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Director's Office



Public Health

Date: July 30, 2021

To: Mayor Quinton Lucas

Cc: City Council Members

Brian Platt, City Manager

From: Frank E. Thompson, Deputy Director

Re: Report Supporting Order for Mask Wearing in Public Places

This report is submitted to provide the data and research necessary to make an evidence-based decisions on ordering wearing of masks in places of public accommodation. By provide this report the Kansas City Health Department seeks to inform the Mayor and City Council of the impact a new mask order could have on reducing the spread of the COVID-19 Delta variant in our community.

- **How COVID Spreads And Why Masking Helps Decrease Spread**
 - a. CDC STATEMENT ON MASK WEARING BASED ON AVAILABLE RESEARCH - SARS-CoV-2 infection is transmitted predominately by inhalation of respiratory droplets generated when people cough, sneeze, sing, talk, or breathe. CDC recommends community use of [masks](#), specifically non-valved multi-layer cloth masks, to prevent transmission of SARS-CoV-2. Masks are primarily intended to reduce the emission of virus-laden droplets (“source control”), which is especially relevant for asymptomatic or presymptomatic infected wearers who feel well and may be unaware of their infectiousness to others, and who are estimated to account for more than 50% of transmissions. Masks also help reduce inhalation of these droplets by the wearer (“filtration for wearer protection”). The community benefit of masking for SARS-CoV-2 control is due to the combination of these effects; individual prevention benefit increases with increasing numbers of people using masks ***consistently and correctly***. Adopting universal masking policies can help avert future lockdowns, especially if combined with other non-pharmaceutical interventions such as *social distancing, hand hygiene, and adequate ventilation. [emphasis added]*
 - “...wearing a face covering decreased the number of projected droplets by >1000-fold. We estimated that a person standing 2m from someone coughing without a mask is exposed to over 1000 times more respiratory droplets than from someone standing 5 cm away wearing a basic single layer mask. Our results indicate that face coverings show consistent efficacy at blocking respiratory droplets.”

Bandiera L., Pavar G., Pisetta G., et al. Face coverings and respiratory tract droplet dispersion. medRxiv. 2020;doi:10.1101/2020.08.11.20145086

<https://www.medrxiv.org/content/10.1101/2020.08.11.20145086v1.full.pdf>

b. TRANSMISSION BY PERSONS WHO DON'T KNOW (OR DON'T ACCEPT) THAT THEY ARE INFECTED IS A FACTOR IN INCREASED CASES – The issue of asymptomatic spreaders has been of concern for most of the pandemic:

- “We found that the majority of incidences may be attributable to silent transmission from a combination of the presymptomatic stage and asymptomatic infections.”
Moghadas SM, Fitzpatrick MC, Sah P, et al. The implications of silent transmission for the control of COVID-19 outbreaks. *Proc Natl Acad Sci U S A*. Jul 28 2020;117(30):17513-17515. doi:10.1073/pnas.2008373117 <https://www.pnas.org/content/pnas/117/30/17513.full.pdf>
- “...the identification and isolation of persons with symptomatic COVID-19 alone will not control the ongoing spread of SARS-CoV-2.”
Johansson MA, Quandelacy TM, Kada S, et al. SARS-CoV-2 Transmission From People Without COVID-19 Symptoms. *JAMA Netw Open*. Jan 4 2021;4(1):e2035057. doi:10.1001/jamanetworkopen.2020.35057

The Delta variant has different symptoms than the original COVID virus and previous variants. This plus the fact that a vaccinated person who becomes infected with COVID can have very mild or no symptoms at all means the potential number of asymptomatic spreaders is larger than previous case spikes.

