https://ourworldindata.org/covid-deaths-by-vaccination](https://ourworldindata.org/covid-deaths-by-vaccination)
Vaccine effectiveness over time
Two doses of messenger RNA (mRNA) or adenovirus vectored COVID-19 vaccines elicit high levels of protection from symptomatic disease, but this wanes over time. Emerging studies show that a third dose (booster) of the same type can restore effectiveness to >90%. Data are averages for Delta variant from multiple studies.

- Vaccination effectiveness against infection wanes over time, especially as the virus adapts over time.
- Note: The Astra Zeneca would be similar to 2 doses of the Johnson & Johnson vaccine.
Wearing a well-fitted, high-quality face mask, such as KN-94, KN-95, or N-95 reduces risk of getting COVID and of spreading it to others. These masks reduce COVID viruses in the air we breathe indoors.
By bringing fresh air into indoor spaces (such as through open windows), ventilation of indoor spaces (intake and exhaust fans), and filtering air (HEPA air filter units), these steps reduce COVID in the air we breathe and the risk for getting or spreading COVID.
The more people around you (especially indoors and when many are not wearing face masks) increases the risks for being exposed to COVID. The more time spent in crowded spaces, the more COVID viruses you’re exposed to which increases risks for more serious illness.
This is the best way to know if you have COVID caused by Omicron, especially if you’re not having symptoms (most common are cough, fatigue or tiredness, congestion or runny nose, sore or scratchy throat, headache, nausea, and others.)
If you test positive, you should isolate. If you have been exposed to COVID through direct contact with someone with COVID, you should quarantine. This shows love and respect for others by protecting them from getting COVID from you.
When you want to eat, visit, or meet with others, go outside when possible to reduce risk of COVID. When indoors, stay physically distant from non-household members and wear your mask.
It’s still important to wash your hands often with soap and water or use hand sanitizer to prevent disease, including COVID and many others) transmission.
We still should disinfect high-contact commonly used surfaces, such as handrails, doorknobs and handles in public buildings, dining tables in breakrooms and restaurants, and others.
Once you have done all the above, you can be sure you’ve done everything you can to prevent getting COVID and spreading it to others.
As we have studied how COVID (and most respiratory infectious diseases, such as the flu or influenza, tuberculosis, etc.), our understanding of how best to prevent infections has changed. We now know that cleaning contaminated surfaces is far less important than improving air quality to prevent COVID transmission.


Why aren’t we deep cleaning anymore?
COVID-19 in Oklahoma

New Weekly Confirmed COVID-19 Cases in Oklahoma

- New Cases

- Time (01-Dec to 19-May)

- Cases (0 to 90000)
COVİD-19 in Oklahoma

Estimated True Active COVID Infections in Oklahoma Dec. 2021-Jan. 2022 (98% Omicron BA.1)