State of Missouri COVID-19 Response Vaccine Distribution Analysis

August 2, 2021
This document includes COVID-19 data and analytics for the State of Missouri in support of their vaccine distribution process

Follow the links below to view each section:

- **Executive Summary** [3]
- **COVID-19 Case Rate Hotspots** [4]
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- **Regional Vaccination Rates Over Time** [7]
- **7-Day Statewide Vaccine Uptake (All Ages)** [8-9]
- **COVID-19 Vulnerability Index** [10]
- **Appendix** [25-29]
Executive Summary | Key Insights

**STATEWIDE REMAINING UNVACCINATED**

- 2.5M **-69k**
  - 18+ population
- 50.3% **-1.4%**
  - 18+ population

**COVID-19 CASE RATE HOTSPOTS**

- Region D outbreak continues to get **smaller** in areal coverage
- Census Tracts in **Region F** experienced rising **case rates** and emerging clusters of case rate **hotspots** for a 2nd straight week

**VACCINE UPTAKE TRENDS**

- **Initiations rose** for the 3rd straight week in the 18+ population (**62% higher** than they were 2 weeks ago) and the 2nd straight week in the 12-17 population
- For the **5th week in a row**, Regions D and G vaccinated the **highest percentage** of their 18+ population
- Each region throughout Missouri experienced a **vaccine uptake hotspot**
- The vaccine uptake desert recently covering Regions B and E is slowly seeing **higher vaccination rates** in comparison to weekly State averages

**REGION E DEEP DIVE**

- An estimated **59%** of Region E's over 18 population remains **unvaccinated** – In the most recent complete week, **1%** of Region E's 18+ population was vaccinated, the highest share in over 3 months
- The **case rate hotspot** that persisted over **Kennett has dissipated** over the past two weeks
- 10 Census Tracts in Region E were identified for targeted outreach based on vaccination rates, case burden, and vulnerability

**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 07/27/2021. COVID-19 case rate data is a change analysis of rates (cases per 100k) using data from 7/16/21 to 07/30/21. Region E analyses based on vaccination data from 07/20/2021 and COVID-19 data from 07/23/2021. Methodology, data sources, and limitations are available in the Appendix. Full data set provided in corresponding Excel file. Statewide percent unvaccinated figure from last week was presented incorrectly – the correct figure was 51.7% instead of 57.5%.
14-Day COVID-19 Case Rate Hotspots at the Census Tract Level

For the time period between 7/16/21 and 7/30/21, 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.

Region D outbreak (in blue) continues to get smaller in areal coverage (a continuation of trends from the past two weeks).

The Census Tracts in Region F (in green) experienced rising case rates and emerging clusters of case rate hotspots for a 2nd straight week.

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 07/30/21. Previous 2-week change view provided in the Appendix, along with methodology, data sources, and limitations.
Darker shades on the map on the left indicate Census Tracts with larger vaccination gaps and on the right higher percentages of unvaccinated

**VACCINATION GAP (#)**

**PERCENT UNVACCINATED (%)**

Areas with the largest vaccination gaps continue to align with the more urban areas of highest population across Missouri. Census Tracts with the highest percentages of unvaccinated populations are concentrated in more rural areas in Regions B, D, I, G, & E.

**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 07/27/2021. Methodology, data sources, and limitations are available in the Appendix. Full data set provided in corresponding Excel file.

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For the 12-17 population, **Region C** continues to have the largest vaccination gap (105,416), while **Region G** has the highest percent unvaccinated (90.1%).

**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 07/27/2021. All vaccinations tagged to the “<18” age group were assumed to be between ages 12-17. Analysis ran at the county level due to several Census Tracts still with limited uptake thus far. Null counties were filtered out. 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.

**Additional Percent of 18+ Population Vaccinated by Region (Week 25 to Week 29)**

*Initiations* rose for the *third straight week in the 18+ population* and the *second straight week in the 12-17 population.*

18+ *vaccine initiations are 62% higher* than they were *two weeks ago* (Week 29 vs Week 27) and the highest since Week 20 (approx. 2 months ago).

