



COVID-19 in Missouri Prisons and Jails

By



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Missouri Appleseed is a legal policy and advocacy nonprofit that works on issues at the intersection of criminal justice reform and public health. Our mission is to ensure that all Missourians, especially justice-involved Missourians, have the opportunity to live healthy, dignified, and productive lives. Missouri Appleseed is one of sixteen independent, state-based nonprofits that make up the Appleseed Network, which has championed the rights of society's most vulnerable populations for more than two decades.

Executive Summary

COVID-19 has raced through U.S. correctional facilities. COVID-19 case rates are much higher among incarcerated people than the general population. COVID-19 case rates are also higher among people who *work* in correctional facilities than among the general population. Many of the largest COVID-19 outbreaks in the U.S. have occurred in correctional facilities.

Given the centrality of correctional facilities to the COVID-19 pandemic, the legal policy and advocacy nonprofit Missouri Appleseed, with financial support from Missouri Foundation for Health, studied the COVID-19 containment policies of Missouri prisons. In collaboration with quantitative sociologists, medical professionals, and legal professionals, Missouri Appleseed set out to determine whether prisons were not only putting people in prison and correctional officers at risk of infection but also driving community spread in Missouri (Appendix 1). The research team also performed a comparative analysis of COVID-19 containment policies for state prison systems across all fifty states, with special attention to Missouri (Appendix 2). Finally, they composed a sample pandemic protocol to help Missouri correctional facilities during the current pandemic and future respiratory pandemics (Appendix 3). While it may seem as though Missouri does not need to prepare for “once in a lifetime” events like pandemics, pandemic preparedness is in fact vital to protecting public health and the economy (Centers for Disease Control and Prevention 2017).

Appendix 1, “Report on the Impact of Mass Incarceration on COVID-19 Outcomes in Missouri,” analyzes publicly available data on COVID-19 infections and deaths in Missouri communities containing prisons and compares it to data from communities that do not contain prisons to gauge whether the COVID-19 risks inherent to correctional facilities as currently administrated put wider communities at risk. The results of the analysis suggest that prison incarceration, measured in various ways, increases the risk of COVID-19 infections in Missouri and that rural, low-income, and racial or ethnic minority communities may be particularly vulnerable. Thus, infections in Missouri correctional facilities are a health threat both to people incarcerated in prisons and jails and to other vulnerable communities.

Appendix 2, “An Overview of States’ Department of Corrections Responses to COVID-19,” uses the ACLU and Prison Policy Initiative’s report *Failing Grades: States’ Responses to COVID-19 in Jails and Prisons* as a jumping-off point to compare various states’ responses to COVID-19 in correctional facilities with Missouri’s. This chapter finds that Missouri’s executive branch largely failed to address the COVID-19 crisis in correctional facilities. In contrast with several other states, Missouri’s Governor issued no executive orders to reduce infection risk in correctional facilities, either by halting jail admissions, by giving medical furloughs to at-risk incarcerated people, or by paroling incarcerated people near the end of their sentences. In comparison with other states, the Missouri Department of Corrections (MODOC) did an adequate job enacting a mass testing program for all correctional staff and incarcerated people throughout summer 2020. They also did an adequate job *providing* non-medical-grade masks to correctional

staff and incarcerated people. Unfortunately, MODOC failed to require that staff *wear* the masks until autumn 2020 and, subsequently, failed to enforce its mask requirement. The failure to enforce pandemic safety protocols among correctional staff is attributable to chronic understaffing, created by low salaries and exacerbated by the pandemic.

Appendix 3, “The Pandemic Protocol,” is a four-part guide for reducing infection risk in correctional facilities during COVID-19 or in the event of another respiratory pandemic. The four steps to reducing infection risk in correctional facilities are Divert, Decarcerate, Protect, and Vaccinate. Step one, Divert, recommends that under pandemic conditions, jails halt admissions for people accused of non-violent crimes and prisons halt re-admissions for technical violations of parole. Diverting people from correctional facilities prevents overcrowding in congregate living facilities, thereby reducing infection risk for residents, staff, and surrounding communities. Step two, Decarcerate, recommends that medically at-risk people be released from prison on medical furlough and people near the end of their sentences be released on parole. It also recommends that, whenever possible, prisons be closed to reduce infection risk. Step three, Protect, outlines how to prevent infections in congregate living facilities among correctional staff and those incarcerated people who have not been diverted, furloughed, or paroled. Perhaps most relevant for Missouri, it suggests giving correctional officers hazard pay during pandemics in order to retain staff, as understaffing has led to lax enforcement of life-saving viral containment policies such as mask-wearing. Finally, step four, Vaccinate, suggests making correctional staff and people incarcerated in prisons and jails eligible for vaccination at the same time and

as quickly as possible; it also suggests making vaccinations for staff and incarcerated people opt-out rather than opt-in to increase convenience and reduce logistical and scheduling barriers to vaccination.

References

Centers for Disease Control and Prevention (2017). Why it matters: the pandemic threat. *CDC*. Retrieved June 9, 2021 from <https://www.cdc.gov/globalhealth/healthprotection/fieldupdates/winter-2017/why-it-matters.html>

Introduction

COVID-19 has raced through U.S. correctional facilities. COVID-19 case rates are approximately 5.5 times higher among people incarcerated in U.S. state and federal prisons than among the non-incarcerated population, while age- and sex-adjusted COVID-19 death rates are 3.0 times higher (Saloner, Parrish, and Ward 2020). COVID-19 case rates are also 2.5 times higher among non-incarcerated people who *work* in correctional facilities than among non-incarcerated people who do not (Gunter 2020).

Infectious disease exposure is a major driver of long-term poor health among people who have been incarcerated (Massoglia 2008). There is a well-known history of airborne disease outbreaks – not only COVID-19, but also tuberculosis, measles, and influenza, among others – in correctional facilities, which often lack adequate space or adequate ventilation. In addition, correctional facilities are “porous environments,” with staff, visitors, and parolees re-entering the wider community (Beaudry et al. 2020). More cases of an infectious disease in correctional facilities can lead to more cases in the non-incarcerated population (Johnson and Raphael 2009; Ndeffo-Mbah et al. 2018). Thus, facility conditions may pose health risks to people incarcerated in prisons and jails, to correctional staff, and to surrounding communities.

Yet, until the COVID-19 pandemic, there had not been sufficient discussion of how to quickly, safely, and in a standardized manner reduce infection risk for both incarcerated people and correctional staff – and, thereby, also for communities connected to prisons or jails – when airborne disease outbreaks do occur in correctional facilities (Beaudry et al. 2020).

Recent studies of COVID-19 in Massachusetts, Texas, New York City, and Chicago correctional facilities have begun to analyze epidemiological data from incarcerated people and, in the case of Texas, correctional staff. These studies suggest various effective tactics for reducing infections and deaths in correctional environments, such as citations rather than arrests and jail detention for non-violent offenses; targeted decarceration via medical furloughs or early parole; and regular testing of asymptomatic people in prisons or jails (Reinhart and Chen 2020; Jiménez et al. 2020; Vest et al. 2021; Chan et al. 2021).

At the same time, prisons and jails face potential *legal* liability in failing to address the spread of COVID-19 and future respiratory disease outbreaks in their facilities in a responsible manner. Nationwide, class action lawsuits have been filed alleging violations of various federal laws, including the Americans with Disabilities Act, as well as the U.S. Constitution. In particular, incarcerated people have claimed that prison officials have failed to take meaningful steps to socially distance in prisons, to give correctional staff adequate personal protective equipment (PPE) and, most recently, to give people incarcerated in prisons access to vaccines on a par with prison staff. Although some of these lawsuits have had early success, in most cases appeals courts have been reluctant to force prisons to change their policies. In general, litigation can be expensive and time-consuming, and correctional facilities may be well advised to anticipate and forestall litigation by being proactive rather than having to react to inevitable lawsuits.

COVID-19 has made acutely clear that mass incarceration hurts public health, yet public health advocates must also account for the variegated public health landscapes of different state prison systems and local jails, with differential access to good data. Note that this report cites studies from Massachusetts, Texas, New York City, and Chicago above, not because they are unusually representative but because they were able to assemble COVID-19 data sufficiently complete to support trustworthy analysis for given correctional facilities during periods of the pandemic.

This report exists to give an overview of COVID-19 in Missouri's correctional facilities and surrounding communities. Its original contribution is necessarily and positively local but also constrained by the limitations of Missouri's data collection. The report first provides a narrative summary of Missouri correctional facilities' COVID-19 response. It then includes a statistical analysis by quantitative sociologists at Washington University in St. Louis of Missouri prisons' contribution to COVID-19 case rates in surrounding communities (Appendix 1). It contextualizes the analysis of Missouri with an overview of U.S. states' Departments of Corrections responses to COVID-19 throughout the pandemic (Appendix 2). Finally, it outlines a "pandemic policy" that courts and correctional facilities can use both during the remainder of the COVID-19 pandemic, during COVID-19 variant case spikes, and, with emendations, during future respiratory pandemics (novel coronaviruses, swine or avian influenzas, and others). This pandemic policy includes a medical analysis of the Saint Louis County jail as a model correctional facility that has successfully and responsibly implemented COVID-19 mitigation policies (Appendix 3).

References

- Beaudry, G., Zhong, S., Whiting, D., Javid, B., Frater, J., & Fazel, S. (2020). Managing outbreaks of highly contagious diseases in prisons: a systematic review. *BMJ Global Health* 5(11), e003201. Doi: 10.1136/bmjgh-2020-003201
- Chan, J., Burke, K., Bedard, R., Grigg, J., Winters, J., Vessel, C., Rosner, Z., Cheng, J., Katyal, M., Yang, P., & MacDonald, R. (2021). COVID-19 in the New York City jail system: epidemiology and health care response, March – April 2020. *Public Health Reports* 136(3), 375-383. <https://doi.org/10.1177/0033354921999385>
- Gunter, A. (2020, July 29). *Covid-19 in Prisons: The Latest Numbers in 3 Graphs*. The Council of State Governments Justice Center. Retrieved March 30, 2021 from <https://csgjusticecenter.org/covid-19-in-prisons-the-latest-numbers-in-3-graphs/>.
- Jiménez, M.C., Cowger, T.L., Simon, L.E., Behn, M., Cassarino, N., & Bassett, M.T. (2020). Epidemiology of COVID-19 among incarcerated individuals and staff in Massachusetts jails and prisons. *JAMA Network Open* 3(8), e2018851. Doi:10.1001/jamanetworkopen.2020.18851
- Johnson, R.C. & Raphael, S. (2009). The effects of male incarceration dynamics on acquired immune deficiency syndrome infection rates among African American women and men. *The Journal of Law & Economics* 52(2), 251–293. DOI: 10.1086/597102
- Massoglia, M. (2008). Incarceration as exposure: the prison, infectious disease, and other stress-related illnesses." *Journal of Health and Social Behavior* 49(1), 56-71. <https://doi.org/10.1177/002214650804900105>
- Ndeffo-Mbah, M.L., Vigiotti, V.S., Skrip, L.A., Dolan, K., & Galvani, A.P. (2018). Dynamic models of infectious disease transmission in prisons and the general population. *Epidemiological Reviews* 40(1), 40-57. <https://doi.org/10.1093/epirev/mxx014>
- Reinhart, E. & Chen, D.L. (2020). Incarceration and its disseminations: COVID-19 pandemic lessons from Chicago's Cook County Jail." *Health Affairs* 39(8), 1412-1418. <https://doi.org/10.1377/hlthaff.2020.00652>
- Saloner, B., Parrish, K., & Ward, J.A. (2020). COVID-19 cases and deaths in federal and state prisons. *JAMA* 324(5), 602-603. Doi:10.1001/jama.2020.12528
- Vest, N., Johnson, O., Nowotny, K., & Brinkley-Rubenstein, L. (2021). Prison population reductions and COVID-19: a latent profile analysis synthesizing recent evidence from the Texas state prison system. *Journal of Urban Health* 98, 53-58. <https://doi.org/10.1007/s11524-020-00504-z>



Missouri Prisons and Jails and the Response to Covid-19: A Narrative Report

As we are quickly seeing throughout the United States and the world, highly transmissible novel respiratory pathogens such as SARS-CoV-2—the virus that causes Covid19—create a perfect storm for correctional settings.

– *Dr. Josiah Rich, M.D., MPH, Professor of Medicine and Epidemiology,
Brown University School of Medicine (Rich, 2020, April 4)*

THREE LINES OF INQUIRY

As we complete this report in the summer of 2021, the news on COVID-19 is decidedly mixed. While the drive to vaccinate showed early promise, the emergence and dominance of the delta variant is presenting a serious challenge to our national recovery. Indeed, the rise of the delta variant has frustrated efforts to "reopen" and to get things back to "normal" in nearly every area of American life. It now looks like we will have to learn the lessons from the first wave of COVID-19, and to apply them again, in real time. The impact of the events of last year will surely linger on into the foreseeable future, if not longer. We may have to give up hope of getting back to a situation that was pre-COVID-19 and instead learn how best to deal with, and live with, the realities of the COVID-19 virus.

This report focuses on how Missouri prisons and jails handled the initial wave of the COVID-19 pandemic (spring 2020 to summer 2021) and how we can learn from that experience to implement new policies and structures for responding to future public health crises in the correctional system. Our mission in this report is constructive. We acknowledge that information about the novel coronavirus was constantly changing and that those on the front lines, especially correctional officers, often found themselves working around the clock to adapt to the unprecedented situation and to keep themselves – and others – safe.

We are not laying blame but trying to learn from the experience of COVID-19. We also believe that examining the response by Missouri prisons and jails to the COVID-19 pandemic can yield insights about state and local administration of prisons and jails more generally. The rise of the delta variant shows us that the time to learn these lessons is not later, but right now.

We have structured our report around three main lines of inquiry:

- 1) **What is at stake in adequately managing the risk of the spread of COVID-19 in prisons and jails in Missouri?**
- 2) **What has been done in Missouri prisons and jails to respond to COVID-19 and to mitigate the spread?**
- 3) **What plans and policies should Missouri prisons and jails have in place to handle the ongoing crisis?**

While we can't predict exactly when or where the next epidemic or pandemic will begin, we know one is coming.

– *Why It Matters: The Pandemic Threat*
(Centers for Disease Control and Prevention, 2021)

1) WHAT'S AT STAKE?

Before we assess the sufficiency of the measures taken to deal with COVID-19 in Missouri prisons and jails and point out areas of improvement, we must stress the *scope* of the problem. While we might think that the problem of COVID-19 in prisons and jails should be considered only in terms of what goes on inside those institutions, this narrow view is mistaken: COVID-19 outbreaks in prisons and jails threatened people residing in prisons and jails, correctional staff, and people in surrounding communities, all of whose right to reasonable protections from infection ought to be considered.

At this point, we must clarify the difference between jails and prisons.¹ Prisons house individuals who are serving longer sentences, usually sentences greater than a year. Missouri's prisons are run by the Missouri Department of Corrections (MODOC), which sets down rules that all prisons must follow. By contrast, Missouri's jails are decentralized and run by individual counties, which have their own policies and procedures. Jails are populated by two main groups: those who are awaiting trial and those who are serving shorter sentences, usually sentences less than a year. When we talk about the COVID-19 responses of prisons and jails, we have to remember that we are really talking about two very different sorts of institutions within the Missouri criminal justice system.

The Three Circles

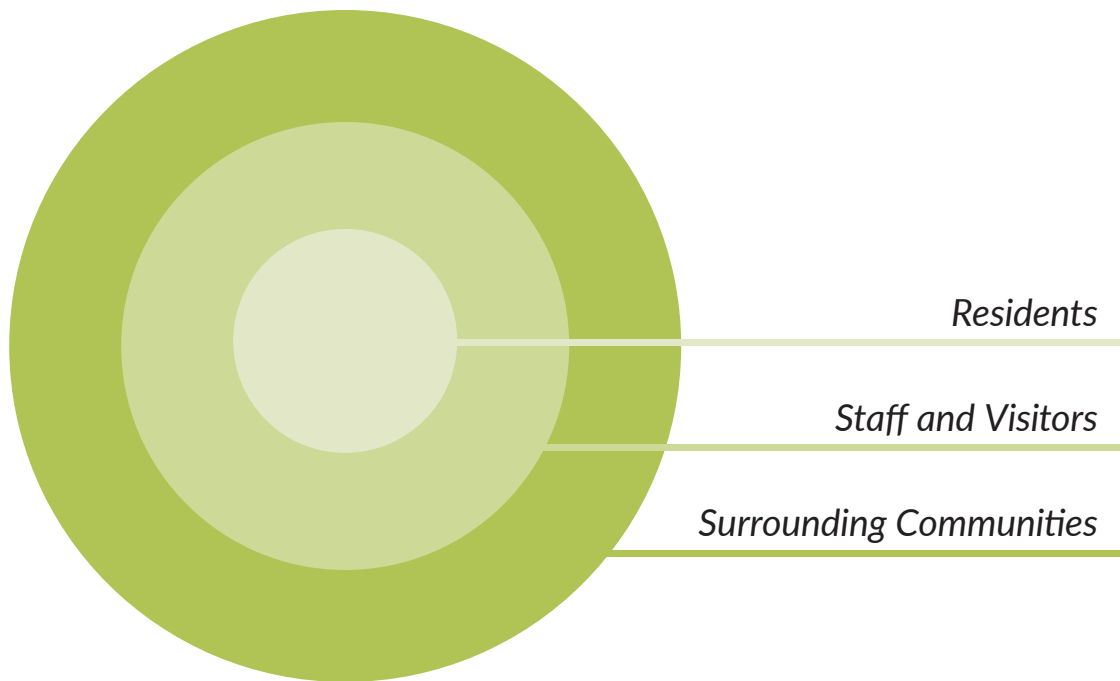
Early in the COVID-19 pandemic, several nonprofits wrote a letter addressed to the judges on the Missouri Supreme Court. The letter began:

"People refer to cruise ships as petri dishes, but nobody has invented a more effective vector for transmitting disease than a city jail," a former city corrections commissioner told ABC News a few days ago. Those who will be affected by COVID-19's inevitable entry into Missouri's city and county jails include not only inmates, but corrections workers, health care workers, police officers, judicial department employees, attorneys, and the families of many of these people (Fox et al., 2020).

