COVID-19 and K-12 Schools

Departments of Health & Senior Services and Elementary & Secondary Education

February 3, 2021
COVID-19 in Missouri – 2/3

- Daily case counts have declined throughout January and are now similar to what we experienced in October before our surge.
  - Positivity rates are also trending down steadily.
- COVID-19 hospitalizations are in decline.
- Transmission rates ("$R_e$") remain around 1, so vigilance and control measures must be maintained to prevent a surge while we ramp up vaccinations.
  - This is especially important due to concerns over new COVID-19 variants that could make their way to Missouri and that may have higher transmission rates.
COVID-19 in Missouri to Date

Confirmed Cases to Date
460,487

Confirmed Deaths to Date
7,088

PCR Tests to Date
4,173,283
Antigen Tests: 648,239
<table>
<thead>
<tr>
<th>Vaccinations (NEW)</th>
<th>Vaccine Doses Administered in the Past 7 Days</th>
<th>Average of 21,435 per day</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>150,042</strong></td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cases</th>
<th>New Cases in the Past 7 Days</th>
<th>Average of 1,056 per day</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>7,394</strong></td>
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</table>

<table>
<thead>
<tr>
<th>Deaths</th>
<th>New Deaths in the Past 7 Days</th>
<th>Average of 8 per day (see note)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>55</strong></td>
<td>0.9 deaths per 100K residents</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tests</th>
<th>New Tests in the Past 7 Days</th>
<th>Average of 12,629 per day</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>88,405</strong></td>
<td>1,440 tests per 100K residents</td>
</tr>
</tbody>
</table>

| Positivity Rate   | Positivity Rate over the Past 7 Days (CDC method) | **9.1%** |

<table>
<thead>
<tr>
<th>Hospitalizations</th>
<th>COVID-19 Patients in the Hospital</th>
<th>401 in the ICU</th>
<th>244 on ventilators</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>1,778</strong> (as of 1/29/2021)</td>
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</table>
- Positivity rate has decreased significantly in the past month

Moving 7-day positivity rate (CDC method) since March

Source: Data are from DHSS
Hospitalizations are also decreasing to pre-surge levels

Statewide suspected and confirmed COVID-19 hospitalizations, data through from Aug 1 through Feb 1

Source: Data are from HHS via TeleTracking
Transmission rates ("$R_e$") have decreased but are still around 1

Understanding $R_e$

$R_e > 1 = \text{COVID cases are growing}$

Missouri Case-based $R_e$ estimates, January 24, 2021

Missouri 0.81

Central 0.82, Northwest 0.8, SouthEast 0.79, SouthWest 0.79, Eastern 0.81

* Data date range: 12/29/20 - 01/04/21
Public vaccine dashboard update

Overall Vaccinations in Missouri

This dashboard was last updated on 2/2/2021 and contains data on vaccinations administered through 2/1/2021. Historical numbers, especially over the most recent few days, will update as providers report data to the state. Differences between this dashboard’s numbers and those on CDC’s dashboard are primarily due to timing.

- Total doses administered (includes first and second doses): 530,485
- Number of people who have received at least one dose: 409,618
- Number of people who have received a second dose: 120,867
- Share of population who have received at least one dose: 6.7% (2.0% have received two doses)
- Doses administered in past 7 days (1/24/2021 through 1/30/2021): 150,042 (average of 21,435 per day)

Doses Administered Over Time

Line represents 7-day average. Note that data from the most recent days may be incomplete because of delays in reporting.

View dashboards at ShowMeStrong.mo.gov
Who has been vaccinated?

View dashboards at ShowMeStrong.mo.gov
Where do vaccinated residents live?

View dashboards at ShowMeStrong.mo.gov
SARS-CoV-2 and Children

Rachel C. Orscheln, MD
Associate Professor of Pediatrics
Division of Pediatric Infectious Diseases
Washington University
K-12 schools can have in-person learning with limited in-school COVID-19 spread

17 K-12 schools in rural Wisconsin opened and implemented measures to limit spread:

- Used masks
- Established groups of 11-20 students
- Staff maintained 6 feet of distance, if possible
- Quarantined after exposures

Teachers reported more than 92% of students used masks

During 13 weeks of in-person learning:

- 7 of 4,876 students
- 0 of 654 staff

No spread is known to have occurred to or from staff in school despite some times with high community spread*

*Weekly incidence of 34 to 1,189 per 100,000 persons in the community; 7-40% positive COVID-19 tests