Regions G and D vaccinated the highest percent of their 18+ population for the *fifth straight week;* for Region G it was the *most initiations since Week 8.*

**Note:** All weeks are calendar weeks, defined by SMW using MMWR week, where Week 29 is 7/19 – 7/25. 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 07/27/2021. J&J vaccinations are coded as both dose 1 and dose 2. Methodology, data sources, and limitations are available in the Appendix.
Vaccination uptake hotspots for 7/21-7/27 are displayed below in red. These vaccine uptake hotspots represent the communities that far exceeded the State average for the dates indicated.

**Vaccine uptake activity continued** for a 5th straight week within **south and southwest Missouri** (Regions D, G and I). **Kansas City** and **St. Louis** metro region **hotspots trend towards the suburbs and outskirts**. **Each region** throughout Missouri experienced **at least 1 vaccination uptake hotspot**.

*Note:* Data on vaccinated individuals is based on 1st round Moderna & Pfizer vaccinations and J&J vaccinations, includes all ages, and indicates the residence of the individual vaccinated, and is as of 07/27/2021. Methodology, data sources, and limitations are available in the Appendix.
Vaccination uptake deserts are displayed in shades of blue from 7/21-7/27, indicating Census Tracts where the weekly vaccine uptake is significantly lower than State averages – a more sensitive test of differences in community-level uptake in comparison to the hotspot analysis.

**Vaccine Uptake Desert Analysis**

How to interpret these maps:

- **High Vaccine Uptake**
  - Statistically significant clusters of high initiation rates

- **High Regional Uptake**
  - Statistical outlier - high initiation rates surrounded by low

- **Low Regional Uptake**
  - Statistical outlier - low initiation rates surrounded by high

- **Low Vaccine Uptake/Uptake Desert**
  - Clusters of statistically low initiation rates

**Region B** experienced its first high uptake Census Tracts outside of Kirksville in more than a month (Clark County and near Hannibal). The vaccine uptake desert recently covering Regions B and E is slowly seeing higher vaccination rates in comparison to weekly State averages.

Some Census Tracts with vaccination percentages over 70% fell into either a high or low state vaccination uptake level.
The graph below depicts the updated COVID-19 Vulnerability Index – focus areas are consolidated in urban, low socio-economic and minority-focused communities.

**Statewide Geospatial Visualization of COVID-19 Vulnerable Populations**

**FACTORS CONTRIBUTING TO VULNERABILITY**

- COVID-19 Case Burden
- Living below 138% of the Federal Poverty Level
- 1 or more medical comorbidity
- Minority populations
- Percent Unvaccinated

**KEY OBSERVATIONS**

- Most vulnerable Census Tracts (Darkest Red) in Missouri remain in 4 Main Regions—Regions C (83), A (48), E (7), and D (1)
- The top 10 all fall in the St. Louis and Kansas City areas with low rates of vaccination, significant minority populations, and high rates of low-income households

**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 07/27/21. COVID-19 case rate provided by the State of Missouri as of 7/30/21. Methodology, data sources, and limitations are available in the Appendix.
Region E Deep-Dive

As presented on 7/30
Executive Summary

REGIONAL & COUNTY TRENDS

- An estimated **59%** of Region E's over 18 population remains **unvaccinated**
- The **case rate hotspot** that persisted over Kennett has dissipated over the past two weeks
- In the most recent complete week, **1% of Region E's 18+ population** was vaccinated, the highest share in over 3 months

TARGET CENSUS TRACTS

- 10 Census Tracts were identified based on vaccination rates, case burden, and vulnerability, with deep dives provided for the top 3
- Within these top 3 Census Tracts, residents tend to have **lower levels of income and educational attainment** than the average Missourian
- Target outreach strategies include recruiting **local vaccinated residents** to serve as vaccine ambassadors; partnering with local **faith leaders, family physicians, and community leaders**; meeting residents where they are by offering mobile vaccinations at **places of work** and **frequented community spots**; and offering wrap-around service coordination (i.e. unemployment benefits) in addition to vaccine support

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 07/20/2021. COVID-19 case rate data is a change analysis of rates (cases per 100k) using data from 7/9/21 to 07/23/21. Methodology, data sources, and limitations are available in the Appendix. Full data set provided in corresponding Excel file.
COVID-19 Case Rate Spread Over Time

These visuals display the evolution of COVID-19 case rates over the past 4 weeks (June 25th - July 23rd) in Region E.