Prisons and jails are usually designed to be places apart from the general population. They exist to isolate some members of the population from the larger community. But no prison or jail is truly isolated. With community members permitted to work in and visit these facilities (visitors may include police, attorneys, religious leaders, family members, etc.), incarceration does not mean complete isolation from the rest of society. While cruise ships received plenty of media attention for being key sites for COVID-19 spread, prisons and jails presented a much more acute problem (Rich, 2020, February 23). Cruise ships can be locked down, with no one allowed to leave or enter; in other words, the population in a cruise ship can be contained. Prisons and jails, however, involve the ongoing *circulation* of people – not only the people who work at and visit these institutions but also the people who are released after serving time.

¹ Our focus is the response to COVID-19 in Missouri state correctional institutions and local jails. The federal response to COVID-19 is not our focus here, although Missouri contains a federal prison and some Missouri jails house federal detainees.

We can imagine the problem presented by prisons and jails in the form of at least three concentric circles:



In the innermost circle are the residents of prisons and jails: those who are either serving a sentence or are being held pre-trial. In the next circle out are the correctional officers, other prison officials, attorneys, health care workers, etc., who do not live in the facility but who are in active, even daily, contact with the residents. The outermost circle is the surrounding community. Although in the picture the circles are sealed off from one another, *in real life they are not*. In particular, there is a constant back and forth between those in the first circle and the second, as correctional workers enter correctional facilities and interact with the people residing

there, and between the second circle and the third, as correctional workers return to their communities. But there is also a connection between the innermost circle and the outermost circle, as those who are incarcerated gain their release and return to their communities.

At stake in preventing and managing disease in prisons and jails is the health of the people incarcerated in correctional facilities, of correctional staff, and of the communities where correctional facilities are located. The health of each group is connected to the health of the others.

The Study, Part 1: Connecting The Three Circles

A recent study, made possible with funding from Missouri Foundation for Health, confirms these commonsense intuitions about the spread of disease between correctional facilities and the community and builds on previous research such as the Cook County Jail study by Reinhart & Chen (2020). Using publicly available data on COVID-19 infections and deaths in Missouri prisons and in the communities surrounding them, researchers Dr. Hedwig Lee and Dr. Savannah Larimore sought to answer the simple question: did having a prison in a community make it more likely that there would be a higher rate of COVID-19 infections in that community? In their study, reproduced as Appendix 1 to this report, they sought to see if Missouri followed the pattern of a greater spread in communities with correctional facilities that other researchers had found in other states. It did.

Their study adds additional layers of detail to the simple picture of concentric circles above. They looked at whether the location of the prison mattered, whether the size of the prison populations mattered, and whether the “incarceration density” (the number of incarcerated persons per square mile in a given county) mattered. They find that all three measures of prison incarceration had a positive and statistically significant relationship with COVID-19 infection rates in a county. Additional results from the analysis suggest that even being in a county that borders a county with a prison puts that county at greater risk of COVID-19 spread. What is more, the study authors suggest a greater risk to certain populations: those in rural areas, those who are low-income, and racial and ethnic minorities. Their study thus may offer a more fine-grained

analysis of how COVID-19 spreads between correctional facilities and the community – and so *how* to try to mitigate that spread.

As the authors state in the conclusion to their study, with the onset of COVID-19, prison incarceration became very clearly a “primary public health concern for Missourians.” We cannot separate the health and well-being of those who are housed in correctional facilities from those living in neighboring (and even not so neighboring) communities. First, no one is sentenced to die from pandemic disease; people in correctional facilities have a right to reasonable protections from infection. Second, greater risk to those in correctional facilities presents a greater community risk. To again quote Drs. Lee and Larimore:

“Understanding the role of prisons in risk for those who live and/or work in prison and the communities that they are connected to is a key to informing policies and practices that, coupled with additional efforts, can serve to protect and promote health for all populations” (see Appendix 1).

On June 29, 2021, the COVID Prison Project highlighted similar results on a national scale (COVID Prison Project, 2021). Researchers from the University of Wisconsin-Madison took a similar approach in comparing counties with prisons and those without. They focused on infections prior to July 2020 during the first wave of COVID-19 in the U.S. Their results indicate that counties with state prisons had an 11% increase in COVID infections (Cara, 2021).

The Study, Part 2: At The Center Of The Circle

The Lee and Larimore study highlights not only the risk to the community but also the greater risk to those who are incarcerated in Missouri, at the center of the three circles. One part of that risk is the constantly changing nature of the prison and jail population: people from the “outside” are always coming in, whether in the form of those who work in prisons and jails or in the form of people newly incarcerated. The more people come in, the greater the risk that some who come in infected with COVID-19 will spread COVID-19 to the rest of the people residing in that prison or jail.

But there are also factors that make it more likely that infection will spread within a correctional facility. Correctional facilities nationwide tend to be overcrowded and operate at or over capacity, which means that people cannot effectively socially distance within a prison or jail, either during the day – when eating, for example – or at night, when sleeping several people to a cell (Andrews, 2020). Sheer space difficulties can make it almost impossible for correctional facilities to follow Centers for Disease Control (CDC) recommendations as to how far people should be from one another to reduce the spread of COVID-19, and that same lack of space makes it difficult to quarantine those who have been identified as infected or potentially infected.

But two other features of prisons and jails make a COVID-19 outbreak more likely. First, prisons and jails, as the study notes, tend to be “old and poorly ventilated” (see Larimore and Lee study). They may have limited numbers of sinks and bathrooms; they may not have sufficient access to cleaning products or personal hygiene products.

These are facts about prisons and jails that *preceded* the outbreak of COVID-19 (Bogan, 2019). When COVID-19 hit, prison and jail administrators were faced with a problem that seemed almost tailor-made to overwhelm prisons and jails. Again, Missouri was no different than other states in this respect.

Second, people in prisons and jails may already have compromised health as well as limited access to quality health care. When disease spreads, members of these populations (the old and the unwell) are at a greater risk for not only infection but also death. When we combine everything about prisons and jails *before* COVID-19 hit, it was no surprise that when COVID-19 did come to prisons and jails, it was a “perfect storm.” Large numbers of already at-risk individuals were packed together in poorly ventilated, unclean facilities. Outbreaks were almost inevitable – and those outbreaks, we can now see, affected not just those in prisons but their surrounding communities as well (Reinhart & Chen, 2020; Hooks & Sawyer, 2020; Larimore and Lee study). Correctional facilities must make changes to protect the at-risk among residents, correctional workers, and surrounding communities.

2. WHAT HAS BEEN DONE

No one was fully prepared for the COVID-19 pandemic. Because we were learning about the virus as it was rapidly spreading, solutions and plans were being devised on the spot. In detailing Missouri's response to the pandemic, we should not hold correctional staff and administrators to a higher standard than everyone else. In many cases, the shortcomings of the response by prisons and jails were part of larger system-wide shortcomings. Chronically underfunded public health institutions often could not offer support to prison and jail administrators; if correctional officials called for help, there may have been no one there to answer the call.

At the same time, when looking at the Missouri response, it can help to see what other states did and how they adapted to the ongoing crisis. Accordingly, after we give a brief timeline of the Missouri experience with COVID-19 in prisons and jails, we turn to a discussion of what we call "transparency" of information supplied by the MODOC during the COVID-19 crisis, in comparison to measures by some other states. A focus on informational transparency is warranted, we believe, because it is a relatively low-cost measure that seems vital to effectively responding to the virus. It is a simple but important truth: we have to know the scope of the problem we are dealing with in order to adequately address it.

The Missouri Experience With Covid-19 in Prisons and Jails

Prisons

We can begin by looking at the Missouri Department of Corrections' (MODOC) response to the risk of COVID-19 spread in Missouri's prisons, a response which falls into roughly three phases: containment, prevention, and vaccination. The first documented case of COVID-19 in a Missouri prison seems to have happened on March 4, 2020, when a man in prison in St. Joseph, Missouri went under observation for respiratory distress (Hoffman, 2020; Schallhorn, 2020a). Around this time, MODOC adopted its first set of measures to deal with the coronavirus (Missouri Department of Corrections, 2020; WGEM, 2020). Visitation was immediately suspended, and no transfers were made between facilities. A few weeks later, MODOC's director, Anne Precythe, announced that the following policies would be put in place: 1) all incoming residents and all correctional staff would undergo screening before entering the facility, and 2) prisons would take steps to create cells, units, and wings that would be used to quarantine in case of an outbreak of COVID-19 (News Tribune 2020; WGEM 2020).

The next phase, which started about a month later, involved a somewhat more aggressive tack to prevent the spread of COVID-19 in prisons and jails. It was becoming clear that masks and social distancing were going to be necessary parts of any effort to stop the spread of COVID-19. The response of Missouri correctional officials, however,

seemed halting and was subject to criticism (Ritzdorf, 2020; Erickson, 2020). MODOC instituted a mask requirement for those working in units with people who had tested positive for COVID-19. Masks were provided for all correctional officials and for residents (Czopek, 2020). Around that time, mass testing for COVID-19 began for residents and for correctional officials. And by the end of 2020, MODOC instituted wastewater testing and made plans to install air purifiers in ventilation systems and “electrostatic sprayers” for disinfection of surfaces (Nozicka, 2020).

Occurrences in the summer and fall of 2020 raised questions about how effectively these policies were being implemented. Mass outbreaks occurred at several facilities, including at least one where mass testing had revealed *no* cases prior to the outbreak (Farzan, 2020). In addition, MODOC was slow in adopting a universal mask requirement for all of those in its prisons (as opposed to just those who were working in units with infected individuals).² And even when a mandate was adopted for prisons, there were regular anecdotal reports that the policy was not always enforced (Hobbs, 2021). Worse, MODOC appears to have been suffering from an especially acute problem with staff shortages, which may have led to sick employees showing up to work as well as a reluctance on the part of MODOC to discipline or fire those who did not comply with the mask mandate (Krull, 2020; Berger, 2021). Problems with hiring and retaining staff in general seemed to plague the Missouri response to COVID-19 in prisons.

² The state of Missouri as a whole has never adopted a universal mask mandate (Associated Press, 2021).

KEY DATES IN THE EARLY MONTHS OF THE PANDEMIC

March 2020

March 12: Missouri DOC (MDOC) suspends visitation and transfers to its facilities.

March 31: MDOC Director Anne Precythe announces that MDOC has enacted the following policies:

Screening incarcerated people upon intake

Screening correctional staff each time they enter a MDOC facility

Identifying cells, units, and wings to be used as quarantine and isolation spaces in the event of an outbreak (WGEM, 2020).

May 2020

May 26: MDOC begins mass testing for all correctional staff and all people incarcerated in its prisons (Schallhorn, 2020b).

July 2020

July 22: Despite large outbreaks at multiple facilities and complaints from people in prison, universal masking in MDOC facilities is still not required of staff (Czopek 2020).

In early 2021, vaccination plans began, with staff being given priority and then the more vulnerable residents (Farzan, 2021). By April, all residents were eligible for the vaccination. Distrust with prison health care systems, however, still remains a barrier for some residents electing to be vaccinated (Berger, 2021). As more residents and correctional officials are vaccinated, the MODOC plans to again open prisons to visitors (Pivoney, 2021).

Jails

While it is possible to tell a more or less detailed story with regard to COVID-19 policies and plans in prisons, no such story can be told about Missouri's jails (one exception to this is the Saint Louis County jail, to which we were granted access). Unlike Missouri prisons, Missouri's jails are not under any uniform policy – each county sets its own policies for its own jails. There are no statutory, statewide requirements for Missouri county jails. Some jails do have formal, written policies. In perhaps most jails, however, there are at most only informal standards, with no mechanism for enforcement. We made efforts to contact several county jails, without success. To the extent that we could get information on their policies, they were practically non-existent – they were not put in writing and seemed to be mostly *ad hoc* and informal (personal communications, 2021). To be sure, jails in many counties will not usually house large populations, and so the risk of widespread infection may be smaller. But that seems no excuse to not have a formal, written policy.

Jails in Missouri perpetually struggle with lack of funds. Counties in Missouri regularly face budget shortfalls, and improving jail conditions is usually last on the list of county priorities (Okeson-Haberman, 2019; Colburn, 2021). The fact that many stays in jail are

short can make it hard for any constituency (friends and family of those in jail) to form to lobby for more money to be spent on jails. We repeat the qualifier that we have made above: in the past year, correctional officials were forced to work with the resources they had, which in many cases was not enough in the face of an unprecedented pandemic.³

The Vital Role For Transparency

One key way in which states responded to the possibility – and eventual reality – of a COVID-19 outbreak in their prisons and jails was by making information available. We call this factor “transparency.” The most vital kind of information during the pandemic, of course, is about the spread of COVID-19 itself. That information included such things as the number of infected residents, the number of infected staff, and COVID-19-related deaths of residents and staff. In addition, states could tally the number of COVID-19 tests and vaccinations of staff and residents. Such information, obviously, is of value in its own right, just as it was and is important to keep track of overall cases and deaths in cities and states. But this information, made easily available and continuously updated, can also help show which facilities are most effectively detecting and preventing the spread of COVID-19 and which need more attention and more resources. Transparency also refers to publicizing COVID-19 policies that have been implemented in prisons and jails. Transparency of this sort can be helpful in tracking what measures a state or local correctional department is taking and in keeping an adequate record of when those measures were adopted; making policies

³ Acknowledging this problem, the federal government recently announced the allocation of \$700 million to fighting COVID-19 in U.S. correctional facilities, including jails (Jarrett, 2021).

transparent can also allow journalists and policymakers to test whether stated policies are being implemented.

Missouri's neighbor Illinois has been a model state for transparency of COVID-19 state prison policies, where they have a tab on the Illinois Department of Corrections (IDOC) website that includes all information related to the COVID-19 response. The website includes case numbers and testing for staff and residents, disaggregated by facility, and inventories of their chemical and medical supplies (Illinois Department of Corrections, 2021). IDOC's website also includes a link to the John Howard Association (JHA), which independently monitors the policies and practices of the correctional facilities in Illinois (John Howard Association, n.d.). JHA conducted a COVID-19 Survey for residents in the IDOC facilities and provided both initial data findings and recommendations to discuss with IDOC areas that need improvement (John Howard Association, 2020).

Another model state for transparency of COVID-19 state prison data is Kansas, based on its tracking of COVID-19 cases and deaths, disaggregated by facility, for both incarcerated individuals and staff (Kansas Department of Corrections, 2021). The Kansas Department of Corrections provides a chart that details the number of current staff cases, current resident cases, current positive residents, cumulative staff cases, and cumulative resident cases, with all data disaggregated by facility. In addition, the Kansas DOC provides the number of staff and resident deaths, also disaggregated by facility. The date of the data is provided and is kept current each week.

A third model state for transparency of COVID-19 prison data is Texas, based on the state dashboard for state prisons and

the reporting structure for jails. The Texas Department of Criminal Justice provides the total number of cases and deaths statewide for state prisons as well as the total number of tests and recoveries. Data is then provided for each facility, including the number of active cases for residents and employees, the number of medical restrictions, and the number of medical isolations (Texas Department of Criminal Justice, 2021a). In addition, the Texas Commission on Jail Standards provides the total number of tests, cases, and deaths for residents of state jails, as well as the number of cases and pending tests for state jail employees (Texas Commission on Jail Standards, 2021).

Texas is also notable for its transparency regarding prison policies, especially its comprehensive Correctional Managed Health Care Infection Control Manuals. There are multiple manuals, including separate policies for different health conditions and policies specific to employees and facilities. The COVID-19 manual includes procedures for infection control, re-entry and release, use of PPE, testing, reporting, and clinical and dental management. Each procedure is detailed and thorough. The infection control procedure covers cleaning and disinfection, laundry, social distancing strategies, use of cloth face masks, medical isolation, contact tracing, and management of exposed staff. The use of PPE procedure details what types of PPE should be used by staff and residents in different settings, including clinic, infirmary, medically restricted or isolated areas, laundry and clearing areas, and transportation (Texas Department of Criminal Justice, 2021b).

Missouri's record on informational transparency was, we believe it is fair to say, mixed. MODOC's COVID-19 data page provides the total number of cases among staff and residents, disaggregated

by prison. It provides the number of deaths among staff and residents but does not disaggregate them by prison. It provides the number of COVID-19 tests administered but does not disaggregate them by prison. Since vaccines became available, Missouri DOC has made available the percentage of people incarcerated in its prisons who have been vaccinated. Vaccination percentages are not disaggregated by prison. Data on the percentage of prison staff who have been vaccinated on-site is not made available (Missouri Department of Corrections, 2021a). In addition, it appears that the information sometimes was not updated. The online dashboard was also down several times in the past year (Suntrup, 2020).

Again, the importance of having this information available, and current, cannot be overstated: only if we know what is happening in prisons and in jails can we know *where* the problems are and the nature of the problems. Are there repeated outbreaks at some facilities? At which facilities are infections resulting in the most deaths?

Missouri DOC does not have a publicly available COVID-19 policy manual. It does have a COVID-19 Update page on its website, which includes policy statements related to vaccines, visitation, personal protective equipment, testing, and disease containment (Missouri Department of Corrections, 2021b). The information regarding infectious disease policies that we were able to obtain from MODOC was from 2015 and had not been updated to reflect any COVID-19 measures (personal communication, June 7, 2021). There may have been supplemental policies, but these were not made available to us. It is possible that staffing problems – due to lack of adequate funding – may have contributed to the failure to compile MODOC’s COVID-19 policies.

When it comes to jails, opacity and not transparency is the watchword. Some jails, e.g. in St. Louis City, posted their policies and protocols and made them generally available (*Division of Corrections COVID-19 Protocol*, 2021). But these institutions seem to be the exception and not the rule.

3. PREPARING FOR THE NEXT PANDEMIC – AND THE ONE STILL CONTINUING

The response to COVID-19 required an “all hands on deck” approach. We had lockdowns, we had guidelines on social distancing and masking as we slowly reopened, and we had a historic and successful effort to develop vaccines. Along the way there were stops and starts, misunderstandings, misinformation, and mistakes. The response to COVID-19 in prisons was no different. But we can and should learn not only from our missteps but also from what worked well. Just as the approach to dealing with the virus in real time required action on any number of levels, so too should our focus on preparedness for the next pandemic or even the next surge of the current pandemic.