CDC.GOV bit.ly/MMWR12621
Cumulative Number of Community and School-Associated COVID-19 Cases and In-School Transmission by Week
Incidence and Secondary Transmission of SARS-CoV-2 Infections in Schools

• North Carolina

• Follow-up of 11 school districts providing in-person education for 9 weeks for >90,000 children
  • 773 community-acquired SARS-Co-V-2 infections reported
  • >3000 students and staff quarantined
    • 32 cases were determined to be school associated
    • NO cases of child to adult transmission
    • Most transmissions associated with absent face coverings
SARS-CoV-2 Positive Tests Among Attendees of a High School Wrestling Tournament and their Contacts

Positive Tests
Team A: 13 Wrestlers
Tournament Attendees: 38/126 (30.2%)
Close Contacts of Cases: 41/441 (9.3%)
<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Platform</th>
<th>Efficacy</th>
<th>Dose</th>
<th>Status</th>
<th>Storage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pfizer and BioNTech</td>
<td>Lipid nanoparticle</td>
<td>95%</td>
<td>2 dose</td>
<td>EUA</td>
<td>Frozen -80°C to -60°C Refrigerator for up to 5 days</td>
</tr>
<tr>
<td></td>
<td>mRNA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderna and NIH</td>
<td>Lipid nanoparticle</td>
<td>94.5%</td>
<td>2 dose</td>
<td>EUA</td>
<td>Frozen -25°C to -15°C Refrigerator for up to 30 days</td>
</tr>
<tr>
<td></td>
<td>mRNA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AstraZeneca and Oxford</td>
<td>Chimp adenovirus</td>
<td>Up to 90%</td>
<td>2 dose</td>
<td>Studies ongoing</td>
<td>Refrigerated</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Johnson &amp; Johnson and Janssen</td>
<td>Human adenovirus 26</td>
<td>72% in US 66% in Latin Am 57% in South Africa</td>
<td>1 (2 dose studies underway)</td>
<td>Interim results</td>
<td>Refrigerated</td>
</tr>
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</tr>
<tr>
<td>Novavax</td>
<td>Protein-based vaccine</td>
<td>89.3% 95.6% Original 86% UK variant 60% South African variant</td>
<td>2 doses</td>
<td>Interim results</td>
<td>Refrigerated</td>
</tr>
</tbody>
</table>
Pfizer/BioNTech Vaccine Vs. Placebo

8 participants sick with covid-19

1 Seriously ill

Received vaccine

162 sick with covid-19

9 Seriously ill

Received placebo
Cumulative Incidence Curves for the First COVID-19 Occurrence After Dose 1

https://www.fda.gov/media/144245/download
Adverse Reactions after 2nd Dose of Vaccine of Pfizer-BioNTech Vaccine

- Severe allergic reactions:
  - 11 cases per million
Adverse Reactions After Moderna-NIAID Vaccine

• Severe allergic reaction
  • 2 cases per million

Infection-Fatality Ratio for COVID-19 by Age

https://www.nature.com/articles/s41586-020-2918-0/figures/2
Herd Immunity

• “The resistance of a group attacked by a disease because of the immunity of a large proportion of the members and consequent lessening of the likelihood of an infected individual coming into contact with a susceptible individual.”

Stages of Vaccine Development
Food and Drug Administration (FDA) sets rules for the three phases of clinical trials to ensure the safety of the volunteers. Researchers test vaccines with adults first.

**PHASE 1**
- **20-100** healthy volunteers
- Is this vaccine safe?
- Does this vaccine seem to work?
- Are there any serious side effects?
- How is the size of the dose related to side effects?

**PHASE 2**
- Several hundred volunteers
- What are the most common short-term side effects?
- How are the volunteers’ immune systems responding to the vaccine?

**PHASE 3**
- Hundreds or thousands of volunteers
- How do people who get the vaccine and people who do not get the vaccine compare?
- Is the vaccine safe?
- Is the vaccine effective?
- What are the most common side effects?
## Number of Study Participants Across Recent Vaccine Trials

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Infection</th>
<th>Patients studied prior to FDA Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shingrix®</td>
<td>Shingles caused by Varicella zoster virus</td>
<td>16,600 Adults</td>
</tr>
<tr>
<td>Prevnar 20</td>
<td>Streptococcus pneumoniae</td>
<td>3,880 Adults (FDA approval pending)</td>
</tr>
<tr>
<td>Menveo®</td>
<td>Neisseria meningiditis</td>
<td>6,285 Adults</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3,539 Adolescents</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2,331 Infants</td>
</tr>
<tr>
<td>Gardasil® 9</td>
<td>Human papilloma virus</td>
<td>3,200 Women</td>
</tr>
<tr>
<td>Pfizer-BioNTech</td>
<td>SARS-CoV-2</td>
<td>44,000 Adults</td>
</tr>
<tr>
<td>Moderna-NIAID</td>
<td>SARS-CoV-2</td>
<td>30,351 Adults</td>
</tr>
<tr>
<td>Johnson &amp; Johnson-</td>
<td>SARS-CoV-2</td>
<td>43,783 Adults</td>
</tr>
<tr>
<td>Janssen</td>
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</tbody>
</table>
How Long Will Immunity Last?