- Over the past two weeks, case rates have disproportionately increased along (and slightly to the South) US 60.
  - Interstate 55 also demonstrated elevated case rate in proximity to US 60.
- The patterns of the elevated case rates along major highways and associated intersections suggest intrastate spread of COVID.

**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 07/23/21. See Appendix for methodology, data sources, and limitations. “Week” corresponds with MMWR.
COVID-19 Case Rate Hotspots at the Census Tract Level

The visual on the left depicts case rate hotspots – areas with statistically significant changes in case rates in comparison to surrounding areas – for two weeks between July 9th and July 23rd, while the most recent 7-day case rate spread is provided on the right for reference.

14-Day Case Rate Hotspots (7/9-7/23)

7-Day Case Rate Spread

KEY OBSERVATIONS

• For the two-week period through July 23rd, there was **not a single case rate hotspot within Region E**

• The **case rate hotspot** that persisted over Kennett has **dissipated** over the past two weeks

• Given past patterns of case spread in Missouri, any **potential hotspots over the next 2 weeks** would **more than likely emerge in the area highlighted in the green ovals**

**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 07/23/21. See Appendix for methodology, data sources, and limitations.
Cumulative Vaccination Status

The visual and table below depict percent unvaccinated and vaccination gap across Region E

Region E Remaining Unvaccinated (%)

<table>
<thead>
<tr>
<th>% Unvaccinated</th>
<th>Census Tract</th>
<th>County</th>
<th>Adult Population</th>
<th>% Unvaccinated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statewide Average</td>
<td>3,631</td>
<td></td>
<td></td>
<td>49.15%</td>
</tr>
<tr>
<td>Region E Average</td>
<td>2,840</td>
<td></td>
<td></td>
<td>57.12%</td>
</tr>
<tr>
<td>1</td>
<td>29069361000</td>
<td>Dunklin County</td>
<td>1,500</td>
<td>83.93%</td>
</tr>
<tr>
<td>2</td>
<td>29181870300</td>
<td>Ripley County</td>
<td>6,163</td>
<td>83.56%</td>
</tr>
<tr>
<td>3</td>
<td>29023950700</td>
<td>Butler County</td>
<td>1,914</td>
<td>75.55%</td>
</tr>
<tr>
<td>4</td>
<td>29069360900</td>
<td>Dunklin County</td>
<td>1,499</td>
<td>73.38%</td>
</tr>
<tr>
<td>5</td>
<td>29023950600</td>
<td>Butler County</td>
<td>3,457</td>
<td>73.10%</td>
</tr>
<tr>
<td>6</td>
<td>29023950800</td>
<td>Butler County</td>
<td>2,429</td>
<td>72.99%</td>
</tr>
<tr>
<td>7</td>
<td>29155470100</td>
<td>Pemiscot County</td>
<td>1,547</td>
<td>72.53%</td>
</tr>
<tr>
<td>8</td>
<td>29023950900</td>
<td>Butler County</td>
<td>2,917</td>
<td>72.40%</td>
</tr>
<tr>
<td>9</td>
<td>29123960100</td>
<td>Madison County</td>
<td>3,222</td>
<td>72.38%</td>
</tr>
<tr>
<td>10</td>
<td>29069360100</td>
<td>Dunklin County</td>
<td>2,048</td>
<td>71.88%</td>
</tr>
</tbody>
</table>

Census Tracts within Dunklin and Butler Counties make up 60% of the 10 Census Tracts with the highest percent unvaccinated in Region E.

37 of 179 (21%) Census Tracts in Region E fall within the largest quintile of percent unvaccinated, and have at least 62% of their populations unvaccinated.
Vaccine Uptake Over Time

Vaccination deserts are shown in blue over a four-week period, identifying Census Tracts where vaccination uptake for that time period is significantly lower than State average.