We should not be afraid to let the impact of the virus shape our larger perspective on the criminal justice system. Indeed, that would be a way of trying to achieve something positive out of what has been a wrenching period in our nation’s history.

We divide our proposals into four categories:

- 1) ***Divert*** – reducing the number of people entering Missouri’s prisons and jails.
- 2) ***Decarcerate*** – safely releasing people currently incarcerated in prisons and jails.
- 3) ***Protect*** – educating and equipping those who work in prisons and jails, and those who live in them.
- 4) ***Vaccinate*** – making vaccines and vaccine boosters available to both staff and residents as quickly as possible and providing accurate information on the safety of vaccines.

Divert and Decarcerate

The risk and reality of COVID-19 outbreaks in prisons and jails can be attributed in many cases to a single factor: the sheer number of people in prisons and jails. This was already a problem pre-COVID-19, but when COVID-19 hit, it made prisons and jails especially dangerous places. One of the earliest recommendations to “stop the spread” was to socially distance, but this was simply impossible in many prisons and jails. Living, eating, and working spaces in correctional facilities just weren’t built for each person to stand or eat or sleep six feet from any other person.

This is why, early on in the pandemic, decision makers in many states and localities worked quickly to reduce prison and jail populations. They could do this in two main ways. States and localities could, *first*, stop sending so many people to prison or jail. When it came to arrests, for example, police did not have to bring people to jail right away – they could issue a summons to appear at a court date (virtually, if necessary). In other words, officials could decide to divert people from entry into the criminal justice system. Second, states could also *release* people from prisons and jails. For those awaiting trial but unable to afford bail, states could release them with conditions to make sure they would attend their future court dates. For those already serving time, states and localities looked at options of early release (especially for those nearing the end of their sentences and those who were medically vulnerable) or for non-prison options such as house arrest or electronic monitoring.

The dynamics of diversion and decarceration are complex, implicating larger issues of criminal justice policy. But the COVID-19 pandemic brought into focus the public

health ramifications of our nation's and our state's policy of mass incarceration. Crowding people into poorly ventilated and unclean prisons and jails have put those inside – residents, workers, and visitors – at risk of disease and death. Finding sensible ways to reduce the prison and jail population while balancing the need for public safety was already a pressing concern pre-COVID-19. It has become even more vital after the pandemic. We should not wait for another crisis to be proactive in finding ways to safely reduce the population of our prisons and jails.

Protect and Vaccinate

The first lesson we can learn from the pandemic response is perhaps the simplest: *be prepared*. Prisons and jails should have adequate stockpiles of personal protective equipment. In times when there is a risk of virus spread, masks should be readily available and mandated for all who live or work in a prison or jail, as well as any visitors to the prison or jail. Cleaning supplies should be ample and available for use. Hygiene products, such as soap and hand sanitizer, should be available to residents free of cost and at request.

As noted above, the pandemic also showed more enduring failures in the administration of criminal justice and can point to things that should have been changed even prior to the pandemic. We have just highlighted one of these: access to hygiene supplies for people in correctional facilities. Amazingly, many people in correctional facilities do not have regular access to basic hygiene products (Bogan, 2019). The pandemic also demonstrated the failure of many prisons and jails to provide adequate health care to their populations, some of whom are among the most medically vulnerable Americans. The pandemic also highlighted the flaws

in our prison infrastructure, with crowding not just being a feature of too many people but of poorly designed buildings. Of course, and to emphasize a point we made above, this failure of space can be mitigated in an obvious way: by having fewer people incarcerated.

The staffing shortage in Missouri prisons and jails also brought home a painful reality: there are too few correctional workers, and correctional worker salaries are not high enough for correctional facilities to hire and retain adequate numbers of new workers. Again, this situation is bad in “normal” times, but during a pandemic, when healthy workers are a priority, there must be enough workers to let sick workers stay home and to hire new workers to replace those who do not want to abide by reasonable health regulations such as masking and social distancing. Wardens should not have to choose between adequate staffing of prisons and the health of their workers.

Finally, while prisons and jails have had access to the COVID-19 vaccine, it seems that the distribution of the vaccine was staggered: staff got it first, then residents. While a focus on staff makes sense given the risk that staff may bring the virus *into* the facility, people residing in prisons and jails should be vaccinated at the same time as staff. Indeed, experts have urged that people in correctional facilities be vaccinated as quickly as possible (Plater, 2020; Montgomery, 2021).

INTERVIEW WITH DR. FRED ROTTNEK



What work have you been doing in visiting jails during the pandemic?

In the early days of the pandemic, I was approached by ArchCity Defenders to work with them on a collaborative effort among local health care leaders to advocate for decarceration of on behalf of medically vulnerable people in Missouri's jails and prisons. So far, I have been appointed by courts to inspect five jails.

What common problems have you seen in how jails are responding to the virus?

My inspections and reviews were remarkably and distressingly similar for most facilities. Social distancing was impossible due to census and/or due to physical layout of the facility. Masks were in short supply. Masks were worn inconsistently by both inmates and correctional staff. Hygiene supplies were limited and inadequate.

What have some been jails being doing right?

Two facilities that stood as sharp contrast to others were two county jails in Maryland that housed ICE detainees. It was clear that jail administrators considered their institutions part of the larger community. Both jails had signage in place about COVID-19 and their attempts to mitigate the spread of the virus. Both facilities had means of electrostatic fogging disinfection. For emergency COVID-19 screening, testing, and housing practices, both facilities had established practices consistent with CDC guidelines.

You visited the Saint Louis County Jail. How was their response?

The Saint Louis County Jail was, relatively speaking, a breath of fresh air. In the early days of the pandemic, they combined resources and access to vendors for supplies. They moved swiftly and create and strictly implement processes and protocols to mitigate entrance of the coronavirus into the facility and spread within the facility. While their policies and protocols typically predated CDC guidelines, as the CDC updated their correctional facilities recommendations, county leaders adjusted their protocols. As a result, at the date of my inspection, March 31, 2021, they had no one die from COVID-19 in the facility. and no one transferred out for higher acuity care at a local hospital.

Conclusion: Coming Together To Meet The Next Challenge

As the pandemic hit, governments had to react quickly. In the unfolding crisis in the criminal justice system, the executive and the judicial branches were the ones who could – and did – step into the breach. Governors of many states gave executive orders, commuted sentences, and in various other ways tried to lessen the pressure of overcrowded prisons and jails. Local prosecutors allowed those arrested to bail out and declined charges for lesser, non-violent offenses. The judicial branch of states, too, insofar as they were able, permitted early release and alternatives to imprisonment. Legislative action was slower, both because of the nature of the process and because of political polarization in many states. Still, some states were able to pass meaningful legislation that helped to further decarcerate prisons and jails.

In Missouri, we now have the knowledge to act constructively and meaningfully to create a safer environment in correctional facilities. We are experiencing compounded crises with the international COVID-19 pandemic, the national overdose epidemic, and a national reckoning of structural racism in the criminal justice system. While addressing all crises at once is challenging, it is not impossible. This report argues that one starting point is addressing the most basic health and hygiene needs of individuals who live and work in correctional settings. By a societal commitment to reform current practices, we can at least support people staying alive until more systemic reforms can be implemented.

In planning for the next pandemic and to respond to the iterations of the current pandemic, state legislative action must be paramount. Legislative branches are best

able to sift through the evidence, make policy choices, and set the groundwork for coordinating responses. They can also be more sweeping and less case-by-case in their reform efforts. The other branches will have roles to play, but a legislative response is the one with the greatest potential to be comprehensive and enduring rather than reactive, ad hoc, and temporary – as much of the response to the COVID-19 pandemic has been, for better or worse. It is at the legislative level where meaningful criminal justice reform, informed by the lessons of the COVID-19 pandemic, can and should take place. Importantly, it is the legislature that controls *spending*, and it is here that much may need to be done in terms of providing resources so that correctional institutions not only have the material but also the *people* in place to respond effectively to the next pandemic. Current over-reliance on the judiciary to resolve issues of adequacy of health and hygiene measures and adequacy of overall response not only wastes precious public resources, it limits progress to case-by-case litigation.

We have created two charts which illustrate the complexity of responsibilities; however, they also point to discrete actions that can create significant improvement of existing systems. The first chart (Figure 1) corresponds to Divert and Decarcerate and the shared roles of MODOC, the governor, and the judges and courts. (The appendix on the Saint Louis County Jail demonstrates a similar successful collaboration among jail administration, law enforcement, and county judges). The second chart (Figure 2), Protect and Vaccinate, illustrates interconnections among MODOC, Missouri jail administrators, county health departments, and Missouri Department of Health and Senior Services. These actions occur at a facility level. All

recommendations have some associated costs, but few are cost-prohibitive – particularly when compared to the human toll and economic impact of the status quo.

While this report has emphasized the role of Missouri prisons in the COVID-19 pandemic, the need for action is perhaps even greater in Missouri jails. As noted above, it is much easier to evaluate the response of Missouri prisons to the pandemic than Missouri jails. At least with MODOC, there is an attempt at disclosure and transparency. With jails, there is no unified system but rather a patchwork of isolated, and for the most part opaque, institutions. There are, again, no standard rules that Missouri jails are expected to follow and no centralized agency that could promulgate such rules. This lack of standards is generally known only by those who have visited or advocated for those incarcerated in jails. Moreover, jails are funded by their own county, so resources to address the environment and the needed services are as diverse as the economic resources of Missouri's 114 different counties. This variability, combined with the lack of transparency of these facilities, limits opportunities to improve jail conditions. It is not that we can say whether Missouri jails did a good or bad job or whether they successfully or unsuccessfully dealt with the COVID-19 crisis. We simply do not know, and we cannot measure, evaluate, or judge what we do not know. More to the point, we cannot improve on what we do not know.

This report aligns with other reports arising from the media, professional and advocacy groups, and academia showing that the environment and services of a correctional facility affect the health of neighboring communities and counties – including communities and counties throughout Missouri (see e.g. Reinhart & Chen, 2020;

Hooks & Sawyer, 2020; Appendix 1). While this crisis continues to play out with the ongoing COVID-19 pandemic, the rise of variants, and confounders like vaccine hesitancy, a future pandemic is likely a matter of when, not if. And, as a member of the national and global community, Missouri has a role to play in prevention and mitigation of future public health threats. These measures include the identification and enhancement of surveillance systems to rapidly detect and report cases, laboratory networks to accurately identify the cause of illness, a trained workforce to identify, track, and contain outbreaks, and emergency management systems to coordinate an effective response.

But this report illustrates that the low-hanging fruit in Missouri to improve the health of everybody, lies in addressing, enhancing, and standardizing policies, procedures, and implementation of health and hygiene services in Missouri correctional facilities. The clarion call of COVID-19 is that the health of all of us depends on the health of those who have the least. We now have clear evidence that we must enhance services for those behind bars so that the health and well-being of all of us throughout Missouri – people in prisons and jails, correctional workers, and communities – can be optimized. This rise of new strains of the COVID-19 virus shows that this is no time to let down our guard. We should not stop—and never should have stopped—reporting cases, testing prisoners, distributing vaccines, and improving the hygiene and safety of our prisons. These things can, and have, saved lives.

Missouri is the Show Me State. COVID-19 has shown us much. It is time to act.

References

- Andrews, E.L. (2020, September 24). Stanford researchers find COVID-19 spreads faster in American jails than on cruise ships. *Stanford News*. Retrieved August 2, 2021 from <https://news.stanford.edu/2020/09/24/covid-19-spread-american-prisons/>
- Associated Press. (2021, July 6). Missouri leads the nation with the most new COVID-19 cases per capita. *KMBC 9 News*. Retrieved August 2, 2021 from <https://www.kmbc.com/article/missouri-leads-the-nation-with-the-most-new-covid-19-cases-per-capita/36939786#>
- Berger, E. (2021, March 24). Inmates' distrust of prison health care fuels distrust of COVID vaccines. *St. Louis Post-Dispatch*. Retrieved August 2, 2021 from https://www.stltoday.com/lifestyles/health-med-fit/coronavirus/inmates-distrust-of-prison-health-care-fuels-distrust-of-covid-vaccines/article_959d15db-186b-533f-91df-27906a203b97.html
- Bogan, J. (2019, December 9). Missouri jail goes weeks without shampoo and other personal hygiene products for inmates. *St. Louis Post-Dispatch*. Retrieved August 2, 2021 from https://www.stltoday.com/news/local/crime-and-courts/missouri-jail-goes-weeks-without-shampoo-and-other-personal-hygiene-products-for-inmates/article_45fc3140-eeeb-575d-b300-e174d066e8b9.html
- Cara, E. (2021, June 29). State prison systems fueled COVID-19 spread in their areas last spring, study suggests. *Gizmodo*. Retrieved August 2, 2021 from <https://gizmodo.com/state-prisons-fueled-covid-19-spread-in-their-areas-las-1847196887>
- Colburn, R. (2021, July 12). Sales tax vote in August to decide fate of Ray County, Missouri's deteriorating jail. *Fox4KC*. Retrieved August 3, 2021 from <https://fox4kc.com/news/sales-tax-vote-in-august-to-decide-fate-of-ray-county-missouris-deteriorating-jail/>
- Czopek, Madison. (2020, July 22). Missouri lags behind with limited mask mandate in prisons. *Columbia Missourian*. Retrieved May 11, 2021 from https://www.columbiamissourian.com/news/state_news/missouri-lags-behind-with-limited-mask-mandate-in-prisons/article_ba7a4a9e-c774-11ea-95ae-e3de4b868686.html
- Centers for Disease Control and Prevention. (2021, April 27). *Why It Matters: The Pandemic Threat*. CDC. Retrieved August 2, 2021 from <https://www.cdc.gov/globalhealth/healthprotection/fieldupdates/winter-2017/why-it-matters.html>
- Covid Prison Project. (2021). *COVID Prison Project*. Retrieved August 2, 2021 from <https://covidprisonproject.com/>
- Division of Corrections COVID-19 Protocol. (2021, January 13). StLouis-MO.Gov. Retrieved August 3, 2021 from <https://www.stlouis-mo.gov/government/departments/public-safety/corrections/documents/division-of-corrections-covid-19-protocol.cfm>
- Erickson, K. (2020, December 2). With COVID-19 killing Missouri prison inmates, lawmaker renews push for early release. *St. Louis Post-Dispatch*. Retrieved August 2, 2021 from https://www.stltoday.com/news/local/crime-and-courts/with-covid-19-killing-missouri-prison-inmates-lawmaker-renews-push-for-early-release/article_29dc9dbd-e4af-57d5-bd82-fb63fe98a365.html
- Farzan, S. (2020, July 20). Coronavirus cases surge at women's prison; advocates call for action. *St. Louis Public Radio*. Retrieved May 11, 2021 from <https://news.stpublicradio.org/health-science-environment/2020-07-20/coronavirus-cases-surge-at-missouri-womens-prison-advocates-call-for-action>
- Farzan, S. (2021, January 27). Missouri prison staff offered COVID-19 vaccine soon, but most inmates have to wait. *St. Louis Public Radio*. Retrieved August 3, 2021 from <https://news.stpublicradio.org/coronavirus/2021-01-27/missouri-prison-staff-offered-covid-vaccine-soon-but-most-inmates-have-to-wait>
- Fox, M., Strode, B., Breihan, A., Chapel, N., Pruitt II, A.M., Henriquez, L., Wolff, M.A., Sweeney, J.M., Betts, V., Woody, A., Collins, C., Bushnell, T., Fox, B., Roediger, B., Ammann, J.J., Tokarz, K., Norwood, K., Yancy, J., Simon, J.M. ... & Behavioral Network of Greater St. Louis. (2020, March 26). *Letter to the Missouri Supreme Court In Re COVID-19*. ArchCity Defenders. Retrieved August 2, 2021 from <https://www.archcitydefenders.org/wp-content/uploads/2020/03/Letter-to-the-Supreme-Court-re-COVID.pdf>
- Hobbs, J. (2021, May 30). COVID-19 continues serving time with Missouri inmates, corrections staff. *St. Louis American*. Retrieved August 2, 2021 from http://www.stlamerican.com/your_health_matters/covid_19/covid-19-continues-serving-time-with-missouri-inmates-corrections-staff/article_ffc4cf4d-c0f7-11eb-9392-f7baf77232b6.html
- Hoffman, M. (2020, March 23). St. Joseph prisoner among confirmed COVID-19 cases. *News-Press NOW*. Retrieved August 2, 2021, from https://www.newspressnow.com/news/local_news/coronavirus/st-joseph-prisoner-among-confirmed-covid-19-cases/article_325f5572-6d07-11ea-af9f-a3da251d0560.htm
- Hooks, G. and Sawyer, W. (2020). Mass incarceration, COVID-19, and community spread. *Prison Policy Initiative*. Retrieved August 3, 2021, from <https://www.prisonpolicy.org/reports/covidspread.html>
- Illinois Department of Corrections. (2021). *Facilities: COVID-19 response*. Retrieved August 3, 2021 from <https://www2.illinois.gov/idoc/facilities/Pages/Covid19Response.aspx>
- Jarrett, N. (2021, July 22). White House invests \$700 million to fight the spread of COVID-19 in prisons and jails. *The Council of State Governments Justice Center*. Retrieved August 4, 2021 from https://csgjusticecenter.org/2021/07/22/white-house-invests-700-million-to-fight-the-spread-of-covid-19-in-prisons-and-jails/?mc_cid=5ddb41810b&mc_eid=3f73e8de8f
- John Howard Association. (2020, June 9). *JHA system-wide survey on COVID-19 in IDOC: initial results released*. Retrieved August 3, 2021 from <https://static1.squarespace.com/static/5beab48285ede1f7e8102102/t/5ee1079a071bb95d6d897f59/1591805850091/JHA+COVID-19+Survey+Results+Released+6.9.20.pdf%20%20%20%20%20>
- John Howard Association. (n.d.). *John Howard Association*. Retrieved August 3, 2021 from <https://www2.illinois.gov/idoc/facilities/Documents/COVID-19/CommunicationCustody/John%20Howard%20Association.pdf>
- Kansas Department of Corrections. (2021, August 2). *KDOC COVID-19 status*. Retrieved August 3, 2021 from <https://www.doc.ks.gov/kdoc-coronavirus-updates/kdoc-covid-19-status>
- Krull, Ryan. (2020, September 1). Understaffed during COVID-19, Missouri prison is a danger, union says. *Riverfront Times*. Retrieved May 11, 2021 from <https://www.riverfronttimes.com/newsblog/2020/09/01/understaffed-during-covid-19-missouri-prison-is-a-danger-union-says>