• Currently under study
• Natural infection provides 94% protection for at least 5 months
• Most reinfection are asymptomatic
• Vaccine may stimulate higher levels of antibodies than natural infection

Viral Variants

- Contain mutations in receptor-binding domain (RBD)
- Epidemiological evidence suggest increased transmissibility
- No significant evidence if increased virulence

**South Africa B.1.351**
- Vaccines:
  - Pfizer and Moderna remain protective
  - AstraZeneca shows no evidence of reduced protection
  - Novavax 85.6% efficacy
- Identified in 30 states in the US

**Brazil P.1**
- 12 change to RBD
- Antibodies may not recognize variant leading to re-infection and decreased vaccine efficacy
- Identified in Minnesota

**U.K. B.1.1.7**
- Vaccines:
  - Pfizer and Moderna remain protective
  - AstraZeneca shows no evidence of reduced protection
  - Novavax 85.6% efficacy
- Identified in 30 states in the US
Do I still have to wear a mask after I am vaccinated? Or quarantine?
COVID-19 Vaccine Availability

- Activated in 12/20
- Details at MOStopsCOVID.com
- Activated in 1/21
- Educators & all school personnel; Activation TBD
## COVID-19 Vaccine Availability

### Phase 1B – Tier 1
Protecting those who keep us safe and help us during an emergency

- Public Health Administrators and Staff
- Law Enforcement
- Fire Services
- Corrections
- Emergency Management
- Public Works
- Emergency Services

### Phase 1B – Tier 2
Protecting those who are at increased risk for severe illness

- Anyone 65 and older
- Any adults with:
  - Cancer
  - Chronic Kidney Disease
  - COPD
  - Heart Conditions
  - Weakened immune system due to organ transplant
  - Severe obesity (BMI >40)
  - Pregnancy
  - Sickle Cell Disease
  - Type 2 Diabetes Mellitus
  - Individuals with intellectual and/or developmental disabilities such as Down Syndrome

### Phase 1B – Tier 3
Protecting those who keep the essential functions of society running

- Education (K-12)
- Childcare
- Communications Infrastructure
- Dam Sector
- Energy Sector
- Food & Agriculture Sector
- Government
- Information Technology
- Nuclear Reactor Sector
- Transportation Systems
- Water and Wastewater Systems

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Details at [MOStopsCOVID.com](http://MOStopsCOVID.com)

Note: Tier 2 membership supersedes Tier 3
COVID-19 Vaccine FAQs

GET THE FACTS

Making sure you have the facts about the COVID-19 vaccine is important. Your choice to get vaccinated can make a positive impact not only you and your family, but your entire community.

FAQs at MOStopsCOVID.com
COVID Vaccine Myth-Busting Video

Available at MOStopsCOVID.com
• Will school nurses be able to administer the vaccine to school personnel?
• Why are teachers in other states eligible to receive the vaccine now?
• How are teachers in some counties in Missouri getting vaccinated when Tier 3 isn’t activated?

Email questions live to Communications@dese.mo.gov
• Dashboard reflects program status & test usage

• About half of tests shipped to participating schools are being recouped to pass on to other entities prior to their expiration

• Additional information will be shared with participants in late Feb. or early March regarding replenishing inventory or shipping additional tests

Email questions live to Communications@dese.mo.gov
Future DHSS & DESE Webinars

- Mark your calendar for our remaining 2021 webinars
  - First Wednesday of each month – 1:00-2:30 p.m.
    - March 3
    - April 7
    - May 5

Email questions live to Communications@dese.mo.gov
Held weekly on Thursdays
4:00-5:00 PM

Register here

GOALS:
- Bring together pediatric infectious disease specialists, school leaders, school nurses, LPHAs & primary care physicians to discuss COVID-19 & kids
- Share timely information about COVID-19 & kids
- Provide a platform for information sharing & learning across communities caring for children
Email live webinar questions to: Communications@dese.mo.gov
Updates: dese.mo.gov/covid19