State of Missouri COVID-19 Response Vaccine Distribution Analysis

October 13, 2021
This document includes COVID-19 data and analytics for the State of Missouri in support of their vaccine distribution process.

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STATEWIDE METRICS

2.2M
-29k
18+ remaining unvaccinated

56%
+0.6%
Percent of 18+ population that has initiated vaccination

CASE RATE TRENDS

- **Total new cases** across the state **decreased ~10%** week over week (8,884 to 7,954)
- Region H experienced the highest percentage growth of case rate hotspots (133%, 3 → 7 total hotspots) and Region E the largest percentage decline (-52%, 21 to 10 total hotspots)
- Case rate surge surrounding **Wentzville** and **St. Peters** (outside St. Louis) are **starting to decrease**, but the region around **High Ridge** and **Cedar Hill** is **now surging**

VACCINE UPTAKE TRENDS

- 18+ vaccine initiations **increased modestly** (+2k) while **12-17 initiations fell for the 9th straight week** to 1.7k
- I-70 urban areas experienced elevated rates of vaccine uptake this week compared to the rest of the state
- So far, **2/3 of the ~130k 3rd doses** administered have been to the **65+ population**

**Note:** Data on vaccinations include 1st round Moderna & Pfizer vaccinations and J&J vaccinations, are based on residence of the 18+ individual vaccinated (unless otherwise stated) and are from 10/7/21 – provided by the State of Missouri. COVID-19 case rate data is a change analysis of rates (cases per 100k) using data from 9/23/21 and 10/7/21 – provided by the State of Missouri. Methodology, data sources, and limitations are available in the Appendix.
COVID-19 Case Rate Analysis
For the time period between 9/24/21 and 10/7/21, the change in COVID-19 case rate (per 100,000) is displayed on the left in quintiles, and case rate hotspots (areas with statistically significant changes in case rates in comparison to surrounding areas) are displayed on the right.

Count of **statewide case rate hotspots** remained stable this week, with Region H experienced the highest percentage growth (133%, 3 → 7 total hotspots) and Region E the largest percentage decline (-52%, 21 to 10 total hotspots).

The **Lake of the Ozarks region** continues to **slowly decrease** towards **average** statewide case rate levels.

**Note:** Data normalized by population (per 100,000 residents) per Census Tract. COVID-19 case rate data provided by the State of Missouri as of 10/7/21. Methodology, data sources, and limitations are provided in the Appendix.
For the time period between 9/24/21 and 10/7/21 case rate hotspots (areas with statistically significant changes in case rates in comparison to surrounding areas) are displayed on the left for Kansas City and on the right for St. Louis.

**Kansas City**

**St. Louis**

**Case rate hotspots slightly increased** last week in St. Louis (6 inside I-270)

The surge in case rate surrounding Wentzville and St. Peters (outside St. Louis) are **starting to decrease**, but the region around High Ridge and Cedar Hill is **now surging**

**Note:** Data normalized by population (per 100,000 residents) per Census Tract. COVID-19 case rate data provided by the State of Missouri as of 10/7/21. Methodology, data sources, and limitations are provided in the Appendix.
Regional Change in COVID-19 Case Rates | Last 5 Weeks

The visualization and table below display the evolution of weekly case rate changes by Region over the past 5 weeks.

Regional Change in Case Rate Over the Last 5 Weeks (cases per 100k)

<table>
<thead>
<tr>
<th>Case Rate per 100k Increase Week over Week</th>
<th>Case Data Updated as of Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case Rate per 100k Increase Week over Week</td>
<td>Case Data Updated as of Date</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Weekly Case Rate Change (per 100k)</th>
<th>Weekly Case Change (#)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 139</td>
<td>1,924</td>
</tr>
<tr>
<td>B 96</td>
<td>173</td>
</tr>
<tr>
<td>C 130</td>
<td>2,944</td>
</tr>
<tr>
<td>D 91</td>
<td>818</td>
</tr>
<tr>
<td>E 173</td>
<td>569</td>
</tr>
<tr>
<td>F 145</td>
<td>726</td>
</tr>
<tr>
<td>G 86</td>
<td>119</td>
</tr>
<tr>
<td>H 200</td>
<td>469</td>
</tr>
<tr>
<td>I 117</td>
<td>212</td>
</tr>
<tr>
<td>State 130</td>
<td>7,954</td>
</tr>
</tbody>
</table>

Bolded figures indicate the highest and lowest increase in weekly case rate.