Missouri Department of Corrections. (2020, April 6). *COVID-19 updates: visiting suspensions, VIC restrictions, staff screenings, face coverings, viral containment plans*. Missouri Department of Corrections. Retrieved August 2, 2021 from <https://content.govdelivery.com/accounts/MODOC/bulletins/2852b39>

Missouri Department of Corrections. (2021a). *COVID-19 Data*. Retrieved March 1, 2021, from <https://doc.mo.gov/media-center/newsroom/covid-19/data>

Missouri Department of Corrections. (2021b). *COVID-19*. Retrieved August 3, 2021, from <https://doc.mo.gov/media-center/newsroom/covid-19>

Montgomery, D. (2021, January 5). *Prioritizing prisoners for vaccines stirs controversy*. *Pew Charitable Trusts*. Retrieved August 3, 2021 from <https://www.pewtrusts.org/en/research-and-analysis/blogs/stateline/2021/01/05/prioritizing-prisoners-for-vaccines-stirs-controversy>

News Tribune. (2020, May 26). *Corrections Department's COVID-19 testing plan includes Algoa Correctional Center*. *News Tribune*. Retrieved August 2, 2021 from <https://www.newstribune.com/news/missouri/story/2020/may/26/corrections-departments-covid-19-testing-plan-includes-algoa-correctional-center/828658/>

Nozicka, L. (2020, December 8). *Missouri prisons to install air purifiers, sprayers to help slow spread of COVID-19*. *Kansas City Star*. Retrieved May 11, 2021 from <https://www.kansascity.com/news/coronavirus/article247693935.html>

Okeson-Haberman, A. (2019, December 5). *Court says Clay County Commission 'knowingly underfunded' the sheriff's budget*. *KCUR*. Retrieved August 3, 2021 from <https://www.kcur.org/news/2019-12-05/court-says-clay-county-commission-knowingly-underfunded-the-sheriffs-budget>

Pivoney, R. (2021, June 9). *Visits resume at Missouri correctional facilities*. *California Democrat*. Retrieved August 3, 2021 from <https://www.californiademocrat.com/news/local/story/2021/jun/09/visits-resume-at-missouri-correctional-facilities/874259/>

Plater, R. (2020, December 15). *Debate heats up over whether prisoners should be among first to get COVID-19 vaccine*. *Healthline*. Accessed August 3, 2021 from <https://www.healthline.com/health-news/debate-heats-up-over-whether-prisoners-should-be-among-first-to-get-covid-19-vaccines>

Reinhart, E. & Chen, D. (2020). *Incarceration and its disseminations: COVID-19 pandemic lessons from Chicago's Cook County Jail*. *Health Affairs* 39(8), 1412-1418. <https://doi.org/10.1377/hlthaff.2020.00652>

Rich, M. (2020, February 23). *We're in a petri dish: how a coronavirus ravaged a cruise ship*. *The New York Times*. Retrieved August 2 from <https://www.nytimes.com/2020/02/22/world/asia/coronavirus-japan-cruise-ship.html>

Rich, J. (2020, April 4). *Declaration of Dr. Josiah Rich, M.D., MPH*. ACLU Connecticut. Retrieved August 2, 2021, from https://www.acluct.org/sites/default/files/01-3_exhibit_c_acluct_complaint.pdf

Ritzdorf, Quinn. (2021, February 13). *Prison staff, inmates raise alarm over COVID-19 procedures*. *News-Press NOW*. Retrieved May 10, 2021 from https://www.newspressnow.com/news/local_news/coronavirus/prison-staff-inmates-raise-alarm-over-covid-19-procedures/article_8591e65a-6505-11eb-91b5-e7dc2d451cb7.html

Schallhorn, K. (2020a, March 23). *Missouri Corrections confirms positive coronavirus case*. *The Missouri Times*. Retrieved August 2, 2021 from <https://themissouritimes.com/missouri-corrections-confirms-positive-coronavirus-case/>

Schallhorn, K. (2020b, May 26). *Missouri begins testing all inmates, staff at Corrections facilities*. *The Missouri Times*. Retrieved May 10, 2021 from <https://themissouritimes.com/missouri-begins-testing-all-inmates-staff-at-corrections-facilities/>

Suntrup, J. (2020, November 25). *COVID-19 death toll in Missouri prisons climbs to 27 inmates and four staff employees*. *St. Louis Post-Dispatch*. Retrieved August 3, 2021 from https://www.stltoday.com/news/local/crime-and-courts/covid-19-death-toll-in-missouri-prisons-climbs-to-27-inmates-and-four-staff-employees/article_b858aa47-12d7-5f96-bd1c-c8dafec45017.html

Texas Commission on Jail Standards. (2021). *TJCS COVID-19 REPORT*. Retrieved May 19, 2021, from https://www.tjcs.state.tx.us/wp-content/uploads/2021/05/TJCS_COVID_Report.pdf

Texas Department of Criminal Justice. (2021a). *Texas Department of Criminal Justice COVID-19 case counts*. Retrieved August 3, 2021 from <https://txdps.maps.arcgis.com/apps/opsdashboard/index.html#/dce4d7da662945178ad5fbf3981fa35c>

Texas Department of Criminal Justice. (2021b). *Correctional Managed Health Care Infection Control Policy Manual*. Retrieved May 19, 2021, from https://www.tdcj.texas.gov/divisions/cmhc/infection_control_policy_manual.html

Figure 1: DIVERT AND DECARCERATE

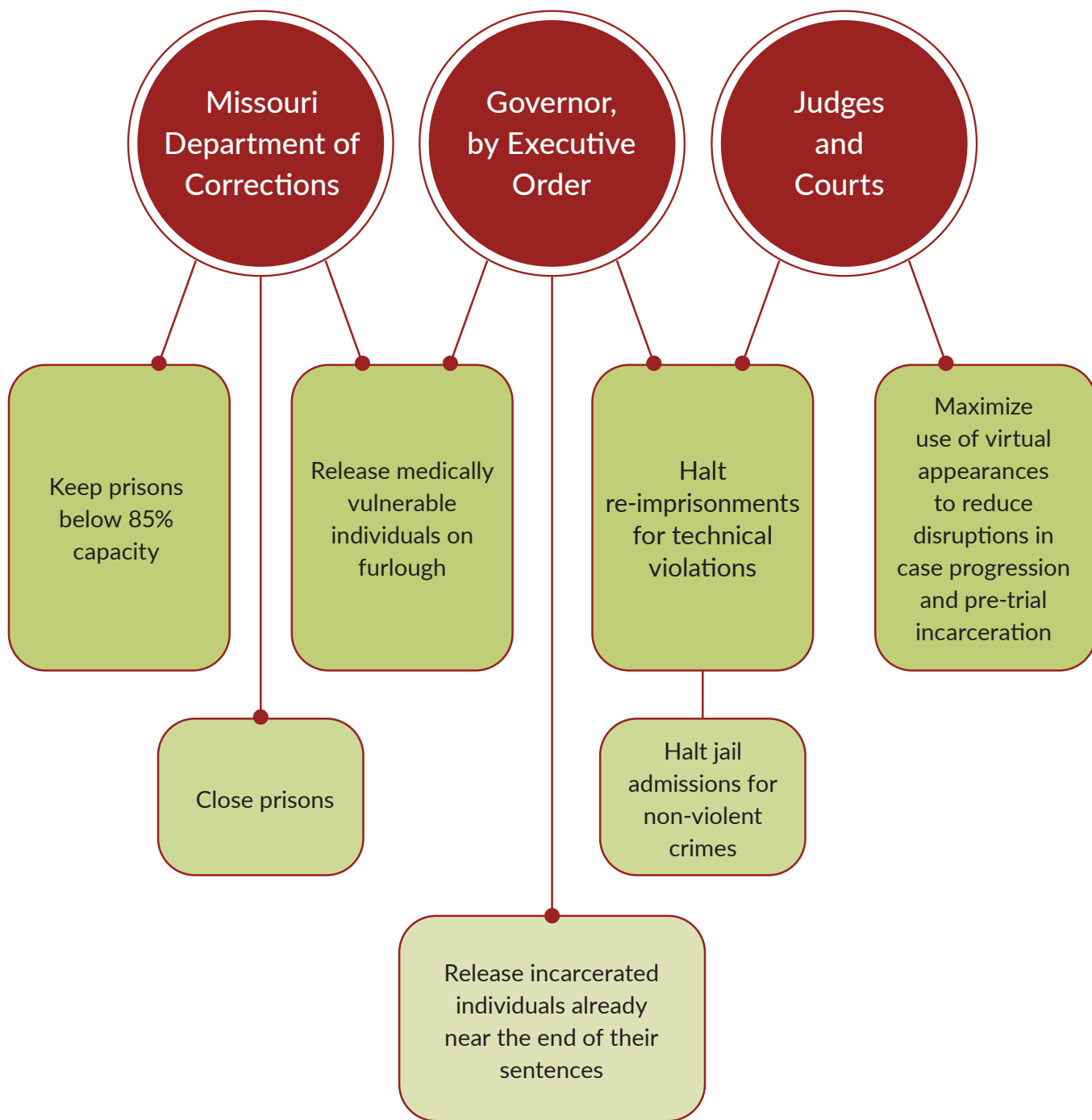
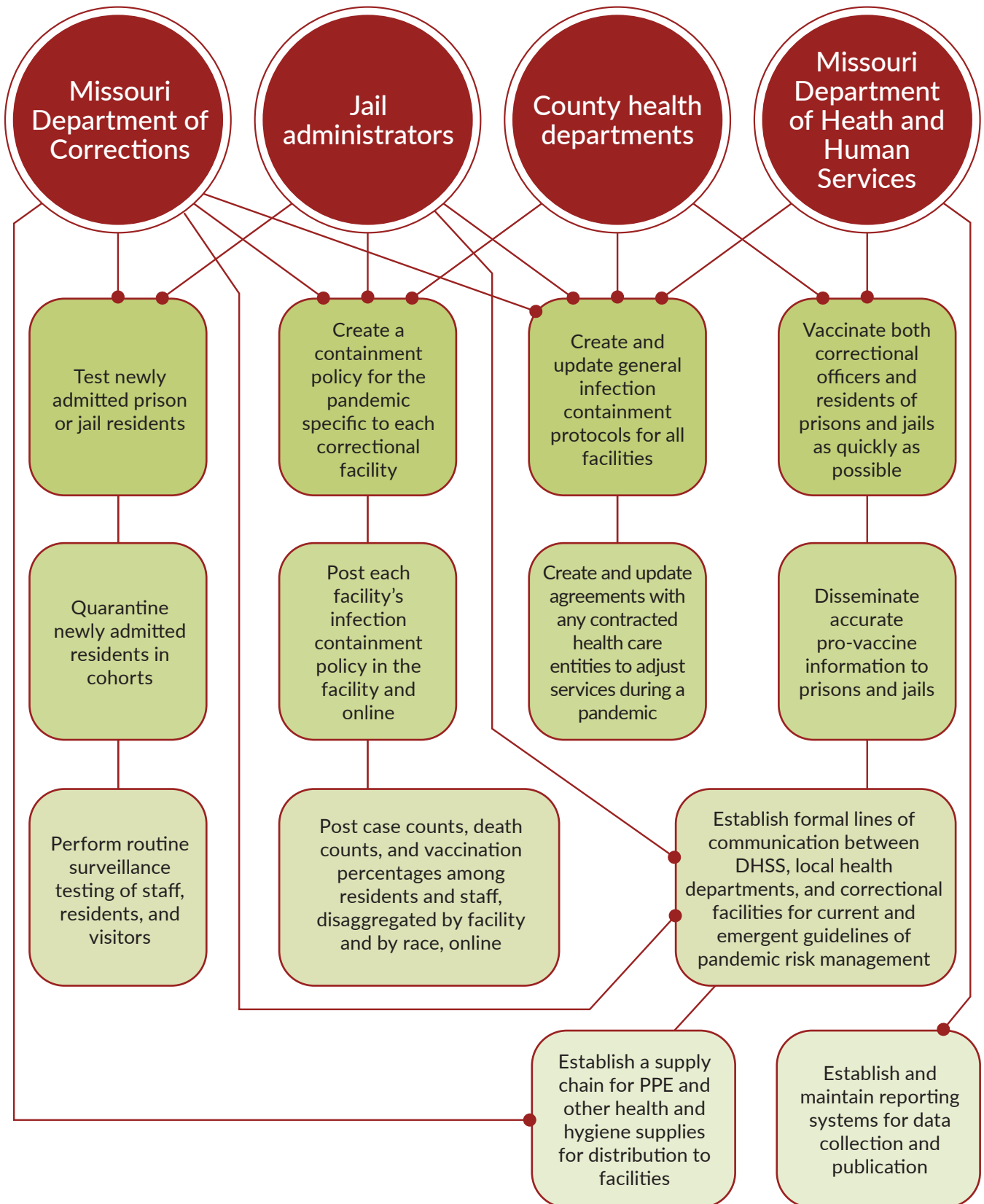


Figure 2: PROTECT AND VACCINATE





Appendix 1:

Report on the Impact of Mass Incarceration on Covid-19 Outcomes in Missouri

by

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ABSTRACT

Prisons, jails, and other types of detention centers have long been implicated in the efficient spread of infectious diseases (see Johnson and Raphael 2009; Wakefield and Uggen 2010; Wildeman and Muller 2012; Wildeman and Wang 2017). In the case of COVID-19, prisons, like other group quarters (e.g., nursing homes and college dormitories) have seen elevated cases and deaths (Saloner et al. 2020). Also, multiple features of the corrections system make it an amplifier of COVID-19 spread both within and outside detention walls. This report analyzes publicly available data on COVID-19 infections and deaths in Missouri communities containing prisons and compares it to data from communities that do not contain prisons to gauge whether the COVID-19 risks inherent to prisons put wider communities at risk. The results of our analysis suggest that prison incarceration, measured in various ways, increases the risk of COVID-19 infections in Missouri and that rural, low-income and racial or ethnic minority communities may be particularly vulnerable.

1. Background

1.1. Features of the US Corrections System that Increase Exposure to and Risk of COVID-19 Infection

Prisons, jails, and other types of detention centers have long been implicated in the efficient spread of infectious diseases (see Johnson and Raphael 2009; Wakefield and Uggen 2010; Wildeman and Muller 2012; Wildeman and Wang 2017). In the case of COVID-19, prisons, like other group quarters (e.g., nursing homes and college dormitories) have seen elevated cases and deaths (Saloner et al. 2020). Also, multiple features of the correction system make it an amplifier of COVID-19 spread both within and outside detention walls.

The National Academies of Sciences, Engineering, and Medicine Committee on Best Practices for Implementing Decarceration as a Strategy to Mitigate the Spread of COVID-19 in Correctional Facilities outlined five particularly important features of corrections systems that increase exposure to and risk of COVID-19 infection (Wang et al. 2020; see also United Nations 2020). First, because of the high rate of incarceration in the United States, there are high rates of admission and release, especially in jails, as well as high rates of movement between and within prison facilities. Because of these high rates of movement, COVID-19 can easily spread from the outside-in when infected individuals enter jails and prisons, from the inside-out when infected individuals and correctional staff return to communities, and within and across prison and jail systems when individuals move to different units within a facility or move to different facilities. The risk of infection is amplified in jails and prisons even when stays are short due to living and working in close quarters, limited outdoor time, and contact with potentially infected staff even when socially isolated.

Second, because of the rapid growth in prison and jail populations, facilities are often old, poorly ventilated, and overcrowded. Overcrowded spaces limit the ability to move individuals who have been exposed to or infected with COVID-19 into quarantine or medical isolation. Fixed cell spaces, small congregate areas, and limited numbers of bathrooms and sinks make it nearly impossible to socially distance and keep areas clean and disinfected. Limited access to cleaning products and poor ventilation further compound risk.

Third, admission to and release from jails and prisons are geographically concentrated in predominantly Black and Latinx, low-income neighborhoods. This means that communities already struggling with high rates of COVID-19 infection and chronic disease are exposed to more risk

from the inside-out as individuals are released from incarceration. In addition, exposed corrections staff may serve as mechanisms of transmission as they return to and from facilities daily, and staffing shortages due to illnesses and vacancies may prevent staff from limiting exposure to residents infected by COVID-19 in jails and prisons.

Fourth, currently incarcerated persons and people at greatest risk of incarceration are also in poor health, disproportionately burdened by chronic physical and mental health conditions that put these populations at increased risk of severe illness from COVID-19 infection and increased risk of death from COVID-19 infection. Fifth, the correctional health care system is not resourced to manage pandemic outbreaks and is largely siloed from public health and emergency preparedness planning. The former means there is limited staff, resources, and supplies within facilities to manage COVID-19 outbreaks within prisons and jails. For those systems that rely on community-based medical resources and hospitals for assistance, they are likely further stressing community health systems during a pandemic. This can be especially problematic in isolated and/or low-income communities, which include vulnerable populations in need of care with limited community health systems as well as rural communities with finite community health systems.

1.2 Decarceration as a Strategy to Reduce Exposure to and Risk of COVID-19 Infection

“Decarceration is the process of reducing the number of people in correctional facilities by releasing those currently incarcerated and by diverting those who might otherwise be incarcerated. This process involves strategies for ending custodial sentences for those who are incarcerated as well as minimizing arrests, court appearances, and parole and probation revocations for those still in the community” (Wang et al. 2020, p. 1-4). Early experiences with the COVID-19 pandemic and other epidemics (Beaudry et al. 2020) have provided important evidence of the need to depopulate congregate working and living areas, especially high-risk settings such as correctional facilities, to reduce the spread of infection. As discussed earlier, many US correction facilities are overcrowded (Carson 2020) and have additional features, such as poor ventilation and lack of outdoor space, that can spread infection. Indeed, a growing body of evidence suggests that “...decarceration can protect medically vulnerable incarcerated people and staff and “flatten the curve” of virus transmission both within correctional facilities and in the broader community” (Wang et al. 2020, p. 1-4).