Region E Share of State Initiations Over the Last 7 Months

Four-Week Uptake Deserts June 16th - July 23th

How to interpret these maps:
- High Vaccine Uptake: Statistically significant clusters of high initiation rates
- High Regional Uptake: Statistical outlier - high initiation rates surrounded by low
- Low Regional Uptake: Statistical outlier - low initiation rates surrounded by high
- Low Vaccine Uptake/Uptake Desert: Clusters of statistically low initiation rates

Vaccine deserts persist in the northwest corner of Region E, as well as along I-55 south of Cape Girardeau, and US 60 east of Poplar Bluff.

Region E's share of State weekly vaccine initiations has averaged ~4% over time and in the past two months.

In the most recent complete week, 1% of Region E's 18+ population was vaccinated, the highest share in over 3 months.

Note: Vaccine uptake desert analyses employ Local Moran's I test for spatial autocorrelation. Data on vaccinations include 1st round Moderna & Pfizer vaccinations and J&J vaccinations, are based on residence of the individual vaccinated (all ages), and are from 07/20/2021. Methodology, data sources, and limitations are available in the Appendix. Full data set provided in corresponding Excel file.
Target Census Tracts

Potential Areas to Focus Outreach Initiatives
To identify **target tracts** in Region E, we analyzed relationships between:

1. 14-Day COVID-19 case rate burden/change
2. Percent of population unvaccinated
3. Ranking based on the COVID-19 Vulnerability Index (CVI)*

Using the above methodology, below are the **top 10 Census Tracts**, of which the **top 3** are discussed further in the following slides:

<table>
<thead>
<tr>
<th>Rank</th>
<th>Census Tract</th>
<th>County</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>29023950800</td>
<td>Butler</td>
</tr>
<tr>
<td>2</td>
<td>29023950400</td>
<td>Butler</td>
</tr>
<tr>
<td>3</td>
<td>29181870300</td>
<td>Ripley</td>
</tr>
<tr>
<td>4</td>
<td>29023950600</td>
<td>Butler</td>
</tr>
<tr>
<td>5</td>
<td>29069360300</td>
<td>Dunklin</td>
</tr>
<tr>
<td>6</td>
<td>29207470400</td>
<td>Stoddard</td>
</tr>
<tr>
<td>7</td>
<td>29069361000</td>
<td>Dunklin</td>
</tr>
<tr>
<td>8</td>
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<tr>
<td>9</td>
<td>29069360100</td>
<td>Dunklin</td>
</tr>
<tr>
<td>10</td>
<td>29207470500</td>
<td>Stoddard</td>
</tr>
</tbody>
</table>

*CVI includes percent below 138% FPL, 1+ comorbidity, minority, cumulative case rate, and percent unvaccinated

**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 07/20/2021. COVID-19 case rate data is a change analysis of rates (cases per 100k) using data from 7/9/21 to 07/23/21. Methodology, data sources, and limitations are available in the Appendix. Full data set provided in corresponding Excel file.
Target Census Tract -950800 | Key Characteristics

This tract at a glance:

- **Age**
  - 18-34: 22%
  - 35-54: 38%
  - 55+: 40%
- **Race**
  - White: 88%
  - High-school educated or below: 50%
- **Comorbidity**
  - 1+ comorbidity in 18-64 year olds: 97%
- **Households**
  - Households with children: 51%

VALUES & PREFERENCES

- 75% seek out primary care providers compared to 80% statewide
- 21% use community and/or retail health clinics compared to 5% statewide
- 78% identify as religious – majority Christian
- Likely to prefer text messages for outreach

ACCESS FACTORS

- **Income below $30k**
  - CT: 59%
  - State: 25%
- **Net worth < $0**
  - CT: 53%
  - State: 27%
- **Lacking broadband**
  - CT: 24%
  - State: 15%
- **Uninsured**
  - CT: 17%
  - State: 14%

COVID-19 METRICS

- 75% % Unvaccinated
  - 5% 14-Day % Increase in Case Rate
- 1,818 # Unvaccinated
  - 6,962 per 100k Cumulative COVID-19 Case Burden

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 07/20/2021. COVID-19 case rate data is a change analysis of rates (cases per 100k) using data from 07/09/2021 to 07/23/2021. Methodology, data sources, and limitations are available in the Appendix. Full data set provided in corresponding Excel file.