c. ADDITIONAL STUDIES ON EFFECTIVENESS AND PROPER WEARING OF MASKS

- Moghadas SM, Fitzpatrick MC, Sah P, et al. The implications of silent transmission for the control of COVID-19 outbreaks. *Proc Natl Acad Sci U S A*. Jul 28 2020;117(30):17513-17515. doi:10.1073/pnas.2008373117
- Lindsley WG, Blachere FM, Law BF, Beezhold DH, Noti JD. Efficacy of face masks, neck gaiters and face shields for reducing the expulsion of simulated cough-generated aerosols. *Aerosol Sci Technol*. 2020; in press
- Leung NHL, Chu DKW, Shiu EYC, et al. Respiratory virus shedding in exhaled breath and efficacy of face masks. *Nature medicine*. Apr 03 2020;26(5):676-680. doi:<https://dx.doi.org/10.1038/s41591-020-0843-2>
- Ueki H, Furusawa Y, Iwatsuki-Horimoto K, et al. Effectiveness of Face Masks in Preventing Airborne Transmission of SARS-CoV-2. *mSphere*. Oct 21 2020;5(5)doi:10.1128/mSphere.00637-20

- Brooks JT, Beezhold DH, Noti JD, et al. Maximizing Fit for Cloth and Medical Procedure Masks to Improve Performance and Reduce SARS-CoV-2 Transmission and Exposure. MMWR Morb Mortal Wkly Rep. 2021
- Hendrix MJ, Walde C, Findley K, Trotman R. Absence of Apparent Transmission of SARS-CoV-2 from Two Stylists After Exposure at a Hair Salon with a Universal Face Covering Policy – Springfield, Missouri, May 2020. MMWR Morb Mortal Wkly Rep. Jul 17 2020;69(28):930-932. doi:10.15585/mmwr.mm6928e2
- Van Dyke ME, Rogers TM, Pevzner E, et al. Trends in County-Level COVID-19 Incidence in Counties With and Without a Mask Mandate – Kansas, June 1-August 23, 2020. MMWR Morb Mortal Wkly Rep. Nov 27 2020;69(47):1777-1781. doi:10.15585/mmwr.mm6947e2

- **Current Conditions In Missouri**

- a. VACCINATION RATES FOR MISSOURI AND SW MISSOURI - The Missouri statewide vaccination rate is 41.1% completed as of 7/29/2021. Areas in Missouri that are popular summer destinations have lower vaccination rates like Taney County (27.3% completed) and Benton County (34% completed). These are all below the 50% vaccination level need to begin providing community protection.

<https://health.mo.gov/living/healthcondiseases/communicable/novel-coronavirus/data/public-health/county.php> accurate through July 29, 2021

- b. INCREASING RATES - Daily average cases have increased over 700% since the first week in June, from 239 to 1,696 at the end of July reaching numbers not seen since mid-January.

- Data source: MODHSS, COVID-19 in Missouri Dashboard based on confirmed PCR cases on June 1, 2021 and July 26, 2021

<https://health.mo.gov/living/healthcondiseases/communicable/novel-coronavirus/data/public-health/statewide.php>

