State of Missouri COVID-19 Response
Vaccine Distribution Analysis

September 29, 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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**Executive Summary** [3]

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**Executive Summary | Key Insights**

**STATEWIDE METRICS**

- **2.3M**
  - 18+ remaining unvaccinated (of eligible)
- **55%**
  - Percent of 18+ population that has initiated vaccination

**CASE RATE TRENDS**

- Total cases decreased 20% over week but case rate **hotspots increased** indicating **uneven changes in case rates** across Census Tracts
- Region A experienced the **highest increase** (39%) in **case rate hotspots**
- Case rates remain **high** in Region E in comparison to other regions

**VACCINE UPTAKE TRENDS***

- Vaccine initiations **decreased** in both the **12 to 17** and **18+** population, but at a **lower rate** in comparison to last week
- Despite the overall uptake rate decreases, Region E continues to **lead** all other regions in additional percentage of population initiating vaccination (in conjunction with its high case rates)
- Only 2 counties statewide – Mississippi and New Madrid – experienced **larger than 1%** of their population initiating vaccination

*Due to data updates by the State of Missouri, vaccine uptake hotspot and uptake desert analyses are not provided this week.

**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 9/23/21 – provided by the State of Missouri. COVID-19 case rate data is a change analysis of rates (cases per 100k) using data from 9/10/21 and 9/23/21– provided by the State of Missouri. Methodology, data sources, and limitations are available in the Appendix.
For the time period between 9/10/21 and 9/23/21, the change in COVID-19 case rate (per 100,000) is displayed on the left and case rate hotspots (areas with statistically significant changes in case rates in comparison to surrounding areas) are displayed on the right.

Total case rate hotspots slightly increased (+3) over the past week, mostly in Region A, but have remained stable statewide over the past 3 weeks.

In Region E, 73% of case rate hotpots (16 of 22) are in close proximity to I-55 and US-60 – a decrease from last week.

The Lake of the Ozarks region is experiencing a secondary case rate hotspot recurrence over the past 3 weeks.

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 9/23/21. Previous 2-week change view provided in the Appendix, along with the number of hotspots per region, and the methodology, data sources, and limitations.

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14-Day COVID-19 Case Rate Hotspots | Kansas City and St. Louis

For the time period between 9/10/21 and 9/23/21 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.

Case rate hotspots increased last week in the core of Kansas City (10 within I-435), while St. Louis experienced a decrease (2 inside I-270). The surge in cases in Wentzville and St. Peters (outside St. Louis) continues and represents the largest cluster of case rate hotspots in the St Louis metro region.

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 9/23/21. Previous 2-week change view provided in the Appendix, along with the number of hotspots per region, and the methodology, data sources, and limitations.

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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)**

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

<table>
<thead>
<tr>
<th>Region</th>
<th>Weekly Case Rate Change (per 100k)</th>
<th>Weekly Case Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>196</td>
<td>2,708</td>
</tr>
<tr>
<td>B</td>
<td>113</td>
<td>203</td>
</tr>
<tr>
<td>C</td>
<td>173</td>
<td>3,922</td>
</tr>
<tr>
<td>D</td>
<td>116</td>
<td>1,040</td>
</tr>
<tr>
<td>E</td>
<td>323</td>
<td>1,061</td>
</tr>
<tr>
<td>F</td>
<td>148</td>
<td>738</td>
</tr>
<tr>
<td>G</td>
<td>128</td>
<td>176</td>
</tr>
<tr>
<td>H</td>
<td>142</td>
<td>332</td>
</tr>
<tr>
<td>I</td>
<td>124</td>
<td>224</td>
</tr>
</tbody>
</table>

**Total cases** across the state **decreased ~20% week over week**

Region E case rate change was ~2x the State average, but **decreased 21% week over week**

**88/115 (77%) counties** saw their **weekly cases decrease** when compared to the previous week.
18+ Population | Remaining Unvaccinated

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.

VACCINATION GAP (#)

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 9/23/2021. 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.
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 9/23/2021. 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.

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 09/23/2021. 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.

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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.

**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 9/23/2021. 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.
The visualization and table below display weekly and cumulative vaccination rates at the regional level. Week 37 (9/12 – 9/18) is the most recent complete week.