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OUTREACH CONSIDERATIONS

- Where possible, **match canvassers to the neighborhood** (e.g., people of faith, local community leaders) and encourage sharing of personal stories, shared values, and reasons for vaccination.

- Consider partnering with faith leaders at local **places of worship** to promote vaccination (e.g., host vaccination events at their church and/or hold listening sessions with their congregation).

- Visit **local employers**, especially in the construction industry, as part of canvassing efforts to encourage employers to promote vaccination and inform them about **tax credits** to cover the costs of providing paid time off.

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**EXAMPLE PARTNERS**

<table>
<thead>
<tr>
<th>Label</th>
<th>Name</th>
<th>Type</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sacred Heart Catholic Church</td>
<td>Worship</td>
<td>123 N 8th St</td>
</tr>
<tr>
<td>2</td>
<td>Poplar Bluff Municipal Library</td>
<td>Community</td>
<td>318 N Main St</td>
</tr>
<tr>
<td>3</td>
<td>Poplar Bluff Fire Department</td>
<td>Community</td>
<td>300 S Broadway St</td>
</tr>
<tr>
<td>4</td>
<td>Mills Iron &amp; Supply Co</td>
<td>Business</td>
<td>1919 S Westwood Blvd</td>
</tr>
<tr>
<td>5</td>
<td>Mt Zion Baptist Church</td>
<td>Worship</td>
<td>1600 S 11th St</td>
</tr>
</tbody>
</table>

*Detailed list provided in accompanying Excel*
This tract at a glance:

- **VALUES & PREFERENCES**
  - 71% seek out primary care providers compared to 80% statewide
  - 77% identify as religious – majority Christian
  - 21% use community and/or retail health clinics compared to 5% statewide

- **ACCESS FACTORS**
  - Income below $30k
    - CT State 25%
    - MO avg 70%
  - Net worth < $0
    - CT State 27%
  - Lacking broadband
    - CT State 28%
  - Uninsured
    - CT State 20%
  - Top occupations
    - 1. Sales and related occupations
    - 2. Office and administrative support
    - 3. Business and Financial
  - Labor force
    - 57% participate, compared to 63% statewide
    - 16% are unemployed, compared to 5% statewide

**COVID-19 METRICS**

- 71% % Unvaccinated
- 14-Day % Increase in Case Rate
- 2%
- 10,443 per 100k Cumulative COVID-19 Case Burden
- 1,970 # Unvaccinated
### Target Census Tract – 950400 | Outreach Considerations

**Census Tract View: Vulnerable Population and Points of Interest (POIs)**

**POI Legend**
- Highlighted POI in Table
- Additional POI for Consideration*

*Detailed list provided in accompanying Excel

#### Vulnerable Population
- < $30k income and/or
- 1+ comorbidities and/or
- racial/ethnic minority

- Low to high density

### EXAMPLE PARTNERS
Sites for Outreach & Vaccination Events

<table>
<thead>
<tr>
<th>Label</th>
<th>Name</th>
<th>Type</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Recycling Grace Ministries</td>
<td>Worship</td>
<td>503 Apple St</td>
</tr>
<tr>
<td>2</td>
<td>Ferguson Grove Park</td>
<td>Community</td>
<td>617 Selma St</td>
</tr>
<tr>
<td>3</td>
<td>Poplar Bluff Junior High School</td>
<td>School</td>
<td>934 Gardner St</td>
</tr>
<tr>
<td>4</td>
<td>Hayden Drive In</td>
<td>Restaurant</td>
<td>807 W Maud St</td>
</tr>
<tr>
<td>5</td>
<td>Holy Cross Episcopal Church</td>
<td>Worship</td>
<td>420 N Main St</td>
</tr>
</tbody>
</table>