Total new cases across the state decreased ~10% week over week (8,884 to 7,954)

However, 4 of the 9 regions experienced increases in cases; Region H experienced the sharpest percent increase in cases (+34% from 330 to 469)

Note: Case data provided by the State of Missouri (MHA) as of 10/7/21. Differences in x-axis scale may occur due to timing of data delivery (e.g., due to a holiday).

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Cumulative COVID-19 Vaccination Analysis
Darker shades in the map on the left indicate Census Tracts with larger vaccination gaps, with regional drill downs for Kansas City, St. Louis, and Springfield provided on the right.

Areas with the largest vaccination gaps continue to align within the more populated areas across Missouri – particularly in the commuting communities surrounding urban regions in Springfield, St. Louis and northwest Census Tracts in Kansas City.

Note: Data on vaccinations include 1st round Moderna & Pfizer vaccinations and J&J vaccinations, are based on residence of the 18+ individual vaccinated (unless otherwise stated) and are from 10/7/2021. Census Tracts appearing transparent do not contain data due to having a population <6. Methodology, data sources, and limitations are available in the Appendix. Full data set provided in corresponding Excel file.

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18+ Population | Percent Vaccinated

Darker shades on the map on the left indicate Census Tracts with higher percentages of residents who have initiated vaccination – with regional drill downs for Kansas City, St. Louis, and Springfield provided on the right.

**PERCENT WITH 1 DOSE (%)**

Census Tracts with the **lowest percent vaccinated** are concentrated in more **rural areas** in Regions B, D, I, & G.

**Vaccinated Categories (%)**
- 0.0% - 29.9%
- 30.0% - 39.9%
- 40.0% - 49.9%
- 50.0% - 69.9%
- 70.0%+ (Highest)

**Note:** Data on vaccinations include 1st round Moderna & Pfizer vaccinations and J&J vaccinations, are based on residence of the 18+ individual vaccinated (unless otherwise stated) and are from 10/7/2021. Census Tracts appearing transparent do not contain data due to having a population <6. Methodology, data sources, and limitations are available in the Appendix. Full data set provided in corresponding Excel file.
Darker shades on the map on the left indicate counties with larger vaccination gaps with regional drill downs for Kansas City, St. Louis, and Springfield provided on the right.

### VACCINATION GAP (#)

<table>
<thead>
<tr>
<th>Vaccination Gap Quintiles (#)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 105</td>
</tr>
<tr>
<td>106 – 163</td>
</tr>
<tr>
<td>164 – 229</td>
</tr>
<tr>
<td>230 – 318</td>
</tr>
<tr>
<td>319 – 785</td>
</tr>
</tbody>
</table>

Similar trends persist for the 12-17 as with the 18+ population – commuting communities surrounding more urban regions have the largest number of unvaccinated, particularly in the areas to the north of Kansas City and the Census Tracts surrounding Springfield.

Note: Data on vaccinated individuals are based on 1st round Moderna & Pfizer vaccinations and J&J vaccinations, based on the residence of the individual vaccinated, and as of 10/7/2021. All vaccinations tagged to the “<18” age group were assumed to be between ages 12-17. Census Tracts appearing transparent do not contain data due to having a population <6. Methodology, data sources, and limitations are available in the Appendix. Full data set provided in corresponding Excel file.
Darker shades on the map on the left indicate counties with higher percentages of residents who have initiated vaccination – with regional drill downs for Kansas City, St. Louis, and Springfield provided on the right.

**Percent with 1 dose (%)**

Urban areas tend to have **higher rates of vaccine uptake**, although the stark divide is **more apparent in the 12-17 cohort than 18+**

**Note:** Data on vaccinated individuals are based on 1st round Moderna & Pfizer vaccinations and J&J vaccinations, based on the residence of the individual vaccinated, and as of 10/7/2021. All vaccinations tagged to the “<18” age group were assumed to be between ages 12-17. Census Tracts appearing transparent do not contain data due to having a population <6. Methodology, data sources, and limitations are available in the Appendix. Full data set provided in corresponding Excel file.
Recent Vaccination Analysis
Vaccination uptake hotspots for 10/1 - 10/7 are displayed below in red. These vaccine uptake hotspots represent the communities that far exceeded the State average for the dates indicated.