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

Regional Vaccination Summary*

<table>
<thead>
<tr>
<th>MMWR Week Ending Date</th>
<th>Regional Vaccination Summary*</th>
</tr>
</thead>
<tbody>
<tr>
<td>18+ Cumulative % Vax</td>
<td>18+ % Vax Previous Week (MMWR 35 to 36)</td>
</tr>
<tr>
<td>A 53.9%</td>
<td>0.5%</td>
</tr>
<tr>
<td>B 44.4%</td>
<td>0.3%</td>
</tr>
<tr>
<td>C 59.5%</td>
<td>0.4%</td>
</tr>
<tr>
<td>D 50.3%</td>
<td>0.3%</td>
</tr>
<tr>
<td>E 48.3%</td>
<td>0.5%</td>
</tr>
<tr>
<td>F 59.7%</td>
<td>0.4%</td>
</tr>
<tr>
<td>G 43.2%</td>
<td>0.3%</td>
</tr>
<tr>
<td>H 51.5%</td>
<td>0.4%</td>
</tr>
<tr>
<td>I 41.5%</td>
<td>0.3%</td>
</tr>
<tr>
<td>State Average 54.8%</td>
<td>0.4%</td>
</tr>
</tbody>
</table>

Vaccine initiations decreased but at a lower rate week over week in both the 18+ and 12 to 17 population

84 counties initiated vaccination for 0.2%-0.5% of their 18+ population, with 2 counties vaccinating >1% (Mississippi, New Madrid)

*The State of Missouri underwent a geocode jurisdiction update since the last report leading to changes at the County and CT level. Vaccination rates may be lower this week as a result.

Note: All weeks are calendar weeks, defined by SMV using MMWR week, where Week 37 is 9/12 – 9/18. Data on vaccinations include 1st round Moderna & Pfizer vaccinations and J&J vaccinations, are based on residence of the 18+ individuals vaccinated, and are from 9/23/2021. J&J vaccinations are coded as both dose 1 and dose 2. Methodology, data sources, and limitations are available in the Appendix.
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>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>10,870</td>
<td>4.1%</td>
<td>25</td>
<td>53.9%</td>
<td>0.5%</td>
<td>44.9%</td>
<td>0.7%</td>
</tr>
<tr>
<td>B</td>
<td>9,690</td>
<td>2.5%</td>
<td>1</td>
<td>44.4%</td>
<td>0.3%</td>
<td>17.6%</td>
<td>0.2%</td>
</tr>
<tr>
<td>C</td>
<td>10,321</td>
<td>3.8%</td>
<td>26</td>
<td>59.5%</td>
<td>0.4%</td>
<td>51.0%</td>
<td>0.7%</td>
</tr>
<tr>
<td>D</td>
<td>11,482</td>
<td>2.2%</td>
<td>4</td>
<td>50.3%</td>
<td>0.3%</td>
<td>31.3%</td>
<td>0.4%</td>
</tr>
<tr>
<td>E</td>
<td>11,982</td>
<td>6.5%</td>
<td>22</td>
<td>48.3%</td>
<td>0.5%</td>
<td>21.6%</td>
<td>0.7%</td>
</tr>
<tr>
<td>F</td>
<td>12,417</td>
<td>2.8%</td>
<td>7</td>
<td>59.7%</td>
<td>0.4%</td>
<td>38.5%</td>
<td>0.7%</td>
</tr>
<tr>
<td>G</td>
<td>9,554</td>
<td>3.2%</td>
<td>0</td>
<td>43.2%</td>
<td>0.3%</td>
<td>16.4%</td>
<td>0.2%</td>
</tr>
<tr>
<td>H</td>
<td>10,719</td>
<td>3.1%</td>
<td>1</td>
<td>51.5%</td>
<td>0.4%</td>
<td>26.4%</td>
<td>0.5%</td>
</tr>
<tr>
<td>I</td>
<td>10,500</td>
<td>3.0%</td>
<td>1</td>
<td>41.5%</td>
<td>0.3%</td>
<td>23.7%</td>
<td>0.6%</td>
</tr>
</tbody>
</table>

**Bolded** percentages indicate the highest and lowest values.

*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 9/23/21. COVID-19 case rate provided by the State of Missouri as of 9/23/21. Methodology, data sources, and limitations are available in the Appendix. Vaccine uptake deserts and hotspot metrics not included this week due to data rectification performed by State of Missouri.
Appendix
For the time period between 9/1/21 and 9/16/21, the change in COVID-19 case rate (per 100,000) is displayed on the left and case rate hotspots (areas with statistically significant changes in case rates in comparison to surrounding areas) are displayed on the right.

For internal use only by State of Missouri. Output based on available data.

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 9/16/21. Previous 2-week change view provided in the Appendix, along with the number of hotspots per region, and the methodology, data sources, and limitations.

15-Day COVID-19 Case Rate Hotspots at the Census Tract Level

Total case rate hotspots slightly decreased (-2) over the past week, mostly in Regions A and B.

In Region E, 86% of case rate hotspots (19 of 22) are in close proximity to I-55 and US-60 – an increase from last week.

The Lake of the Ozarks region is experiencing a second case rate hotspot recurrence with 2 hotspots last week and 3 this week.
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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