To be sure, decarceration efforts across several jurisdictions in the US are already underway as a response to the pandemic. In the first half of 2020, prisons and jails experienced an approximately 11 percent decline in the total incarcerated population (Franco-Paredes et al. 2020; Jail Data Initiative 2020) due to releasing individuals who were close to their release date or considered low risks to public safety and changes to custodial sentencing decisions and intake processes. Some localities have reduced jail admissions by opting for citations instead of arrest or by vacating warrants for unpaid court fines and fees (UCLA Law 2020, Wang et al. 2020).

However, declines have been procedurally slow and not at the pace needed for crises such as a pandemic. Policymakers, correctional officials, correctional and community health providers, and public health officials at the federal, state, and local levels need accurate and detailed information about the role of correctional institutions in the spread of COVID-19 in local areas to make informed decisions about efforts to reduce COVID-19 spread in prisons and surrounding communities, including, but not limited to, decarceration.

1.3 Contributions of this Study

The objective of this report is to analyze publicly available data on COVID-19 infections and deaths in Missouri communities containing prisons and compare it to data from communities that do not contain prisons to gauge whether the COVID-19 risks inherent to correctional facilities put wider communities at risk. A recent report from the Prison Policy Initiative using national data shows that the size of the incarcerated population and the incarceration density (i.e., the number of incarcerated persons per square mile in a given county) of a given county facilitates the spread of COVID-19 to surrounding communities (PPI 2020). That is, as the number of people incarcerated and the incarceration density of an area increases, COVID-19 will spread more efficiently to areas surrounding a prison by way of prison employee commuting patterns, admissions, and releases from correctional institutions, and other behaviors or conditions outlined in the Background section of this report.

Here, we build upon the recent report by PPI with a specific focus on Missouri. While our analysis will be similar to the PPI analysis in many ways, our analysis also has several advantages. First, we make use of more precise (i.e., facility-specific) and more recent state and federal prison population data from 2012 (BJS 2020a). The PPI report uses data on the county-level rate of jail and prison incarceration reported on the 2010 decennial census. While these data and the findings from PPI are informative, we are interested in a different concept: the physical location of prisons in Missouri communities and, relatedly, the size of the incarcerated population in prisons in those communities. Second, we include additional control variables not included in the PPI report that further clarify the association between incarceration density and COVID-19 in surrounding communities, including the proportion of the population currently employed in service occupations and the proportion of the population who primarily commute to work using public transportation.

Third, we use case-control comparisons of Missouri counties with similar demographic, economic, and health characteristics that contain prisons relative to those that do not to further clarify and contextualize the association between prison incarceration and COVID-19 in Missouri. Finally, we conduct a comprehensive series of robustness checks and sensitivity analyses to provide additional confidence in our primary regression models (described in the Materials and Methods section of this report), including model re-estimation using alternative measures of prison incarceration from different years and data sources, re-estimation using measures of jail incarceration, adjusting our measures of prison incarceration for the average rate of decarceration in Missouri from 2012 to 2019, and using alternative geographies to investigate community spread across counties.

2. Materials and Methods

2.1. Outcomes

Our analysis includes three county-level health outcomes: the COVID-19 infection rate (IR), the COVID-19 case fatality rate (CFR), and the COVID-19 crude mortality rate (CMR). Formulas for the outcomes are as follows:

$$\text{Infection Rate per 1,000 residents} = \frac{\text{COVID-19 Cases}}{\text{Total Population}} \times 1,000$$

$$\text{Case Fatality Rate per 100 cases} = \frac{\text{COVID-19 Deaths}}{\text{COVID-19 Cases}} \times 100$$

$$\text{Crude Mortality Rate per 1,000 residents} = \frac{\text{COVID-19 Deaths}}{\text{Total Population}} \times 1,000$$

2.1.1 Numerator Data for the Outcomes

Data for the numerators come from the New York Times (NYT 2021). Starting with the first COVID-19 case in Washington State on January 21, 2020, NYT has been compiling up-to-date information on COVID-19 cases and deaths at the national, state, and county levels.⁴ Briefly, the NYT data collection methodology triangulates data from state or county health departments, data briefs, news conferences, and other sources to identify laboratory-confirmed and probable cases of COVID-19, providing corrections when necessary.

For this analysis, we make use of the county-level COVID-19 data made publicly available by NYT. Two cities in Missouri, Joplin and Kansas City, report COVID-19 data separately and span several counties. As such, we assign all cases and deaths for Joplin and Kansas City to Jasper and Jackson County, respectively. We do so because the majority of each city lies within these respective counties. Data were extracted from the NYT database on January 1st, 2021, and the last daily cumulative totals recorded for each county are from December 31st, 2020. That is, we include all cases and deaths recorded in 2020 for each county in our analysis.

⁴ Aggregate case and death counts from NYT do not distinguish between cases and deaths among people who are incarcerated and those who are not. Therefore, we are unable to systematically determine if the case and death totals for each county include people who are incarcerated. However, since the NYT data draws on county health department data, and prison data are not usually recorded in county-level health metrics, we have some confidence that this will often be the case for these data as well. In addition, the PPI (2020) nationwide analysis on incarceration and COVID-19 community spread uses the same outcomes. If we perform a crude subtraction of inmate cases from the case counts for each county (see MODOC 2021) and re-estimate our regression models, we still find a positive association between each measure of prison incarceration (described below) and the COVID-19 infection rate.

2.1.2 Denominator Data for the Outcomes

Data for the denominator varies by outcome. For the CFR, data for the denominator (i.e., the total number of COVID-19 cases in a given county) are also derived from the NYT database. For the remaining outcomes, data for the denominator comes from ACS 5-year population estimates, made publicly available from the Integrated Public Use Microdata Series (IPUMS; Ruggles et al. 2020). For the IR and CMR, we use ACS 5-year estimates from 2015-2019 to measure the total population in a given county. ACS 5-year estimates provide a reliable estimate of population counts as well as relevant socio-demographic indicators at smaller areas of aggregation (US Census Bureau 2021). For rural and sparsely populated areas in Missouri, these 5-year estimates are the best available recent data source.

2.2 Prison Incarceration Exposures

2.2.1 Prison Locations

Our first, binary exposure variable is the presence or absence of one or more state or federal prisons in a given county⁵. Data on the location of state prisons come from the Missouri Department of Corrections (MODOC 2020). Data on the location of the single federal prison in Missouri, the Medical Center for Prisoners Springfield, comes from the Federal Bureau of Prisons (BOP 2020). We locate correctional facilities within counties using street addresses provided by MODOC and BOP. For addresses in cities or towns that spanned multiple counties, we assign facilities using zip codes. For the current analysis, we restrict the exposure to adult correctional institutions, excluding probation and parole offices.

2.2.2 Prison Populations

Our second, continuous exposure variable is the number of people incarcerated in each facility. Current data on the population of each prison, state or federal, is not widely available. As such, we use data from the 2012 Census of State and Federal Adult Correctional Facilities (BJS 2020a), the most recently available census of state and federal prisons in the US⁶. Using these data, we create a continuous measure of the total prison population in each county. For counties that contain several prisons (e.g., Callaway, Cole, and St. Francois), we combine the prison population at all locations for this exposure.

2.2.3 Incarceration Density

Our third, continuous exposure variable is the incarceration density of a given county. Following the methodology by PPI (2020), we calculate the number of incarcerated people per square mile. Data for the numerator comes from the 2012 Census of State and Federal Adult Correctional Facilities (BJS 2020a), and we again combine the prison population at all locations for counties with more than one state or federal prison. Data for the denominator, total county land area in square miles, comes from the 2010 decennial census (US Census Bureau 2020). This measure of incarceration density allows us to compare our results to those in the PPI report.

⁵ Missouri has 114 counties and one independent city, St. Louis, which we treat as "county" as well. (N = 115)

⁶ One facility, the Kansas City Reentry Center, was established in place of a parole center in 2015 and therefore, data on this facility is not available in the 2012 census. Instead, we impute the population of this facility at its capacity, 405.

2.3 Covariates

We also control for several known or probable confounding variables. Using 2015-2019 ACS 5-year estimates, we produce the following county-level demographic and economic characteristics: population density⁷, the proportion of the population 65 years of age or older, the proportion Non-Hispanic white alone population, the proportion of households living below the poverty line, the proportion of workers in service occupations, the proportion of the population that uses public transportation to commute to work, and the proportion of the population that is uninsured. Following PPI (2020), we also include several county-level health metrics. Using data from the Robert Wood Johnson Foundation (2020), we produce measures of life expectancy and diabetes prevalence. All health metrics are from 2019 and are intended to capture mortality and morbidity, respectively. For a full description of data sources for all variables, including covariates, see Table 1.

Table 1. Information on Data Sources

Variable	Source
<i>Outcomes</i>	
COVID-19 Infection Rate	New York Times 2020
COVID-19 Case Fatality Rate	New York Times 2020
COVID-19 Crude Mortality Rate	New York Times 2020
<i>Predictors</i>	
Prison Locations	MODOC 2020; BOP 2020
Prison Population	BJS 2012
Incarceration Density	BJS 2012; US Census 2010
<i>Controls</i>	
Population Density	ACS 5-year estimates 2014-2019; US Census 2010
Proportion 65+	ACS 5-year estimates 2014-2019
Proportion Non-Hispanic white	ACS 5-year estimates 2014-2019
Proportion Disabled	ACS 5-year estimates 2014-2019
Average Household Size	ACS 5-year estimates 2014-2019
Proportion Poor	ACS 5-year estimates 2014-2019
Proportion Service Workers	ACS 5-year estimates 2014-2019
Proportion Public Transit	ACS 5-year estimates 2014-2019
Proportion Uninsured	ACS 5-year estimates 2014-2019
Life Expectancy	RWJF 2019
Diabetes Prevalence	RWJF 2019

⁷ Data for the denominator, total land area in square miles, comes from the 2010 decennial census.

2.4 Analytic Strategy

Our analysis proceeds in three steps. First, we provide a descriptive summary of our data for all counties in Missouri, counties with prisons, and counties without prisons. For this initial step, we perform two-sample t-tests for differences in the outcomes and covariates between counties with and without prisons.

Next, we estimate a series of generalized linear models for each outcome⁸. We estimate models for each exposure variable separately, starting with the binary indicator for prison locations. In Model 1, we estimate the bivariate association to determine if counties with prisons have higher rates of the outcomes than counties without prisons. Model 2 adds controls for county demographic characteristics: population density, the proportion of the population 65 years of age or older, the proportion Non-Hispanic white alone population, the proportion of the population with at least one disability, and the average household size. Model 3 controls for the economic characteristics of the county: the proportion of households living below the poverty line and the proportion of workers in service occupations. Model 4 introduces a control for the proportion of the population that uses public transportation to commute to work. The fully-adjusted model, Model 5, introduces controls for the health environment: the proportion of the population that is uninsured, life expectancy, and diabetes prevalence. This modeling strategy will help identify what characteristics account for any differential patterns in the outcomes across counties.

Lastly, we provide case-comparisons for three matched county pairs. For each comparison, we match a county that contains at least one prison to a county that contains no prisons based on select demographic, economic, and health measures used in the regression analyses. Using principal components analysis, a data reduction technique (Abdi and Williams 2010), we determine that the following variables explain the majority of the variation in demographics, economics, and health across counties in Missouri: population density, the proportion 65 and older, the proportion non-Hispanic white, the proportion living in poverty, the proportion with at least one disability, the proportion using public transportation, and life expectancy. We then sum the differences between these factors for each "case" (i.e., each county in Missouri with a prison) and all possible "controls" (i.e., all counties in Missouri without a prison) and select the control with the smallest difference between a case. Due to space constraints, we highlight three exemplary cases: 1) the county containing a prison with the largest population, Jackson County, 2) the county containing a prison with the median population, Texas County, and 3) the county containing a prison with the smallest population, Mississippi County, as well as their respective controls (St. Charles, Madison, and Dallas). This comparison provides a more contextual, nuanced, and descriptive analysis of the consequences of incarceration for the spread of COVID-19 in Missouri.

⁸ Generalized linear models (GLMs) are a family of regression models that utilize maximum likelihood estimation techniques to generate point estimates (regression coefficients) and measures of uncertainty (standard errors). When the distribution of the outcome variable approximates a normal distribution, as is the case for the COVID-19 IR in Missouri, estimates produced using GLMs are equivalent to those produced from ordinary least squares (OLS) regression. However, when the distribution of the outcome is continuous and skewed, as is the case for the COVID-19 CFR and CMR in Missouri, the assumptions of OLS are violated. GLMs relax these assumptions and allow for model estimation when continuous outcomes are skewed. For further discussion of GLMs, see Faraway (2016).

2.5 Covariate Selection, Sensitivity Analyses, and Limitations

Model covariates were selected based on theoretical understandings of the factors that may contribute to the outcomes as well as those that are often confounded with mass incarceration (e.g., use of public transportation, service economics, racial and ethnic composition). In addition, we chose covariates that were used by PPI (2020) to both validate our models and make comparisons between our estimates and theirs.

However, our model specifications differ from those by PPI in several ways. First, PPI includes more specific information on racial and ethnic composition as well as the proportion of the county that is foreign-born. Here, we only include the proportion of the county that is non-Hispanic white because of the high correlation between racial composition, ethnic composition and nativity status across Missouri counties. Put differently, there simply isn't enough variation in the racial and ethnic or nativity composition of Missouri counties to warrant predictors for each combination of race, ethnicity, or nativity used by PPI. For similar reasons, we only include the proportion of the population living in poverty rather than including additional measures for median household income or educational attainment.

We also chose to exclude several variables that were used in the PPI report, including information on the number of people detained by Immigration and Customs Enforcement (ICE), urbanity or rurality, residents in nursing homes, residents in other group quarters, and whether or not the county contains a meatpacking plant that experienced a COVID-19 outbreak. While our reason for these exclusions varies slightly for each measure, in general we chose to exclude these measures because the data is sparse, unreliable, or outdated relative to the other measures in our model. For example, because we use data from the 2019 ACS 5-year estimates, a more recent data source, information on the number of residents in nursing homes and other group quarters is not available. This information is only including on decennial censuses. Likewise, the data for outbreaks at meatpacking plants is sparse and unreliable. As such, we decided not to introduce these data to limit uncertainty and unknown biases in the models. We have similar reasons for excluding information on ICE detainees. Lastly, other measures in our models capture aspects of urbanity or rurality that are of interest (e.g., public transportation use, population density) and the inclusion of a binary indicator for urbanity or rurality would be redundant.

We perform several sensitivity analyses to test the robustness of our estimates. First, we re-estimate our regression models using a series of alternative exposures, including data on the rate of incarceration by sentencing county from 2016 (Vera Institute of Justice 2020) and 2019 (MODOC 2019) as well data on the rate of jail incarceration from 2018 (Vera Institute of Justice 2020). Briefly, the results of these models show no statistically significant association between the size of the incarcerated population in a county or the incarceration density of a county, although the associations were positive, as expected. While PPI (2020) used a similar measure in their analyses, the null findings from this sensitivity analysis are not necessarily unexpected, considering that people incarcerated in prisons are likely to be incarcerated in counties other than the one they were sentenced in. This will be especially true for women, as there are only two prisons housing female inmates in Missouri. For the alternative measures of jail incarceration, the positive but not statistically significant associations may be due to the uncertainty of jail incarceration estimates or the instability of these populations. Furthermore, measures such as this capture fundamentally different concepts (e.g., criminality, criminal legal surveillance) than the one we are interested in here: the physical structure of prisons and the concentration of individuals within these facilities.

Second, we re-estimate our regression models using the same exposures from 2012 but adjusting our measures of the prison population and incarceration density for the average rate of decarceration in Missouri between 2012 and 2019. In 2012, Missouri had a total of 31,247 people incarcerated in state or federal prisons. By 2019, this total had decreased to 26,044, approximately 83% of the incarcerated population in 2012 (BJS 2020b; author calculations using CSAT). Accordingly, we reduce the population at each facility to 83% of the 2012 population and find that the associations presented in the results below hold: they are positive and statistically significant. However, we choose to present the results using the 2012 BJS data because they are more accurate and because rates of decarceration may not be similar across all facilities in Missouri.

Third, to support our findings on prison incarceration and COVID-19 community spread, we draw on the PPI (2020) methodology and perform supplemental analyses using an alternative aggregation: 2010 multicounty United States Department of Agriculture (USDA; Fowler et al. 2016) commuting zones (CZs)⁹. For this analysis, we included all CZs that contained at least one Missouri county and measures of prison incarceration excluded each county's own prisons or prison populations. That is, for each CZ, we aggregated the number of prisons, the prison populations, and the incarceration density of every other county in the CZ, but did not count those held in the county itself. By doing so, we can further examine how the prisons and prison populations held in other, nearby counties may have contributed to the spread of COVID-19 in a given county. In addition, this analysis acknowledges that counties are permeable: people can and do commute across neighboring counties for various reasons. Briefly, these supplemental analyses show that as the number of prisons, the number of total people incarcerated, and the density of incarceration in a CZ increases, so does the COVID-19 IR. Associations between prison incarceration and the remaining outcomes were not robust across model specification and/or the associations did not reach statistical significance, consistent with our primary analysis. This supplement suggests COVID-19 community spread in CZs with more prisons, with more people incarcerated in prisons, and with greater incarceration density.