**Weekly vaccine uptake hotspots** largely exist in limited, dense census tracts **near the I-70 corridor** (Kansas City, Columbia/Jefferson City, and St Louis).

Few other cumulative vaccine uptake hotspots exist outside of **Branson**, **Waynesville**, **St. Joseph**, and **Springfield**.

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**Note:** Data on vaccinated individuals include 1st round Moderna & Pfizer vaccinations and J&J vaccinations across all ages, and indicate the residence of the individual vaccinated, as of 10/7/21. Methodology, data sources, and limitations are available in the Appendix. Italized locations are new locations to the running documentation of vaccine uptake hotspots.
7-Day Vaccine Uptake Deserts

Vaccination uptake leaders and deserts are displayed in shades of red and blue, respectively, between 10/1 and 10/7 indicating Census Tracts where the weekly vaccine uptake is significantly lower than State and/or regional averages.

Suburban and commuting communities along I-70, I-55 and I-44 continue to drive vaccine uptake.

- Over the past week, I-70 urban areas experienced elevated rates of vaccine uptake this week compared to the rest of the state.

Note: Data on vaccinated individuals include 1st round Moderna & Pfizer vaccinations and J&J vaccinations across all ages, and indicate the residence of the individual vaccinated, as of 10/7/21. Methodology, data sources, and limitations are available in the Appendix.

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Regional Vaccination Rates Over Time | Last 5 Weeks

The visualization and table below display weekly and cumulative vaccination rates at the regional level. Week 38 (9/26 – 10/2) is the most recent complete week.

5-Week Additional Percent of 18+ Population Vaccinated by Region

Note: All weeks are calendar weeks, defined by SMW using MMWR week, where Week 39 is 9/26 – 10/2. Data on vaccinations include 1st round Moderna & Pfizer vaccinations and J&J vaccinations, and are based on residence of the 18+ individuals vaccinated. J&J vaccinations are coded as both dose 1 and dose 2. Methodology, data sources, and limitations are available in the Appendix.

18+ initiations increased modestly (+2k) while 12-17 initiations fell for the 9th straight week to 1.7k

No county vaccinated more than 0.7% of their 18+ population with both the mean and median at 0.3%

Regional Vaccination Summary

<table>
<thead>
<tr>
<th>State</th>
<th>18+ Cumulative % Vax</th>
<th>18+ % Vax Previous Week</th>
<th>12-17 Cumulative % Vax</th>
<th>12-17 % Vax Previous Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>55.2%</td>
<td>0.4%</td>
<td>46.0%</td>
<td>0.4%</td>
</tr>
<tr>
<td>B</td>
<td>45.1%</td>
<td>0.2%</td>
<td>18.0%</td>
<td>0.2%</td>
</tr>
<tr>
<td>C</td>
<td>60.5%</td>
<td>0.4%</td>
<td>52.0%</td>
<td>0.4%</td>
</tr>
<tr>
<td>D</td>
<td>50.9%</td>
<td>0.3%</td>
<td>31.8%</td>
<td>0.2%</td>
</tr>
<tr>
<td>E</td>
<td>49.3%</td>
<td>0.4%</td>
<td>22.6%</td>
<td>0.3%</td>
</tr>
<tr>
<td>F</td>
<td>60.5%</td>
<td>0.4%</td>
<td>39.2%</td>
<td>0.4%</td>
</tr>
<tr>
<td>G</td>
<td>43.7%</td>
<td>0.2%</td>
<td>16.7%</td>
<td>0.1%</td>
</tr>
<tr>
<td>H</td>
<td>52.3%</td>
<td>0.3%</td>
<td>26.8%</td>
<td>0.2%</td>
</tr>
<tr>
<td>I</td>
<td>42.5%</td>
<td>0.4%</td>
<td>24.4%</td>
<td>0.5%</td>
</tr>
</tbody>
</table>

State Average: 55.8% 0.3% 41.4% 0.4%

Bolded percentages indicate the highest and lowest cumulative % vaccinated.
Regional COVID-19 Snapshot

To support comparison between Regions and a deeper understanding of analyses throughout this report, the table below provides information on COVID-19 cases, cumulative vaccine uptake across age groups, and recent vaccine uptake trends at the regional level.