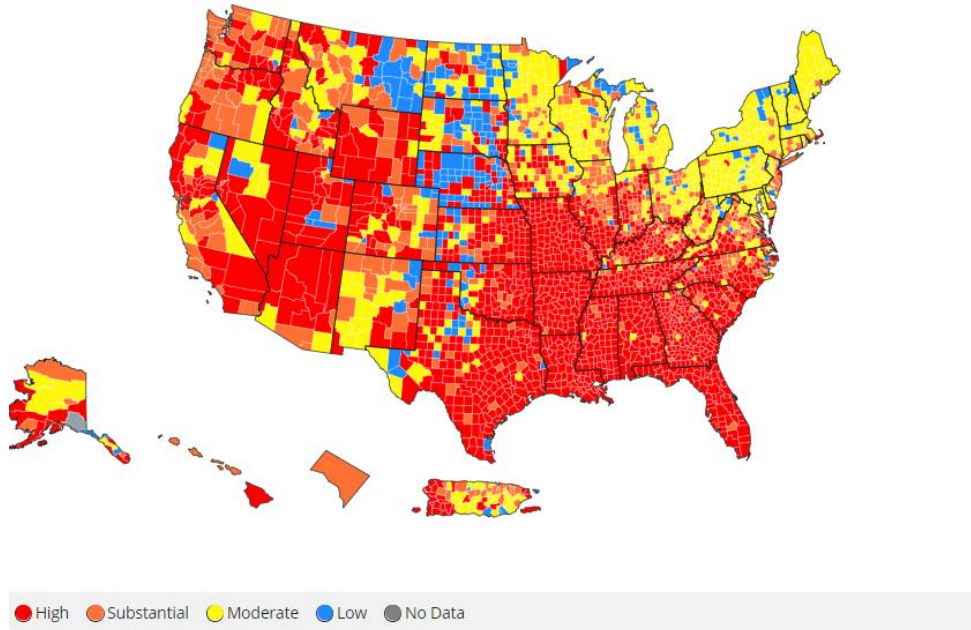
- c. SPREAD OF DELTA VARIANT – The estimated R^0 (average number of persons each new case will infect) for the delta variant of COVID-19 is between 4.8 and 6, meaning that each individual infected with COVID-19 Delta will transmit the disease to 4-6 others. Sewer shed data show that 100% of collection sites in Missouri now show Delta variant, with 95% showing Delta variant exclusively.

- R^0 data source: <https://www.fil.ion.ucl.ac.uk/spm/covid-19/forecasting/>

- Sewershed data source:

<https://storymaps.arcgis.com/stories/f7f5492486114da6b5d6fdc07f81aacf> accurate through July 12

- d. LOCATION OF HOT SPOTS - Taney county (Branson) has a case rate of 347 per 100k, Howell County has a case rate of 551 per 100k, and Phelps county has a case rate of 473 per 100k. The CDC designates 99% of Missouri counties as experiencing “High” levels of community transmission (see map pulled 7/29/2021 at 4:30 PM)



- **Current KCMO Numbers**
 - a. TOTAL CASES AND DEATHS FOR KC REGION - on July 25, 2021, the Kansas City Health Department confirmed 171,327 total cases of COVID-19 in Kansas City metro-wide and 2,378 deaths from COVID-19 in Kansas City metro-wide.
 - b. INCREASED CASES IN KC REGION AND KCMO – In the KC Region, average weekly cases went from 67 new cases per week in early June to 344 cases per week in mid-July. Weekly new cases for KCMO have increased over **1,000%** since the first week in June, from 100 (6/5/21) to 1,068 (7/29/21) reaching numbers not seen since mid-January, KCMO is currently averaging over 140 new cases per day.
 - KC Region data source: MARC KC Region COVID-19 Data Hub <https://marc2.org/covidhub/>
 - KCMO Data source: MODHSS (epitrax) internal report of confirmed cases, data accurate through July 29, 2021
 - c. HOSPITAL CAPACITY IS BEING CHALLENGED - During a joint call on July 14th between local public health directors and chief medical officers (CMOs) for local hospitals, the CMOs shared that more hospitals were going on “high volume” than at any other time during the pandemic. High volume means that the hospital doesn’t have enough staffed beds to admit patients from the Emergency Room (ER), so the ER must keep those patients until a bed opens up. This in turn impacts the ER’s ability to provide beds for new patients.