### OUTREACH CONSIDERATIONS

- Consider coordinating “wrap-around” services when canvassing for vaccination – such as connections to unemployment benefits and other social services – given high levels of unemployment and populations with income below $30k, shifting the focus less on the vaccine and more on general preventive health care

- Consider partnering with faith leaders at local places of worship to promote vaccination (e.g., host vaccination events at their church and/or hold listening sessions with their congregation)

- Consider partnering with local schools, Parent Teacher Associations (PTAs), and daycare/summer camps to host vaccination events as part of back-to-school efforts
This tract at a glance:

**VALUES & PREFERENCES**
- **76%** seek out primary care providers compared to 80% statewide.
- **20%** use community and/or retail health clinics compared to 5% statewide.
- **81%** identify as religious – majority Christian.
- **Likely to prefer text messages for outreach.**

**COVID-19 METRICS**
- **84%** % Unvaccinated
- **1%** 14-Day % Increase in Case Rate
- **5,182** # Unvaccinated
- **15,677 per 100k** Cumulative COVID-19 Case Burden

**ACCESS FACTORS**
- **Income below $30k**
  - State 25%
  - CT 72%
- **Net worth <$0**
  - State 27%
  - CT 60%
- **Lacking broadband**
  - CT 26%
  - State 15%
- **Uninsured**
  - CT 19%
  - State 14%

**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 07/20/2021. COVID-19 case rate data is a change analysis of rates (cases per 100k) using data from 7/9/21 to 07/23/21. Methodology, data sources, and limitations are available in the Appendix. Full data set provided in corresponding Excel file.
Target Census Tract –870300 | Outreach Considerations

Census Tract View: Vulnerable Population and Points of Interest (POIs)

EXAMPLE PARTNERS
Sites for Outreach & Vaccination Events

<table>
<thead>
<tr>
<th>Label</th>
<th>Name</th>
<th>Type</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Church of Christ</td>
<td>Worship</td>
<td>State Highway 142</td>
</tr>
<tr>
<td>2</td>
<td>First Christian Church</td>
<td>Worship</td>
<td>403 Cherry St</td>
</tr>
<tr>
<td>3</td>
<td>Heritage Park</td>
<td>Community</td>
<td>100 State St</td>
</tr>
<tr>
<td>4</td>
<td>Ernie’s Barber Shop</td>
<td>Business</td>
<td>1313 Hillcrest Plz</td>
</tr>
<tr>
<td>5</td>
<td>Doniphan Police</td>
<td>Police/Fire</td>
<td>124 W Jefferson</td>
</tr>
</tbody>
</table>

OUTREACH CONSIDERATIONS
- Consider partnering with faith leaders at local places of worship to promote vaccination (e.g., host vaccination events at their church and/or hold listening sessions with their congregation)
- Consider partnering with community leaders to serve as vaccine “ambassadors” to speak to their community about vaccination and participate in ‘get out the shot’ canvassing
- Recruit local vaccinated individuals to promote the vaccine and dispute misinformation amongst their fellow community members
- Visit local businesses (e.g., barber shops, restaurants) as part of canvassing efforts to encourage employers to promote vaccination and inform them about tax credits to cover the costs of providing paid time off

POI Legend
- Highlighted POI in Table
- Additional POI for Consideration*

Vulnerable Population
- <$30k income and/or
- 1+ comorbidities and/or
- racial/ethnic minority
- Low to high density

*Detailed list provided in accompanying Excel
Appendix
For the time period between 7/9/21 and 7/23/21, 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.

Southwest Missouri (Region D, in blue) still maintains the most COVID-19 case rate hotspots even though it now covers fewer Census Tracts. The Census Tracts between Regions F and I (in green) experienced rising case rates and emerging clusters of case rate hotspots.

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 07/23/21. Previous 2-week change view provided in the Appendix, along with methodology, data sources, and limitations.

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Below are the 10 Census Tracts with the highest COVID-19 Vulnerability Index scores – notably all in the St. Louis and Kansas City areas with low rates of vaccination, significant minority populations, and high rates of low-income households.