<table>
<thead>
<tr>
<th>Region</th>
<th>Cumulative COVID-19 Case Burden (# per 100k)</th>
<th>14-Day Change in COVID-19 Case Burden (%)</th>
<th>COVID-19 Case Rate Hotspots (#)</th>
<th>18+ Cumulative Vax (%)</th>
<th>18+ Vax Previous Week (%)</th>
<th>12-17 Cumulative Vax (%)</th>
<th>12-17 Vax Previous Week (%)</th>
<th>Vaccine Uptake Deserts (#)</th>
<th>Vaccine Uptake Hotspots (#)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>11,173</td>
<td>2.8%</td>
<td>26</td>
<td>55.2%</td>
<td>0.4%</td>
<td>46.0%</td>
<td>0.4%</td>
<td>13</td>
<td>49</td>
</tr>
<tr>
<td>B</td>
<td>9,869</td>
<td>1.8%</td>
<td>2</td>
<td>45.1%</td>
<td>0.2%</td>
<td>18.0%</td>
<td>0.2%</td>
<td>32</td>
<td>0</td>
</tr>
<tr>
<td>C</td>
<td>10,609</td>
<td>2.8%</td>
<td>33</td>
<td>60.5%</td>
<td>0.4%</td>
<td>52.0%</td>
<td>0.4%</td>
<td>9</td>
<td>33</td>
</tr>
<tr>
<td>D</td>
<td>11,664</td>
<td>1.6%</td>
<td>3</td>
<td>50.9%</td>
<td>0.2%</td>
<td>31.8%</td>
<td>0.2%</td>
<td>99</td>
<td>4</td>
</tr>
<tr>
<td>E</td>
<td>12,370</td>
<td>3.2%</td>
<td>10</td>
<td>49.3%</td>
<td><strong>0.4%</strong></td>
<td>22.6%</td>
<td>0.3%</td>
<td>29</td>
<td>1</td>
</tr>
<tr>
<td>F</td>
<td><strong>12,685</strong></td>
<td>2.2%</td>
<td>8</td>
<td><strong>60.5%</strong></td>
<td>0.4%</td>
<td>39.2%</td>
<td>0.4%</td>
<td>18</td>
<td>9</td>
</tr>
<tr>
<td>G</td>
<td><strong>9,751</strong></td>
<td>2.1%</td>
<td>0</td>
<td>43.7%</td>
<td><strong>0.2%</strong></td>
<td>16.7%</td>
<td><strong>0.1%</strong></td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>H</td>
<td>11,060</td>
<td>3.2%</td>
<td>7</td>
<td>52.3%</td>
<td>0.3%</td>
<td>26.8%</td>
<td>0.2%</td>
<td>35</td>
<td>1</td>
</tr>
<tr>
<td>I</td>
<td>10,767</td>
<td>2.5%</td>
<td>4</td>
<td><strong>42.5%</strong></td>
<td>0.4%</td>
<td>24.4%</td>
<td>0.5%</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

**Note:** Data on vaccinated individuals are based on 1st round Moderna & Pfizer vaccinations and J&J vaccinations, based on the residence of the individual (18+) vaccinated, and as of 10/7/21. COVID-19 case rate provided by the State of Missouri as of 10/7/21. Methodology, data sources, and limitations are available in the Appendix.

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Appendix
How to Interpret Vaccine Uptake Desert Maps

The example below is a guide for how to interpret vaccine uptake deserts and high uptake zones. *Illustrative data is from 9/02 – 9/09*

**Statewide Uptake Desert**
Vaccine deserts are clusters of census tracts with statistically lower vaccine uptake compared to the statewide average.

**Local Uptake Desert**
Regional uptake deserts are areas of low uptake surrounded by areas of high uptake. Regional uptake deserts are statistical outliers with lower than statewide average uptake and significantly different than neighboring communities.

**Statewide Uptake Leader**
Statewide uptake leaders are groupings of census tracts that have vaccination rates that are statistically significantly higher than the statewide average.

**Local Uptake Leader**
Regional uptake leaders are areas of high uptake surrounded by areas of low uptake. Regional uptake leaders are statistical outliers with higher than statewide average uptake and significantly different than neighboring communities.

*Note:* Data on vaccinated individuals include 1st round Moderna & Pfizer vaccinations and J&J vaccinations across all ages and indicate the residence of the individual vaccinated. Methodology, data sources, and limitations are available in the Appendix.

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