Lastly, the analysis should be interpreted with the following limitations in mind. First, our unit of analysis is the county and, as such, we are not able to generalize to individuals within these counties nor are we able to calculate infection rates (R_0) within correctional facilities or within counties. Second, we are not able to observe all potentially relevant covariates in the ACS or the data from RWJF. For example, neither data source contains county-level data on asthma prevalence, a chronic respiratory condition that may put some people at a higher risk of death than others. Other limitations of ACS data have been described above. Fourth, and relatedly, while the 2012 BJS prison population data are more granular and recent than the 2010 decennial census data on county-level incarceration rates, more recent data would be ideal. However, these are the most recent prison census data available. In addition, our decarceration robustness check,

⁹ While PPI's (2020) nationwide analysis uses 2004 Bureau of Economic Analysis economic areas (BEAs; Johnson and Kort 2004) instead of 2010 USDA CZs, BEAs may not be suitable for a state-specific analysis, particularly in states like Missouri which are largely comprised of rural areas save for a few metro- or micro-politan areas, many of which exist on the borders of the state. BEA delineations center on metro- or micro-politan areas and rely on newspaper readership in less populated areas to identify connections between counties. In contrast, USDA CZs are identified using hierarchical cluster analysis to determine common commuting patterns, regardless of whether counties surround metro- or micro-politan areas (see ERS 2019 for more details). In addition, CZ delineations are more recent and based on 2010 US Census data, while BEAs are based on Census data from 2000.

described above, shows that these trends hold assuming a uniform pattern of decarceration across prisons in Missouri. Fifth, there are several limitations for the NYT data that have been noted in this report and summarized in greater detail elsewhere (Benchaabane 2020, NYT 2021). Lastly, given the cross-sectional nature of the data and analysis, we cannot make causal claims based on our findings. However, this work can inform how to understand differences in COVID-19 risk in places that do and do not contain prisons.

3. Results

3.1 Descriptive Summaries and Tests of Heterogeneity

Descriptive statistics for the sample are shown in Table 2, along with the results from two-sample t-tests for heterogeneity between counties that contain prisons and counties that do not. Results in Table 2 show that the average COVID infection rate for counties in Missouri is 73.83 cases per 1,000 residents. As a reminder, these case totals are cumulative and reflect the average total cases for counties in Missouri. Still, this infection rate is noteworthy, as previous analyses by Drs. Larimore and Lee published in July 2020 showed a maximum infection rate of 11.73 cases per 1,000 residents across Missouri counties (Lee et al 2020; see also, Prener 2020). This shift in infection rates in five months underscores the severity of COVID-19 infections in Missouri. In addition, results of the two-sample t-test show that counties containing at least one prison have significantly higher COVID-19 infection rates than counties that do not contain a prison. The low p-value shown in the last column of Table 2 suggests that the probability that this difference occurred by chance (i.e., that it is not a true difference) is less than 1 in 1,000.

For the remaining outcomes, we find no statistically significant differences between counties that contain prisons and those that do not. Also, we find few differences in the covariates between counties that contain prisons and those that do not. The only statistically significant difference we find suggests that counties without prisons have more residents aged 65 years or older than counties with prisons. Otherwise, counties in Missouri have similar demographic, economic, and health characteristics regardless of whether they contain a prison or not.

3.2 Regression Analyses

As described above, our modeling strategy estimates five consecutive models for each exposure, outcome combination, introducing new covariates in each model. This modeling approach produces 45 separate regression analyses, 15 for each outcome¹⁰. For simplicity, we only present the estimates for the exposure in the tables below, but full regression estimates are available in Appendix A.

10 In regression analysis involving multiple hypothesis tests, multiple comparison is a commonly cited problem. In short, the multiple comparison problem argues that, as the number of simultaneous tests increases, so does the risk of Type I error or false positives. However, as Gelman and Hill (2007) note, “[there] is no need to correct for the multiplicity of tests if we accept that they will be mistaken on occasion”. Indeed, this is the nature of inferential statistics. Therefore, we contend that this is a non-issue but also note that post-hoc corrections, including the conservative Bonferroni correction, validate the results presented here.

Table 2. Descriptive Statistics for Missouri Counties by Prison Locations

	All Counties	Counties without Prisons	Counties with Prisons	p-value
<i>COVID-19 Outcomes</i>				
COVID Infection Rate	64.97	62.44	77.75	0.0004
COVID Crude Fatality Rate	1.47	1.46	1.52	0.7530
COVID Crude Mortality Rate	0.95	0.91	1.14	0.0972
<i>Control Variables</i>				
Population Density	140.56	139.76	144.59	0.9568
Proportion 65+	19.23	19.73	16.69	0.0000
Proportion Non-Hispanic white	90.26	90.79	87.56	0.1321
Proportion Disabled	17.66	17.98	16.04	0.0879
Average Household Size	2.50	2.50	2.48	0.5582
Proportion of Households Living in Poverty	16.22	16.29	15.88	0.7352
Proportion of Workers in Service Occupations	17.97	17.89	18.36	0.522
Proportion Using Public Transportation	0.76	0.74	0.87	0.6586
Proportion Uninsured	11.61	11.77	10.81	0.1936
Life Expectancy	76.66	76.63	76.81	0.6871
Diabetes Prevalence	12.79	12.89	12.32	0.0789
Sample Size	115	96	19	
<i>Note: Statistically significant differences (p < 0.05) shown in bold.</i>				

3.2.1 COVID-19 Infection Rate

Results from the regression analysis estimating the association between the exposures and the COVID-19 infection rate are shown in Table 3. In general, the results in Table 3 show that prisons correspond to an increase in the rate of COVID-19 infections in Missouri and that this association is robust to differences in the measurement of incarceration and persists once likely confounders have been accounted for. For the association between prison locations and COVID-19 infections, we find that even when all demographic, economic, and health characteristics have been accounted for (Model 5), counties with prisons are expected to have nine more COVID-19 cases per 100,000 residents than those that do not.

Similarly, we find that the size of the incarcerated population also increases the rate of COVID-19 infections. While the effect of size may appear small and not substantively meaningful, it is important to note that each additional person who is incarcerated represents a one-unit increase in the exposure. That is, each additional person incarcerated in a state or federal prison increases the rate of COVID-19 infection by 0.005 (Model 5). Put differently, adding 200 inmates to a state or federal prison would add one additional infection to that county. We find a similar association between incarceration density

Table 3. Associations between Prison Incarceration and COVID-19 Infection Rates

	Model 1	Model 2	Model 3	Model 4	Model 5
	<i>Bivariate</i>	<i>Demographics</i>	<i>Economics</i>	<i>Commuting</i>	<i>Health</i>
<i>Prison Location</i>					
Coefficient	15.3043***	9.9674*	9.8252*	9.7460*	9.8090*
Standard Error	(4.1770)	(4.2389)	(4.2775)	(4.3171)	(4.3480)
<i>Incarcerated Population</i>					
Coefficient	0.0076***	0.0055**	0.0056**	0.0056**	0.0056*
Standard Error	(0.0020)	(0.0020)	(0.0020)	(0.0020)	(0.0020)
<i>Incarceration Density</i>					
Coefficient	3.6041***	2.6634**	2.7276**	2.7168**	2.7589**
Standard Error	(0.9367)	(0.9239)	(0.9353)	(0.9400)	(0.9440)
Note:	* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$				

and COVID-19 infection rates: as the number of incarcerated persons per square mile increases, so does the rate of infection. Using model estimates and holding all covariates at their means, we can predict that a county with no incarcerated people per square mile would have 63 cumulative infections per 100,000 residents, a county with 5 incarcerated people per square mile would have 77 infections, and a county with 12 incarcerated people per square mile (the maximum observed in the data) would have 96 infections (predictions available on request).

3.2.2 COVID-19 Case Fatality Rate

Results from the regression analysis estimating the association between the exposures and the COVID-19 CFR are shown in Table 4. As was the case for infection rates, we find that all measures of the exposure – prison location, incarcerated population, and incarceration density – have a positive association with the outcome. However, these associations are not statistically significant. That is, differences in the COVID-19 CFR between counties with prisons and counties without prisons are likely due to chance, not to the location of prisons, the size of the prison population, or the incarceration density.

Table 4. Associations between Prison Incarceration and COVID-19 Case Fatality Rates

	Model 1	Model 2	Model 3	Model 4	Model 5
	<i>Bivariate</i>	<i>Demographics</i>	<i>Economics</i>	<i>Commuting</i>	<i>Health</i>
<i>Prison Location</i>					
Coefficient	0.0668	0.1596	0.1723	0.1355	0.1250
Standard Error	(0.2072)	(0.2178)	(0.2192)	(0.2181)	(0.2195)
<i>Incarcerated Population</i>					
Coefficient	0.00001	0.00004	0.00004	0.00004	0.00004
Standard Error	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
<i>Incarceration Density</i>					
Coefficient	0.0111	0.0233	0.0246	0.0213	0.0195
Standard Error	(0.0467)	(0.0481)	(0.0487)	(0.0482)	(0.0484)
Note:	* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$				

3.2.3 COVID-19 Crude Mortality Rate

Results from the regression analysis estimating the association between the exposures and the COVID-19 CMR are shown in Table 5. We again find that all measures of the exposure – prison location, incarcerated population, and incarceration density – have a positive association with the outcome. However, as was the case with CFR, these associations are not statistically significant. That is, differences in the COVID-19 CMR between counties with prisons and counties without prisons are likely due to chance, not to the location of prisons, the size of the prison population, or the incarceration density.

Table 5. Associations between Prison Incarceration and COVID-19 Crude Mortality Rates

	Model 1	Model 2	Model 3	Model 4	Model 5
	<i>Bivariate</i>	<i>Demographics</i>	<i>Economics</i>	<i>Commuting</i>	<i>Health</i>
<i>Prison Location</i>					
Coefficient	0.2185	0.2172	0.2220	0.1939	0.1873
Standard Error	(0.1430)	(0.1521)	(0.1534)	(0.1521)	(0.1539)
<i>Incarcerated Population</i>					
Coefficient	0.0001	0.0001	0.0001	0.0001	0.0001
Standard Error	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
<i>Incarceration Density</i>					
Coefficient	0.0489	0.0463	0.0493	0.0468	0.0462
Standard Error	(0.0322)	(0.0336)	(0.0340)	(0.0336)	(0.0339)
Note:	* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$				

3.3 Matched County Case-Control Comparisons

To contextualize the association between prison incarceration and COVID-19 outcomes in Missouri, we provide case-comparisons for three matched county pairs. Matched case-control pairs for all counties containing prisons as well as the three pairs we describe in more detail here are shown in Table 6.

Table 6. Case-Control Matches Comparing Counties with Prisons and Counties without Prisons

Case	Control
Audrain	Ste. Genevieve
Buchanan	Platte
Callaway	Lafayette
Clinton	Polk
Cole	Jasper
Cooper	Saline
Franklin	Pulaski
Greene	Jefferson
Jackson	St. Charles
Livingston	Gasconade
Mississippi	Dallas
Moniteau	McDonald
Nodaway	Cedar
Pike	Pemiscot
Randolph	Dunklin ¹¹
St. Francois	Cass
Texas	Madison
Washington	Henry
Webster	Johnson
<i>Note: The pairs we highlight here are shown in bold.</i>	

11 Polk County was most similar to Randolph County regarding demographic, economic, and health characteristics but since Polk County was already matched with Clinton County, we used the second most similar control county, Dunklin.

3.3.1 Jackson County and St. Charles County

Respectively, Jackson and St. Charles counties are the second- and third-most populous counties in the state. According to the ACS estimates used in this analysis, Jackson County has a population of 696,216 residents, while St. Charles County has a population of 394,290 residents. Geographically, Jackson County sits at the western end of the state, bordering Kansas and sharing Kansas City proper as well as the broader metropolitan area. In contrast, St. Charles County sits at the eastern end of the state, bordering Illinois. St. Charles County is also part of the St. Louis metropolitan area and lies to the northwest of both St. Louis County and St. Louis City. St. Charles County, of course, contains no state or federal prisons while Jackson County houses the Kansas City Reentry Center, a state prison that was established in place of a parole center in 2015 and can house over 400 people.

These counties differ in other notable demographic and economic characteristics. In general, St. Charles County is whiter, wealthier, and healthier than Jackson County. In 2019, an estimated 87% of St. Charles County residents identified as Non-Hispanic white compared to an estimated 62% of Jackson County residents. Likewise, approximately 15% of the population in Jackson County lives below the poverty line, while 95% of St. Charles County residents live above the poverty line. Also, a baby born in St. Charles County in 2019 can expect to live to see their 80th birthday, while babies born in Jackson County can expect to live 77 years.

While these demographic, economic, and health differences are striking, there is less magnitude in the difference of COVID-19 outcomes between the counties. Notably, the CFR for both counties is 1.11 deaths per 100 cases. In addition, the CMR for Jackson County is 0.85 deaths per 1,000 residents, while the CMR in St. Charles county is only slightly lower: 0.83 deaths per 1,000 residents. Put differently, both counties have experienced just over eight COVID-19 deaths for every 10,000 residents. Lastly, the COVID-19 IR in Jackson County is 76.79 cases per 1,000 residents while the IR in St. Charles County is 75.25 cases per 1,000 residents.

Overall, differences in the outcomes between Jackson and St. Charles counties are not substantive and are likely due to chance. However, these minimal differences also speak to the general trend found by PPI (2020) and noted in other reports: urban areas with prisons are not different from urban areas without prisons (see also Florida 2020 for a discussion of population density and COVID-19 infection). Urban areas in Missouri and elsewhere may be better equipped with resources to mitigate the spread of COVID-19. Also, both counties are closer to or contain, geographically, the premier medical institutions in the state (e.g., Barnes-Jewish Hospital in St. Louis City and Saint Luke's Hospital in Kansas City; Olmos 2019).

3.3.2. Texas County and Madison County

Texas County, Missouri is located in the southern portion of the state, east of Springfield and south of Jefferson City. Texas County has an estimated population of 25,604, the median population for all counties containing prisons in Missouri. In addition, Plato, a town in Texas County, was identified by the US Census Bureau as the geographic center of the population in 2010, underscoring the notion that Texas County is a good representation of the “middle” (US Census 2010). Its control, Madison County, is located in the southeastern part of the state, about 60 miles west of Cape Girardeau and the Mississippi River. Madison County is about half the size, both in geographic and population, of Texas County, with 12,179 residents spread over 494.39 square miles.

In some ways, the counties are very similar. Over 90% of the population in both counties identifies as non-Hispanic white, approximately 20% of the residents in each county are employed in service occupations, and about 24% of the population in each county has at least one disability. However, the two counties differ in other, important ways. Specifically, Texas County has more residents living in poverty (25%) and more residents without health insurance (16%) than Madison County (14% and 11%, respectively). In addition, the two counties differ slightly in the length of life experienced by residents as Texas County has a life expectancy of 76.6 years while residents of Madison County have a life expectancy of 73.7 years.

Texas County contains one prison, the South Central Correctional Center, which had a population of 1,600 in 2012 (BJS 2020a). While the overall results from the regression analysis suggest that counties containing prisons will have higher rates of the outcomes and significantly higher rates of COVID-19 IR than counties without prisons, the comparison between Texas and Madison counties shows that these aggregate patterns may not hold for all individual cases. Madison County has higher rates of all outcomes than Texas County. In Madison County, the IR is 98.53 cases per 1,000 residents and the CMR is 0.82 deaths per 1,000 cases. In Texas County, the outcomes are 52.30 and 0.66 respectively. However, the CFR in Texas County is greater (1.27) than in Madison County (0.83), perhaps reflecting that Texas County is, on the whole, sicker and poorer than its counterpart.

While this comparison may run counter to expectations given our regression results, there are several possible explanations for this counterintuitive finding. First, Madison County may not be the best possible match for Texas County. While we believe our matching method is valid and that Madison County is a good comparison, other counties including Grundy, Hickory, Howard, and New Madrid County also share similarities with Texas County. In supplemental analyses, we find that there are lower rates of several of the outcomes in these counties compared to Texas County. Second, Madison County shares a border with St. Francois County, which also contains a prison. Therefore, it is possible that the consequences of prison incarceration in St. Francois County spread to Madison County. Previous research by PPI (2020) has used larger levels of aggregation to show that the association between incarceration and COVID-19 outcomes may be diffuse, spreading to counties with lower levels of incarceration. This may be the case in Madison County as well. Indeed, our supplemental analysis using USDA CZs suggests that this is the case.

3.3.3 Mississippi County and Dallas County

Our last case-control comparisons, Mississippi and Dallas counties, are both rural and sparsely populated. Mississippi County, Missouri is nestled in the “boot heel” of the state along the Mississippi River, bordering Illinois to the north and Kentucky to the east. The population of Mississippi County is an estimated 13,574 residents and the population density of the county is 32 residents per square mile. Mississippi County also contains one prison, the Southeast Correctional Center in Charleston, Missouri. In 2012, the prison had a population of 1,625, slightly above the stated capacity of 1,622 people. Dallas County is just northeast of Springfield, MO and has an estimated 16,617 residents spread across 540.77 miles, making Dallas County slightly less densely populated than Mississippi County (30 residents per square mile). It is worth noting that while Dallas County does not contain a prison, it borders two counties that do: Greene and Webster.

Compared to Dallas County, Mississippi County is poorer and more racially diverse. According to the ACS estimates used in this analysis, 25% of Mississippi County residents are living in poverty and 24% of Mississippi County residents identified as non-Hispanic Black or African American. This is notable, as only nearby Pemiscot County and St. Louis City have a higher share of Black or African American residents (27.17% and 46.23%, respectively). In addition, over 23% of Mississippi County workers are employed in service occupations. In contrast, 18% of Dallas County residents are living in poverty, less than 1% identify as non-Hispanic Black or African American, and 18% are employed in service occupations.

As anticipated, based on the results of the regression analysis, the COVID IR and CMR are higher in Mississippi County than in Dallas County, and this is particularly true for the rate of infection. In Mississippi County, the COVID IR is approximately 84 cases per 1,000 residents while in Dallas County, the COVID IR is approximately 41 cases per 1,000 residents. Differences in the CMR between counties are also present, but they are much smaller. In Mississippi County, the CMR is 1.11 deaths per 1,000 residents while in Dallas County, the CMR is 1.08 deaths per 1,000 residents. While we find the expected association between prison incarceration and these outcomes in our comparison of Mississippi and Dallas, we also find that the CFR is higher in Dallas County than in Mississippi County. Again, this runs somewhat counter to our expectations, but given that the association between prison incarceration and this outcome was positive but not statistically significant, it is not necessarily unsurprising. In Dallas County, the CFR is 2.58 deaths per 100 cases while it is 1.32 deaths per 100 cases.