- Hospitalizations are 8 times higher than the first week in June. 10% of all hospital beds are currently taken by COVID patients and only 23% of hospital beds are available, lower than the peak of our hospitalizations last year
- **New CDC Guidance**
 - a. SUMMARY OF LATEST CDC GUIDANCE -
 - Updated information for fully vaccinated people given new evidence on the B.1.617.2 (Delta) variant currently circulating in the United States.
 - Added a recommendation for fully vaccinated people to wear a mask in public indoor settings in areas of substantial or high transmission.
 - Added information that fully vaccinated people might choose to wear a mask regardless of the level of transmission, particularly if they are immunocompromised or at increased risk for severe disease from COVID-19, or if they have someone in their household who is immunocompromised, at increased risk of severe disease or not fully vaccinated.
 - Added a recommendation for fully vaccinated people who have a known exposure to someone with suspected or confirmed COVID-19 to be tested 3-5 days after exposure, and to wear a mask in public indoor settings for 14 days or until they receive a negative test result.
 - CDC recommends universal indoor masking for all teachers, staff, students, and visitors to schools, regardless of vaccination status.
 - Infections happen in only a small proportion of people who are fully vaccinated, even with the Delta variant. However, preliminary evidence suggests that fully vaccinated people who do become infected with the Delta variant can spread the virus to others. To reduce their risk of becoming infected with the Delta variant and potentially spreading it to others, CDC recommends that fully vaccinated people:
 - Wear a mask in public indoor settings if they are in an area of substantial or high transmission.
 - Fully vaccinated people might choose to mask regardless of the level of transmission, particularly if they or someone in their household is immunocompromised or at increased risk for severe disease, or if someone in their household is unvaccinated. People who are at increased risk for severe disease include older adults and those who have certain medical conditions, such as diabetes, overweight or obesity, and heart conditions.
 - Get tested if experiencing COVID-19 symptoms.
 - Get tested 3-5 days following a known exposure to someone with suspected or confirmed COVID-19 and wear a mask in public indoor settings for 14 days after exposure or until a negative test result.
 - Isolate if they have tested positive for COVID-19 in the prior 10 days or are experiencing COVID-19 symptoms.
 - General prevention of COVID-19: <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html> (for anyone)
 - Wear a mask
 - Stay 6 ft away from others
 - Get vaccinated

- Avoid crowds and poorly ventilated spaces
 - Wash your hands often
 - Cover coughs and sneezes
 - Clean and disinfect
 - Monitor your health daily
- b. DEFINITIONS – A high transmission area is a jurisdiction (city, county or state) with a COVID case rate higher than 100 per 100,000 population over the past seven days and a test positivity rate of greater than 10% over the over the past seven days. A substantial transmission area is a jurisdiction (city, county or state) with a COVID case rate between 50-99 per 100,000 population over the past seven days and a test positivity rate of between 8-9.99% over the past seven days.
- c. WHY KC MEETS THE DEFINITION OF HIGH AND/OR SUBSTANTIAL TRANSMISSION AREA – Kansas City’s two-week positivity rate from July 11th – July 24th is 29.3%, and our case rate is 216 per 100k over the past seven days

Source – MODHSS Confirmed Cases Database (accurate through July 29, 2021)

- **Kids And Masking:**

- a. KIDS ARE GETTING INFECTED - The case rate in those under 12 has increased by 5.5x between June and July, to 418 per 100,000. This rate is equivalent to the highest peak of COVID-19 for this age group so far, from December 2020 (424 per 100,000). So far in the month of July (through the 28th) 308 cases in those under 12 have been reported
- b. KIDS CAN SPREAD IT - Studies that have systematically tested children and adolescents, irrespective of symptoms, for acute SARS-CoV-2 infection (using antigen or RT-PCR assays) or prior infection (through antibody testing) have found their rates of infection can be comparable, and in some settings higher, than in adults. Outbreaks among children attending camps and sports events have demonstrated that children can transmit SARS-CoV-2 to others. This includes previous and current outbreaks in youth camps and sporting events in the Kansas City region.

Source - Szablewski CM, Chang KT, Brown MM, et al. SARS-CoV-2 Transmission and Infection Among Attendees of an Overnight Camp – Georgia, June 2020. MMWR Morb Mortal Wkly Rep 2020;69(31):1023-1025. doi:10.15585/mmwr.mm6931e1

Atherstone C, Siegel M, Schmitt-Matzen E, et al. SARS-CoV-2 Transmission Associated with High School Wrestling Tournaments – Florida, December 2020-January 2021. MMWR Morb Mortal Wkly Rep 2021;70(4):141-143. doi:10.15585/mmwr.mm7004e4

- c. KIDS CAN GET SICK - The average hospitalization percentage for those under 12 in 2021 is 18% of reported cases in Kansas City.