<table>
<thead>
<tr>
<th>Vulnerability Index Rank</th>
<th>Census Tract</th>
<th>County</th>
<th>18+ Population</th>
<th>Unvaccinated as of 7/27/21 (%)</th>
<th>Cumulative COVID-19 Case Burden as of 7/30/21 (# per 100k)</th>
<th>1+ Medical Comorbidities (%)</th>
<th>Minority Populations (%)</th>
<th>Living Below 138% FPL (%)</th>
<th>Households without Internet Access (%)</th>
<th>Crowded Households (%)</th>
<th>Individuals with Education Level Below High School (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>29510106200</td>
<td>St. Louis City</td>
<td>980</td>
<td>63.67%</td>
<td>8,581</td>
<td>38.98%</td>
<td>97.96%</td>
<td>70.32%</td>
<td>42.92%</td>
<td>11.68%</td>
<td>16.46%</td>
</tr>
<tr>
<td>2</td>
<td>29189212002</td>
<td>St. Louis County</td>
<td>2,196</td>
<td>60.15%</td>
<td>18,362</td>
<td>39.71%</td>
<td>94.85%</td>
<td>54.19%</td>
<td>19.13%</td>
<td>9.19%</td>
<td>12.27%</td>
</tr>
<tr>
<td>3</td>
<td>29095013203</td>
<td>Jackson County</td>
<td>2,837</td>
<td>66.73%</td>
<td>11,107</td>
<td>42.30%</td>
<td>92.14%</td>
<td>55.73%</td>
<td>18.69%</td>
<td>10.85%</td>
<td>12.74%</td>
</tr>
<tr>
<td>4</td>
<td>29189212200</td>
<td>St. Louis County</td>
<td>5,797</td>
<td>64.86%</td>
<td>5,784</td>
<td>62.69%</td>
<td>96.89%</td>
<td>38.00%</td>
<td>34.81%</td>
<td>11.04%</td>
<td>14.46%</td>
</tr>
<tr>
<td>5</td>
<td>29095005602</td>
<td>Jackson County</td>
<td>1,321</td>
<td>65.25%</td>
<td>8,708</td>
<td>49.36%</td>
<td>96.37%</td>
<td>47.05%</td>
<td>14.45%</td>
<td>3.64%</td>
<td>15.84%</td>
</tr>
<tr>
<td>6</td>
<td>29189213900</td>
<td>St. Louis County</td>
<td>1,389</td>
<td>66.95%</td>
<td>8,241</td>
<td>34.05%</td>
<td>96.90%</td>
<td>58.13%</td>
<td>46.02%</td>
<td>6.55%</td>
<td>10.30%</td>
</tr>
<tr>
<td>7</td>
<td>29189213800</td>
<td>St. Louis County</td>
<td>4,763</td>
<td>64.94%</td>
<td>8,408</td>
<td>58.56%</td>
<td>96.66%</td>
<td>33.78%</td>
<td>26.39%</td>
<td>11.36%</td>
<td>14.63%</td>
</tr>
<tr>
<td>8</td>
<td>29189212102</td>
<td>St. Louis County</td>
<td>2,286</td>
<td>69.69%</td>
<td>5,984</td>
<td>42.26%</td>
<td>96.59%</td>
<td>47.16%</td>
<td>15.91%</td>
<td>14.01%</td>
<td>13.99%</td>
</tr>
<tr>
<td>9</td>
<td>29510107500</td>
<td>St. Louis City</td>
<td>2,287</td>
<td>67.77%</td>
<td>7,512</td>
<td>38.22%</td>
<td>96.98%</td>
<td>45.90%</td>
<td>41.42%</td>
<td>11.37%</td>
<td>21.04%</td>
</tr>
<tr>
<td>10</td>
<td>29510109700</td>
<td>St. Louis City</td>
<td>1,886</td>
<td>64.37%</td>
<td>7,934</td>
<td>29.32%</td>
<td>95.49%</td>
<td>57.29%</td>
<td>55.80%</td>
<td>6.22%</td>
<td>24.95%</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 07/27/21. COVID-19 case rate provided by the State of Missouri as of 7/30/21. Methodology, data sources, and limitations are available in the Appendix.

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