The comparison between Mississippi and Dallas counties suggests that rural communities, particularly those that are predominately low-income and/or have more residents who identify as Black or African American, may be particularly susceptible to the impacts of prison incarceration on the spread and severity of COVID-19 (see Oppel et al. 2020 for a summary of racial disparities in COVID-19 outcomes). It is important to note that, due to the history of racial oppression in the United States, race and socioeconomic status are deeply intertwined. These overlapping forms of disadvantage are robust predictors of population health (see Williams et al. 2019 for a review). Indeed, as the results in Appendix A show, as the proportion of non-Hispanic white residents in a county increase, the risk

of all outcomes decreases, but as the proportion of county residents living in poverty increases, the risk of infection increases. Still, even when these predictors are included in the models, the associations between prison incarceration and the outcomes holds.

4. DISCUSSION

4.1 Summary of Findings

The findings from this report can be summarized as follows. First, the results of the descriptive and regression analyses suggest that the association between prison incarceration and the risk of COVID-19 infection in Missouri counties is positive and statistically significant. This association is robust to various measurements of the exposure including the physical location of prisons, the size of the prison population, and the incarceration density of an area. Reports on the impact of mass incarceration on COVID-19 infection rates have been reported elsewhere (PPI 2020) and align with our findings.

Second, and relatedly, we complement previous research by showing that the *physical location* of a prison increases the risk of COVID-19 infections. That is, while previous research has investigated the association between the *rate of* both jail and prison incarceration in a county and COVID-19 outcomes, our findings suggest that whether a county or CZ contains a prison *at all* influences the spread of COVID-19 in that county or CZ.

Third, our case-control comparison analysis suggests that while urban areas may be able to mitigate the consequences of prison incarceration due to access to infrastructure and resources, rural areas may be more susceptible and that this may be particularly true if their population is low income and/or predominately racial/ethnic minorities. Also, our case-control comparison analysis suggests to a degree that counties that do not contain a prison but that border or are geographically near one or more counties that do contain a prison may also be at an elevated risk, implying community spread. Again, previous research (PPI 2020) and supplemental analysis to this report suggest that this may be true at the national level as well as in Missouri.

4.2 Finding Implications

Our results suggest that strategies to decarcerate prisons may indeed reduce COVID-19 infections, particularly in disadvantaged rural areas. Reducing prison populations will allow for needed social distancing and quarantine practices within prisons, reduce strain on correctional staff, and prevent correctional staff exposure to those isolated because of infection or exposure to COVID-19. In turn, community members where correctional staff reside, especially their families, will also experience a reduced risk of exposure to COVID-19. In addition, the improvement of conditions of confinement, such as improved ventilation and outdoor spaces for recreation, can also reduce risk among those who reside and work in prison, as well as communities via reduced risk among prison staff.

To be sure, as noted by *The National Academies of Sciences, Engineering, and Medicine Committee on Best Practices for Implementing Decarceration as a Strategy to Mitigate the Spread of COVID-19 in the Correctional Facilities* report, decarceration strategies must be coupled with robust community supports for both individuals and the families that many of them return to. They state:

“Many of the challenges for meeting basic needs that individuals returning to the community confronted before the pandemic have been exacerbated during the COVID-19 period. The conditions to which individuals return home vary across communities and depend not only on the rates of community viral transmission but also on the available resources and supports for health care, housing, and income. Reentry planning will need to balance these considerations, as well as testing prior to release, the ability to quarantine in the community, and a complement of health care, housing, and income supports, as they are available; they are all important complements to decarceration efforts to maximize individual, family, and community health and safety. Decarceration will be most successful if correctional system leaders collaborate with community health care and social safety net systems to provide support to this population and eliminate barriers to existing resources and programs, including Medicaid, housing programs, and SNAP, which collectively can help mitigate both public health and public safety risks.”
(Wang et al. 2020; p. 4-12)

Reducing the risk of COVID-19 infection is a public health priority. Understanding the role of prisons in risk for those who live and/or work in prison and the communities that they are connected to is a key to informing policies and practice that coupled with additional efforts can serve to protect and promote health for all populations.

4.3 Conclusion

This report finds that prison incarceration increases the risk of COVID-19 infection in Missouri counties and that these burdens will be felt the most by some of Missouri's most marginalized residents: those in rural areas, those who are low-income, and those who are racial or ethnic minorities. As such, prison incarceration constitutes a primary public health concern for Missourians. Therefore, decarceration may be a worthwhile strategy to decrease the rate of COVID-19 infection in Missouri.

References

- Abdi, H., & Williams, L. J. (2010). Principal component analysis. *WIREs Computational Statistics*, 2(4), 433–459. <https://doi.org/10.1002/wics.101>
- Beaudry, G., Zhong, S., Whiting, D., Javid, B., Frater, J., & Fazel, S. (2020). *Managing Outbreaks of Highly Contagious Diseases in Prisons: A Systematic Review* (SSRN Scholarly Paper ID 3598874). Social Science Research Network. <https://doi.org/10.2139/ssrn.3598874>
- Benchaabane, Nassim. n.d. "Missouri among States Overcounting Coronavirus Testing, Blurring Picture of Virus' Spread." *STLtoday.Com*. Retrieved April 28, 2021 (https://www.stltoday.com/news/local/state-and-regional/missouri-among-states-overcounting-coronavirus-testing-blurring-picture-of-virus-spread/article_1f520733-7d60-56ff-89ea-34965ec48f28.html).
- Bureau of Prisons. (2020). *MCFP Springfield*. Retrieved February 1, 2021, from <https://www.bop.gov/locations/institutions/spg/>
- Carson, A. E. (2020). *Prisoners in 2018*. Retrieved February 1, 2021, from <https://www.bjs.gov/content/pub/pdf/p18.pdf>
- Faraway, J. J. (2016). *Extending the Linear Model with R: Generalized Linear, Mixed Effects and Nonparametric Regression Models, Second Edition*. CRC Press.
- Florida, R. (2020, April 3). What We Know About Density and the Spread of Coronavirus. *Bloomberg.Com*. <https://www.bloomberg.com/news/articles/2020-04-03/what-we-know-about-density-and-covid-19-s-spread>

- Fowler, C. S., Rhubart, D. C., & Jensen, L. (2016). Reassessing and Revising Commuting Zones for 2010: History, Assessment, and Updates for U.S. 'Labor-Sheds' 1990–2010. *Population Research and Policy Review*, 35(2), 263–286. <https://doi.org/10.1007/s11113-016-9386-0>
- Franco-Paredes, C., Ghandnoosh, N., Latif, H., Krsak, M., Henao-Martinez, A. F., Robins, M., Barahona, L. V., & Poeschla, E. M. (2021). Decarceration and community re-entry in the COVID-19 era. *The Lancet Infectious Diseases*, 21(1), e11–e16. [https://doi.org/10.1016/S1473-3099\(20\)30730-1](https://doi.org/10.1016/S1473-3099(20)30730-1)
- Gelman, Andrew, and Jennifer Hill. 2006. *Data Analysis Using Regression and Multilevel/Hierarchical Models*. 1st edition. Cambridge; New York: Cambridge University Press.
- Jail Data Initiative. (2020). PUBLIC SAFETY LAB. Retrieved February 1, 2021, from <https://publicsafetylab.org/jail-data-initiative>
- Johnson, Kenneth, and John Kort. (2004). 2004 *Redefinition of the BEA Economic Areas*. Survey of Current Business, November, 68–75.
- Johnson, R. C., & Raphael, S. (2009). *The Effects of Male Incarceration Dynamics on Acquired Immune Deficiency Syndrome Infection Rates among African American Women and Men*. *The Journal of Law and Economics*, 52(2), 251–293. <https://doi.org/10.1086/597102>
- Lee, H., Larimore, S., & Cunningham, D. (2020). *Structural Racism is Killing US | Lex Lata, Lex Ferenda*. Retrieved February 1, 2021, from <https://sites.law.wustl.edu/WashULaw/harris-lexlata/structural-racism-is-killing-us/>
- Missouri Department of Corrections. (June 30, 2019). *Profile of the Institutional and Supervised Offender Population*.149.
- Missouri Department of Corrections. (2020). *All DOC Facilities | Missouri Department of Corrections*. Retrieved February 1, 2021, from <https://doc.mo.gov/facilities/all?page=0>
- Missouri Department of Corrections. (2021). *COVID-19 Data | Missouri Department of Corrections*. Retrieved March 1, 2021, from <https://doc.mo.gov/media-center/newsroom/covid-19/data>
- Olmos, D. (2019). *These are the top hospitals in Missouri*. Ksdk. Com. Retrieved February 1, 2021, from <https://www.ksdk.com/article/news/health/these-are-the-top-hospitals-in-missouri/63-8494aaaf-ad84-4fc3-b49c-e2b583088730>
- Oppel Jr, R. A., Gebeloff, R., Lai, K. K. R., Wright, W., & Smith, M. (2020, July 5). The Fullest Look Yet at the Racial Inequity of Coronavirus. *The New York Times*. <https://www.nytimes.com/interactive/2020/07/05/us/coronavirus-latinos-african-americans-cdc-data.html>
- Prener, C. (2020). *River City Data*. Retrieved February 1, 2021, from <https://chrisprener.substack.com/embed>
- Prison Policy Initiative. (2020). *Mass Incarceration, COVID-19, and Community Spread*. Retrieved February 1, 2021, from <https://www.prisonpolicy.org/reports/covidspread.html>
- Robert Wood Johnson Foundation. (2020). *How Healthy is your County? | County Health Rankings*. County Health Rankings & Roadmaps. Retrieved February 1, 2021, from <https://www.countyhealthrankings.org/county-health-rankings-roadmaps>
- Ruggles, S., Flood, S., Goeken, R., Grover, J., Meyer, E., Pacas, J. and Sobek, M. (2020) IPUMS USA: Version 10.0 [dataset]. Minneapolis, MN: IPUMS, 2020. <https://doi.org/10.18128/DO10.V10.0>
- Times, The New York. 2021. "Missouri Coronavirus Map and Case Count." *The New York Times*, April 28.
- UCLA Law. (2020) *COVID-19 Behind Bars Data Project*. Retrieved February 1, 2021, from <https://uclacovidbehindbars.org/>
- United Nations. (2020, March 25). *UN rights chief urges quick action by governments to prevent devastating impact of COVID-19 in places of detention*. UN News. <https://news.un.org/en/story/2020/03/1060252>
- United States Bureau of Justice Statistics. (2020a). *Census of State and Federal Adult Correctional Facilities, 2012: Version 2 (Version v2) [Data set]*. Inter-University Consortium for Political and Social Research. <https://doi.org/10.3886/ICPSR37294.V2>
- US Bureau of Justice Statistics. (2020b). *Bureau of Justice Statistics (BJS)—Data Analysis Tools—Corrections Statistical Analysis Tool (CSAT)—Prisoners*. Retrieved February 1, 2021, from <https://www.bjs.gov/index.cfm?ty=nps>
- US Census Bureau. (2010). *Centers of Population for the 2010 Census*. The United States Census Bureau. Retrieved February 1, 2021, from <https://www.census.gov/geographies/reference-files/2010/geo/2010-centers-population.html>
- US Census Bureau. (2021). *When to Use 1-year, 3-year, or 5-year Estimates*. The United States Census Bureau. Retrieved February 1, 2021, from <https://www.census.gov/programs-surveys/acs/guidance/estimates.html>
- USDA ERS - *Commuting Zones and Labor Market Areas*. (n.d.). Retrieved March 1, 2021, from <https://www.ers.usda.gov/data-products/commuting-zones-and-labor-market-areas/>
- Vera Institute of Justice. (2020). *Vera-institute/incarceration-trends*. <https://github.com/vera-institute/incarceration-trends> (Original work published 2018)
- Wang, E. A., B. Western, E. P. Backes, & J. Schuck (2020). *Decarcerating Correctional Facilities during COVID-19: Advancing Health, Equity, and Safety* Committee on the Best Practices for Implementing Decarceration as a Strategy to Mitigate the Spread of COVID-19 in Correctional Facilities, Committee on Law and Justice, Division of Behavioral and Social Sciences and Education, & National Academies of Sciences, Engineering, and Medicine. National Academies Press. <https://doi.org/10.17226/25945>
- Wildeman, C., & Muller, C. (2012). Mass Imprisonment and Inequality in Health and Family Life. *Annual Review of Law and Social Science*, 8(1), 11–30. <https://doi.org/10.1146/annurev-lawsocsci-102510-105459>
- Wildeman, C., & Wang, E. A. (2017). Mass incarceration, public health, and widening inequality in the USA. *The Lancet*, 389(10077), 1464–1474. [https://doi.org/10.1016/S0140-6736\(17\)30259-3](https://doi.org/10.1016/S0140-6736(17)30259-3)
- Williams, David R., Jourdyn A. Lawrence, and Brigitte A. Davis. 2019. "Racism and Health: Evidence and Needed Research." *Annual Review of Public Health* 40(1):105–25. doi: 10.1146/annurev-publhealth-040218-043750.

A. Full Regression Tables and Model Fit Statistics

<i>Table A1. Prison Location and COVID-19 Infection Rate</i>					
	Model 1	Model 2	Model 3	Model 4	Model 5
	<i>Bivariate</i>	<i>Demographics</i>	<i>Economics</i>	<i>Commuting</i>	<i>Health</i>
Prison	15.3043***	9.9674*	9.8252*	9.7460*	9.8090*
	(4.1770)	(4.2389)	(4.2775)	(4.3171)	(4.3480)
Population Density		-0.0083*	-0.0079*	-0.0093	-0.0098
		(0.0035)	(0.0036)	(0.0081)	(0.0082)
Proportion 65+		-78.9669	-75.4432	-74.8745	-81.5021
		(54.9236)	(55.6374)	(55.9713)	(63.4529)
Proportion Non-Hispanic White		-56.7714*	-51.1363	-51.2692	-47.2285
		(28.0970)	(29.6063)	(29.7499)	(30.0616)
Proportion Disabled		-46.9697	-68.8797	-70.0984	-64.5947
		(38.2230)	(51.4631)	(52.0910)	(58.1293)
Average Household Size		-10.3808	-8.5671	-8.4029	-3.7636
		(9.9287)	(10.4740)	(10.5570)	(11.6201)
Proportion Poor			18.8799	16.6158	38.1981
			(40.6221)	(42.4954)	(47.6616)
Proportion Service Workers			25.6711	26.8526	34.8021
			(61.6531)	(62.2435)	(66.3302)
Proportion Public Transit				49.6573	87.2515
				(260.0343)	(263.0023)
Proportion Uninsured					-45.4120
					(50.1639)
Life Expectancy					0.6370
					(1.1533)
Diabetes Prevalence					0.8333
					(1.2639)
Constant	62.4429***	165.1225***	150.9996***	150.8018***	76.5047
	(1.6978)	(35.3697)	(42.7390)	(42.9471)	(105.4553)
Adjusted R-Squared	0.1062	0.2236	0.2266	0.2269	0.2414
Akaike Inf. Crit.	976.9893	970.8005	974.3425	976.3026	980.1214
Note:	*p<0.05; **p<0.01; ***p<0.001				
<p><i>Standard errors are shown in parentheses and italics. Statistically significant associations are shown in red. The adjusted R-squared statistic show how much of the variance is explained, but should be interpreted with caution given that the addition of any predictor, regardless of its importance, will increase this statistic. The Akaike's Information Criterion (AIC) assesses comparative model fit and also penalizes overfitting by minimizing information loss. Both should be considered when interpreting model fit.</i></p>					

Table A2. Prison Location and COVID-19 Case Fatality Rate					
	Model 1	Model 2	Model 3	Model 4	Model 5
	<i>Bivariate</i>	<i>Demographics</i>	<i>Economics</i>	<i>Commuting</i>	<i>Health</i>
Prison	0.0668 (0.2072)	0.1596 (0.2178)	0.1723 (0.2192)	0.1355 (0.2181)	0.1250 (0.2195)
Population Density		0.00003 (0.0002)	0.000003 (0.0002)	-0.0006 (0.0004)	-0.0006 (0.0004)
Proportion 65+		4.5548 (2.8224)	4.2601 (2.8514)	4.5244 (2.8278)	3.8627 (3.2029)
Proportion Non-Hispanic White		-0.1560 (1.4438)	-0.5467 (1.5173)	-0.6085 (1.5030)	-0.7258 (1.5174)
Proportion Disabled		-1.2950 (1.9642)	0.0118 (2.6375)	-0.5546 (2.6317)	-1.5227 (2.9342)
Average Household Size		-0.7200 (0.5102)	-0.8782 (0.5368)	-0.8019 (0.5334)	-0.9999 (0.5865)
Proportion Poor			-0.4831 (2.0819)	-1.5354 (2.1469)	-3.0062 (2.4058)
Proportion Service Workers			-2.9984 (3.1597)	-2.4493 (3.1446)	-2.2745 (3.3481)
Proportion Public Transit				23.0782 (13.1374)	21.5077 (13.2754)
Proportion Uninsured					2.8747 (2.5321)
Life Expectancy					-0.0317 (0.0582)
Diabetes Prevalence					0.0142 (0.0638)
Constant	1.4616*** (0.0842)	2.7328 (1.8176)	3.9248 (2.1904)	3.8329 (2.1698)	6.8629 (5.3230)
Adjusted R-Squared	0.0001	0.0683	0.0769	0.1033	0.1217
Akaike Inf. Crit.	286.1030	288.0777	291.0023	289.6711	293.2841
Note:	*p<0.05; **p<0.01; ***p<0.001				
Standard errors are shown in parentheses and italics. Statistically significant associations are shown in red. The adjusted R-squared statistic show how much of the variance is explained, but should be interpreted with caution given that the addition of any predictor, regardless of its importance, will increase this statistic. The Akaike's Information Criterion (AIC) assesses comparative model fit and also penalizes overfitting by minimizing information loss. Both should be considered when interpreting model fit.					