Source – MODHSS Confirmed Cases Database (accurate through July 29, 2021)

- d. KIDS (UNDER 12) CANNOT GET VACCINATED AND ARE COMPLETELY EXCLUDED FROM THAT POSSIBLE PROTECTION – Although Emergency Use Authorization for 5-12-year-old children is expected within the coming months, the clinical trials for the Pfizer and Moderna vaccine may begin expanding the number of children in this age range who can participate.
- **Regional Guidance On Masking And Vaccinations**
 - a. REGIONAL NEWS RELEASE FOR PUBLIC HEALTH ADVISORY - Ten Kansas City area health departments (including Cass, Clay, Jackson and Platte Counties in Missouri) issued a Public Health Advisory through a Regional News Release on July 16, 2021 recommending mask wearing while indoors for all unvaccinated persons and vaccinated individuals with underlying health conditions. This advisory was a result of discussions during a joint meeting with the Chief Medical Officers from several metropolitan area hospitals. The Chief Medical Officers found that due to the rapidly increasing COVID-19 cases and hospitalizations in the Kansas City Area due to emergence of the delta variant, unvaccinated residents of all ages who have resumed normal activities without adequate protection (masking and vaccinations) are most at risk, particularly immune-compromised individuals.

This Advisory was prior to the CDC’s Morbidity and Mortality Weekly Report from July 27, 2021 that stated: “Based on emerging evidence on the Delta variant (2), CDC also recommends that fully vaccinated persons wear masks in public indoor settings in areas of substantial or high transmission.”

(2)CDC. Science brief: COVID-19 vaccines and vaccination. Atlanta, GA: US Department of Health and Human Services, CDC; 2021.
<https://www.cdc.gov/coronavirus/2019-ncov/science/science-briefs/fully-vaccinated-people.html>
 - b. CHILDREN’S MERCY GUIDANCE – On July 12th Children’s Mercy Hospital updated their document titled Guidance for Keeping Schools Safe for Students and Staff. This updated guidance from one of the preeminent children’s hospitals in the nation stated: “Schools may want to consider universal masking in cases where:
 - Vaccine status of staff or students is not able to be verified
 - In communities and/or schools where high vaccination rates have not been achieved (e.g. >70%)
 - Individuals at high-risk of COVID-19 complications work or attend school
 - Increasing, substantial, or high COVID-19 transmission in the school or community
 - Break-through infection is occurring in vaccinated persons”The first and fourth conditions listed above would be true in all schools in Missouri. The first condition applies to all schools because state law now prohibits requiring proof of vaccination to receive public services (including attending school). The second condition would be true of most schools located in Kansas City, MO. As of July 22nd only two zip codes (64120 & 64152) have over 70% of adults vaccinated.

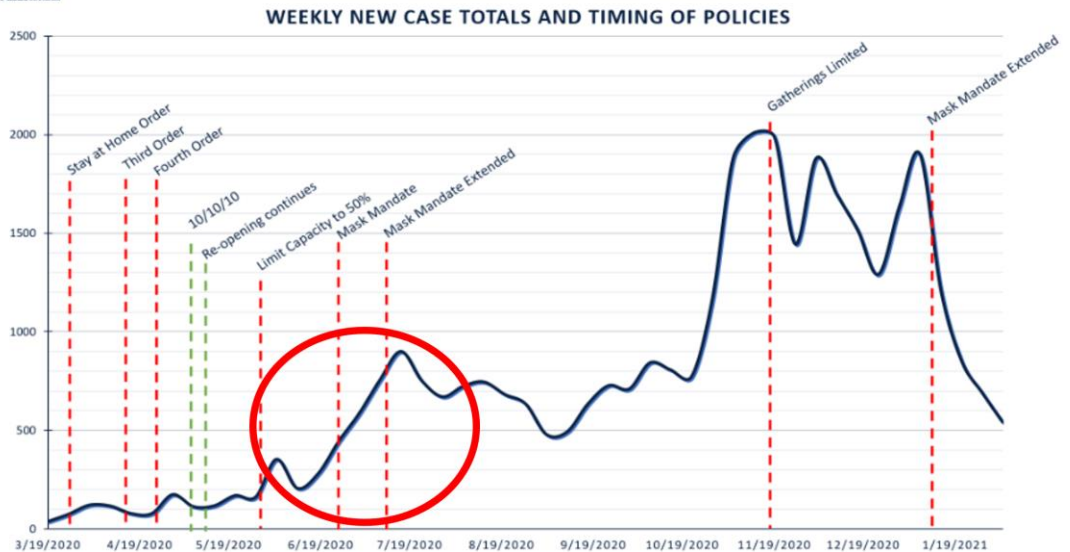
- **Masking Is Needed Because Vaccination Alone Is Not Working**

- a. **VACCINES ALONE CAN'T STOP COVID-19 IF ENOUGH PEOPLE DON'T RECEIVE THEM** - In November 2020, Molecular Diversity Preservation International (MDPI) a publisher of online scientific journals, published an article titled "Is a COVID-19 Vaccine Likely to Make Things Worse?". In this article (written before the first COVID-19 vaccine was approved), the authors used mathematical modeling to predict what impact the introduction of a highly effective vaccine would have on COVID-19 infections. The authors concluded that "use of a vaccine in combination with these measures [*contact tracing, masks wearing, physical distancing, travel quarantine and isolation of infected persons*] will reduce the per-day risk of infection **so long as at least 50%** of people receive it, with significant benefits if more than 80% people do. However, **if there is too much vaccine defiance and a concomitant abandoning of other protection options, then we run the risk of a perverse outcome: the introduction of an excellent vaccine could nevertheless make the overall situation worse.**" In short, the mathematical models used by the authors predicted the exact situation Kansas City and other communities now find ourselves in – we removed the protective measures before enough people were vaccinated and so the virus had a resurgence. It is important to note that the version of COVID-19 the models factored in was not as contagious or as virulent as the Delta variant. This article closed with the following cautionary statement: **"unless these vaccines are given to a sizable majority of people, vaccination is unable to fully replace existing protection measures.** Until this goal is achieved, it is vital that public-health education about the importance of non-medical protection options remain in place."
- b. **VACCINATION AVAILABILITY CANNOT BE A SUBSTITUTE FOR OTHER PROTECTIVE MEASURES SUCH AS MASKING** – COVID-19 vaccines are available to most Kansas City residents. In addition to community-based, COVID vaccination clinics offered each day by the Health Department, clinics under contract with the Health Department and other medical providers/community organizations in this community, there are vaccinations available at pharmacies, in hospital emergency rooms, COVID specific private clinics and urgent care centers.

Vaccine uptake is shifting from an availability problem to a desirability issue. Financial incentives being introduced by the state of Missouri may have some impact, but preliminary studies of the impact of financial incentives in other states show mixed results. One study that looked at the impact of \$10 and \$100 financial incentives found that "While having to pay a \$20 co-pay for the vaccine did deter individuals, the additional economic incentives had no positive effect although they did not discourage vaccination³². Consistent with past research further analysis shows that the negative effect of the \$20 co-pay was concentrated among low-income earners. Financial incentives failed to increase vaccination willingness across income levels."

Source - Kreps, S., Dasgupta, N., Brownstein, J.S. et al. Public attitudes toward COVID-19 vaccination: The role of vaccine attributes, incentives, and misinformation. *npj Vaccines* 6, 73 (2021). <https://doi.org/10.1038/s41541-021-00335-2>

- c. WE HAVE SEEN MASK ORDERS AND OTHER MITIGATION APPROACHES WORK DURING EARLIER CASE SPIKES IN AND NEAR KANSAS CITY – The graphic below shows how previous orders by Mayor Lucas have impacted the trend line for local cases:



“The governor of Kansas issued an executive order requiring wearing masks in public spaces, effective July 3, 2020, which was subject to county authority to opt out. After July 3, COVID-19 incidence decreased in 24 counties with mask mandates but continued to increase in 81 counties without mask mandates.”

Van Dyke ME, Rogers TM, Pevzner E, et al. Trends in County-Level COVID-19 Incidence in Counties With and Without a Mask Mandate – Kansas, June 1-August 23, 2020. MMWR Morb Mortal Wkly Rep. Nov 27 2020;69(47):1777-1781. doi:10.15585/mmwr.mm6947e2

<https://www.cdc.gov/mmwr/volumes/69/wr/mm6947e2.htm>

<https://www.cdc.gov/mmwr/volumes/69/wr/pdfs/mm6947e2-H.pdf>

- **Justification for Exclusions to be Included In Mask Order**

- a. MINORS BELOW THE AGE OF 5 - Current CDC recommendations state that face masks can be safely worn by all children 2 years of age and older, including most children with special health conditions, with rare exception. Children should not wear a mask if they are under 2 years old, however, because of suffocation risk. In addition, for children under age five in community settings the World Health Organization recommends against face masks.

- <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html#stay6ft>

- <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/fully-vaccinated-guidance.html>
- <https://www.jwatch.org/fw116969/2020/08/24/who-recommends-against-face-masks-kids-community-settings>

- b. PERSONS WHO HAVE DISABILITIES WHERE FACE COVERINGS OR MASKS CONSTITUTE A SUBSTANTIAL IMPAIRMENT TO THEIR HEALTH AND WELL-BEING BASED UPON MEDICAL, BEHAVIORAL, OR LEGAL DIRECTION - Employees who can't wear a face mask for medical reasons, should not work in close proximity with other coworkers or the public. For the public who can't wear face masks for medical reasons, they should utilize alternative services such as online shopping, and/or curbside pickup and delivery.

The CDC does not recommend the use of face shields because they provide minimal protection from inhalation or exhalation of small droplets.

- c. PERSONS IN A RESTAURANT OR TAVERN ACTIVELY CONSUMING FOOD OR DRINK - While consuming food, exposure can be minimized by seating households and close contact groups together, maintaining proper social distance, and remaining seated while consuming food or drink. The CDC recommends that restaurant and bar settings consider spacing tables at least 6 feet apart to mitigate risk while customers are eating and drinking. <https://www.cdc.gov/coronavirus/2019-ncov/community/organizations/business-employers/bars-restaurants.html>
- d. PERSONS OBTAINING A SERVICE INVOLVING THE NOSE OR FACE WHEN TEMPORARY REMOVAL OF THE FACE COVERING OR MASK IS NECESSARY TO PERFORM THE SERVICE- This exclusion is only for those who are receiving the service, person rendering service must still wear a face mask at all times.
- e. PERSONS WHO ARE ALONE IN A SEPARATE ROOM OR OFFICE – minimal risk for a fully enclosed office; no need for masking
- f. ANY INTERACTION OR GATHERING, PER CDC GUIDANCE, WHERE PARTIES HAVE KNOWLEDGE ALL PERSONS PRESENT ARE FULLY VACCINATED BY FEDERALLY-APPROVED VACCINE(S) – **Current CDC recommendations do not support this exclusion**

Based on the information included in this report, as Deputy Director (and designated Interim Director as of 8/1/2021), I strongly support the issuance of an Order from the Mayor and any authorizing action by the City Council requiring masks in all indoor, public accommodations within Kansas City, MO for at least the next 30 days. Such an order is needed to provide relief to local hospitals and to “turn the curve” of Kansas City’s latest COVID-19 surge.