Table A3. Prison Location and COVID-19 Crude Mortality Rate					
	Model 1	Model 2	Model 3	Model 4	Model 5
	<i>Bivariate</i>	<i>Demographics</i>	<i>Economics</i>	<i>Commuting</i>	<i>Health</i>
Prison	0.2185 (0.1430)	0.2172 (0.1521)	0.2220 (0.1534)	0.1939 (0.1521)	0.1873 (0.1539)
Population Density		-0.0001 (0.0001)	-0.0001 (0.0001)	-0.0006* (0.0003)	-0.0006* (0.0003)
Proportion 65+		2.4730 (1.9704)	2.3734 (1.9948)	2.5757 (1.9725)	1.9881 (2.2462)
Proportion Non-Hispanic White		-1.1783 (1.0080)	-1.2621 (1.0615)	-1.3094 (1.0484)	-1.3283 (1.0642)
Proportion Disabled		-1.4984 (1.3713)	-1.3720 (1.8451)	-1.8055 (1.8358)	-2.3486 (2.0577)
Average Household Size		-0.4566 (0.3562)	-0.5139 (0.3755)	-0.4556 (0.3720)	-0.5263 (0.4113)
Proportion Poor			0.4945 (1.4564)	-0.3107 (1.4976)	-0.9989 (1.6872)
Proportion Service Workers			-1.5250 (2.2105)	-1.1048 (2.1936)	-0.8328 (2.3480)
Proportion Public Transit				17.6613 (9.1640)	17.1825 (9.3100)
Proportion Uninsured					1.3275 (1.7757)
Life Expectancy					-0.0101 (0.0408)
Diabetes Prevalence					0.0227 (0.0447)
Constant	0.9174*** (0.0581)	2.9252* (1.2689)	3.3348* (1.5323)	3.2645* (1.5135)	4.0601 (3.7330)
Adjusted R-Squared	0.0202	0.0648	0.0697	0.1015	0.1105
Akaike Inf. Crit.	200.7887	205.4325	208.8294	206.8317	211.6745
Note:	<i>*p<0.05; **p<0.01; ***p<0.001</i>				
<i>Standard errors are shown in parentheses and italics. Statistically significant associations are shown in red. The adjusted R-squared statistic show how much of the variance is explained, but should be interpreted with caution given that the addition of any predictor, regardless of its importance, will increase this statistic. The Akaike's Information Criterion (AIC) assesses comparative model fit and also penalizes overfitting by minimizing information loss. Both should be considered when interpreting model fit.</i>					

Table A4. Prison Population and COVID-19 Infection Rate					
	Model 1	Model 2	Model 3	Model 4	Model 5
	<i>Bivariate</i>	<i>Demographics</i>	<i>Economics</i>	<i>Commuting</i>	<i>Health</i>
Prison Population	0.0076***	0.0055**	0.0056**	0.0056**	0.0056**
	(0.0020)	(0.0020)	(0.0020)	(0.0020)	(0.0020)
Population Density		-0.0083*	-0.0078*	-0.0104	-0.0109
		(0.0035)	(0.0036)	(0.0080)	(0.0080)
Proportion 65+		-75.7812	-70.9248	-69.5254	-78.7061
		(54.2621)	(54.9453)	(55.3096)	(62.4199)
Proportion Non-Hispanic White		-58.4705*	-51.4522	-51.6685	-47.5811
		(27.8053)	(29.2789)	(29.4060)	(29.7037)
Proportion Disabled		-52.7909	-81.7249	-83.8665	-77.1032
		(37.8563)	(50.8732)	(51.4297)	(57.3918)
Average Household Size		-9.5431	-7.4828	-7.1419	-2.7932
		(9.8498)	(10.3843)	(10.4703)	(11.4978)
Proportion Poor			30.8842	26.6385	47.3147
			(40.3539)	(42.2072)	(47.3027)
Proportion Service Workers			20.3388	22.4468	32.4984
			(61.0791)	(61.6113)	(65.5568)
Proportion Public Transit				92.0092	131.1224
				(255.9798)	(258.7861)
Proportion Uninsured					-41.9437
					(49.5164)
Life Expectancy					0.7385
					(1.1391)
Diabetes Prevalence					0.8931
					(1.2485)
Constant	62.9065***	165.1145***	149.0611***	148.4896***	65.9589
	(1.6436)	(34.7589)	(42.1944)	(42.3986)	(104.3953)
Adjusted R-Squared	0.1100	0.2379	0.2432	0.2441	0.2589
Akaike Inf. Crit.	976.4946	968.6586	971.8511	973.7097	977.4416
Note:	<i>*p<0.05; **p<0.01; ***p<0.001</i>				
<p><i>Standard errors are shown in parentheses and italics. Statistically significant associations are shown in red. The adjusted R-squared statistic show how much of the variance is explained, but should be interpreted with caution given that the addition of any predictor, regardless of its importance, will increase this statistic. The Akaike's Information Criterion (AIC) assesses comparative model fit and also penalizes overfitting by minimizing information loss. Both should be considered when interpreting model fit.</i></p>					

Table A5. Prison Population and COVID-19 Case Fatality Rate					
	Model 1	Model 2	Model 3	Model 4	Model 5
	<i>Bivariate</i>	<i>Demographics</i>	<i>Economics</i>	<i>Commuting</i>	<i>Health</i>
Prison Population	0.00001 (0.0001)	0.00004 (0.0001)	0.00004 (0.0001)	0.00004 (0.0001)	0.00004 (0.0001)
Population Density		0.00002 (0.0002)	-0.00001 (0.0002)	-0.0007 (0.0004)	-0.0006 (0.0004)
Proportion 65+		4.3023 (2.8197)	4.0116 (2.8526)	4.3730 (2.8292)	3.6795 (3.1908)
Proportion Non-Hispanic White		-0.1994 (1.4449)	-0.5724 (1.5201)	-0.6282 (1.5042)	-0.7436 (1.5184)
Proportion Disabled		-1.3644 (1.9672)	-0.1537 (2.6412)	-0.7068 (2.6308)	-1.6504 (2.9338)
Average Household Size		-0.7476 (0.5118)	-0.9011 (0.5391)	-0.8131 (0.5356)	-1.0154 (0.5878)
Proportion Poor			-0.3748 (2.0950)	-1.4713 (2.1590)	-2.9686 (2.4181)
Proportion Service Workers			-2.9643 (3.1710)	-2.4199 (3.1516)	-2.2145 (3.3512)
Proportion Public Transit				23.7628 (13.0940)	22.1515 (13.2289)
Proportion Uninsured					2.9368 (2.5312)
Life Expectancy					-0.0304 (0.0582)
Diabetes Prevalence					0.0152 (0.0638)
Constant	1.4703*** (0.0817)	2.9190 (1.8062)	4.0765 (2.1906)	3.9289 (2.1688)	6.8483 (5.3366)
Adjusted R-Squared	0.0001	0.0648	0.0731	0.1012	0.1200
Akaike Inf. Crit.	286.2011	288.5026	291.4848	289.9331	293.5132
Note:	*p<0.05; **p<0.01; ***p<0.001				
<p><i>Standard errors are shown in parentheses and italics. Statistically significant associations are shown in red. The adjusted R-squared statistic show how much of the variance is explained, but should be interpreted with caution given that the addition of any predictor, regardless of its importance, will increase this statistic. The Akaike's Information Criterion (AIC) assesses comparative model fit and also penalizes overfitting by minimizing information loss. Both should be considered when interpreting model fit.</i></p>					

Table A6. Prison Population and COVID-19 Crude Mortality Rate					
	Model 1	Model 2	Model 3	Model 4	Model 5
	<i>Bivariate</i>	<i>Demographics</i>	<i>Economics</i>	<i>Commuting</i>	<i>Health</i>
Prison Population	0.0001 (0.0001)	0.0001 (0.0001)	0.0001 (0.0001)	0.0001 (0.0001)	0.0001 (0.0001)
Population Density		-0.0001 (0.0001)	-0.0001 (0.0001)	-0.0006* (0.0003)	-0.0006* (0.0003)
Proportion 65+		2.3534 (1.9696)	2.2908 (1.9950)	2.5730 (1.9711)	1.9401 (2.2347)
Proportion Non-Hispanic White		-1.2255 (1.0093)	-1.2806 (1.0631)	-1.3242 (1.0479)	-1.3412 (1.0634)
Proportion Disabled		-1.6105 (1.3741)	-1.6286 (1.8472)	-2.0604 (1.8328)	-2.5727 (2.0547)
Average Household Size		-0.4639 (0.3575)	-0.5131 (0.3770)	-0.4444 (0.3731)	-0.5206 (0.4116)
Proportion Poor			0.7082 (1.4652)	-0.1478 (1.5041)	-0.8612 (1.6935)
Proportion Service Workers			-1.5736 (2.2177)	-1.1486 (2.1956)	-0.8354 (2.3470)
Proportion Public Transit				18.5501* (9.1223)	18.0594 (9.2648)
Proportion Uninsured					1.4020 (1.7727)
Life Expectancy					-0.0081 (0.0408)
Diabetes Prevalence					0.0240 (0.0447)
Constant	0.9284*** (0.0565)	3.0411* (1.2617)	3.3956* (1.5321)	3.2804* (1.5110)	3.9143 (3.7375)
Adjusted R-Squared	0.0152	0.0603	0.0664	0.1017	0.1111
Akaike Inf. Crit.	201.3787	205.9829	209.2451	206.8031	211.5932
Note:	*p<0.05; **p<0.01; ***p<0.001				
<p><i>Standard errors are shown in parentheses and italics. Statistically significant associations are shown in red. The adjusted R-squared statistic show how much of the variance is explained, but should be interpreted with caution given that the addition of any predictor, regardless of its importance, will increase this statistic. The Akaike's Information Criterion (AIC) assesses comparative model fit and also penalizes overfitting by minimizing information loss. Both should be considered when interpreting model fit.</i></p>					

Table A7. Incarceration Density and COVID-19 Infection Rate					
	Model 1	Model 2	Model 3	Model 4	Model 5
	<i>Bivariate</i>	<i>Demographics</i>	<i>Economics</i>	<i>Commuting</i>	<i>Health</i>
Incarceration Density	3.6041***	2.6634**	2.7276**	2.7168**	2.7589**
	(0.9367)	(0.9239)	(0.9353)	(0.9400)	(0.9440)
Population Density		-0.0082*	-0.0076*	-0.0098	-0.0104
		(0.0035)	(0.0036)	(0.0080)	(0.0080)
Proportion 65+		-79.4499	-73.9346	-72.7874	-83.6467
		(53.7547)	(54.4337)	(54.7949)	(61.7284)
Proportion Non-Hispanic White		-56.3148*	-48.5376	-48.7372	-44.3796
		(27.7541)	(29.2180)	(29.3507)	(29.6248)
Proportion Disabled		-51.0453	-82.6477	-84.4603	-77.4627
		(37.7403)	(50.7071)	(51.2651)	(57.1514)
Average Household Size		-9.5582	-7.2380	-6.9557	-2.5230
		(9.8117)	(10.3508)	(10.4357)	(11.4508)
Proportion Poor			33.2833	29.6335	50.4603
			(40.2808)	(42.1592)	(47.1918)
Proportion Service Workers			23.3196	25.1290	36.6296
			(60.7858)	(61.3300)	(65.1711)
Proportion Public Transit				78.4948	119.1429
				(255.2641)	(257.7992)
Proportion Uninsured					-41.4420
					(49.3040)
Life Expectancy					0.8025
					(1.1346)
Diabetes Prevalence					0.9817
					(1.2432)
Constant	63.0833***	163.7037***	145.7193***	145.2781***	56.1666
	(1.6190)	(34.7087)	(42.1932)	(42.3988)	(104.1968)
Adjusted R-Squared	0.1158	0.2421	0.2484	0.2491	0.2651
Akaike Inf. Crit.	975.7407	968.0171	971.0540	972.9505	976.4725
Note:	<i>*p<0.05; **p<0.01; ***p<0.001</i>				
<i>Standard errors are shown in parentheses and italics. Statistically significant associations are shown in red. The adjusted R-squared statistic show how much of the variance is explained, but should be interpreted with caution given that the addition of any predictor, regardless of its importance, will increase this statistic. The Akaike's Information Criterion (AIC) assesses comparative model fit and also penalizes overfitting by minimizing information loss. Both should be considered when interpreting model fit.</i>					

Table A8. Incarceration Density and COVID-19 Case Fatality Rate					
	Model 1	Model 2	Model 3	Model 4	Model 5
	<i>Bivariate</i>	<i>Demographics</i>	<i>Economics</i>	<i>Commuting</i>	<i>Health</i>
Incarceration Density	0.0111 (0.0467)	0.0233 (0.0481)	0.0246 (0.0487)	0.0213 (0.0482)	0.0195 (0.0484)
Population Density		0.00002 (0.0002)	-0.000003 (0.0002)	-0.0007 (0.0004)	-0.0006 (0.0004)
Proportion 65+		4.3305 (2.7999)	4.0271 (2.8347)	4.3727 (2.8115)	3.6659 (3.1682)
Proportion Non-Hispanic White		-0.1774 (1.4456)	-0.5435 (1.5216)	-0.6036 (1.5060)	-0.7197 (1.5205)
Proportion Disabled		-1.3539 (1.9657)	-0.1698 (2.6406)	-0.7158 (2.6304)	-1.6560 (2.9333)
Average Household Size		-0.7396 (0.5111)	-0.8935 (0.5390)	-0.8084 (0.5355)	-1.0108 (0.5877)
Proportion Poor			-0.3399 (2.0977)	-1.4394 (2.1632)	-2.9388 (2.4221)
Proportion Service Workers			-2.9540 (3.1655)	-2.4090 (3.1468)	-2.1941 (3.3449)
Proportion Public Transit				23.6459 (13.0975)	22.0588 (13.2314)
Proportion Uninsured					2.9386 (2.5305)
Life Expectancy					-0.0299 (0.0582)
Diabetes Prevalence					0.0158 (0.0638)
Constant	1.4668*** (0.0807)	2.8697 (1.8078)	4.0222 (2.1973)	3.8893 (2.1755)	6.7677 (5.3479)
Adjusted R-Squared	0.0005	0.0657	0.0738	0.1017	0.1203
Akaike Inf. Crit.	286.1510	288.3993	291.3944	289.8789	293.4677
Note:	<i>*p<0.05; **p<0.01; ***p<0.001</i>				
<i>Standard errors are shown in parentheses and italics. Statistically significant associations are shown in red. The adjusted R-squared statistic show how much of the variance is explained, but should be interpreted with caution given that the addition of any predictor, regardless of its importance, will increase this statistic. The Akaike's Information Criterion (AIC) assesses comparative model fit and also penalizes overfitting by minimizing information loss. Both should be considered when interpreting model fit.</i>					

Table A9. Incarceration Density and COVID-19 Crude Mortality Rate					
	Model 1	Model 2	Model 3	Model 4	Model 5
	<i>Bivariate</i>	<i>Demographics</i>	<i>Economics</i>	<i>Commuting</i>	<i>Health</i>
Incarceration Density	0.0489 (0.0322)	0.0463 (0.0336)	0.0493 (0.0340)	0.0468 (0.0336)	0.0462 (0.0339)
Population Density		-0.0001 (0.0001)	-0.0001 (0.0001)	-0.0006* (0.0003)	-0.0006* (0.0003)
Proportion 65+		2.3315 (1.9532)	2.2699 (1.9797)	2.5374 (1.9565)	1.8767 (2.2161)
Proportion Non-Hispanic White		-1.1857 (1.0085)	-1.2258 (1.0626)	-1.2724 (1.0480)	-1.2865 (1.0635)
Proportion Disabled		-1.5834 (1.3713)	-1.6514 (1.8442)	-2.0742 (1.8305)	-2.5815 (2.0517)
Average Household Size		-0.4585 (0.3565)	-0.5044 (0.3764)	-0.4385 (0.3726)	-0.5136 (0.4111)
Proportion Poor			0.7620 (1.4650)	-0.0893 (1.5053)	-0.8017 (1.6942)
Proportion Service Workers			-1.5328 (2.2107)	-1.1107 (2.1898)	-0.7741 (2.3397)
Proportion Public Transit				18.3086* (9.1144)	17.8516 (9.2550)
Proportion Uninsured					1.4088 (1.7700)
Life Expectancy					-0.0070 (0.0407)
Diabetes Prevalence					0.0254 (0.0446)
Constant	0.9279*** (0.0557)	2.9908* (1.2611)	3.3163* (1.5345)	3.2134* (1.5139)	3.7399 (3.7407)
Adjusted R-Squared	0.0199	0.0637	0.0698	0.1042	0.1137
Akaike Inf. Crit.	200.8240	205.5748	208.8243	206.4877	211.2597
Note:	* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$				
<p><i>Standard errors are shown in parentheses and italics. Statistically significant associations are shown in red. The adjusted R-squared statistic show how much of the variance is explained, but should be interpreted with caution given that the addition of any predictor, regardless of its importance, will increase this statistic. The Akaike's Information Criterion (AIC) assesses comparative model fit and also penalizes overfitting by minimizing information loss. Both should be considered when interpreting model fit.</i></p>					



Appendix 2:

An Overview of U.S. State Department of Corrections Responses to COVID-19

By Megan Hart, JD and Preethi Raja, JD, MPH

Without a federal directive for how state prison systems should respond to the COVID-19 pandemic, states have had to take the lead in creating and implementing new policies and procedures. This has led to significant variability in state prison system responses. This section of the report analyzes and compares the responses of select other states to the Missouri Department of Corrections (MODOC) response.

A) Initial State Prison Responses to the COVID-19 Pandemic

Part A of this chapter analyzes how states initially responded to the COVID-19 pandemic, including changes to prison conditions to comply with social distancing and PPE state orders, implementation of testing procedures, and reduction of prison populations. As most state websites have been updated since March 2020 to reflect current policies and procedures, this analysis of initial state responses is based on June 10, 2020 data from the ACLU and Prison Policy Initiative Report, *Failing Grades: States' Responses to COVID-19 in Jails and Prisons*.

i) Personal Protective Equipment in State Prisons

Initial state responses to the COVID-19 pandemic in providing non-surgical masks in state prisons were evaluated on whether non-surgical masks were provided to staff and residents. For the provision of non-surgical masks to state prison staff members, an adequate state response was providing masks to all staff and an inadequate state response was providing masks to only some staff or not providing any masks to staff. Forty-seven states, including Missouri, received full points for an adequate state response of providing masks to all staff.

For the provision of non-surgical masks to incarcerated individuals, an adequate state response was providing masks to all individuals. An inadequate state response was providing masks to only some individuals, only symptomatic individuals, or no individuals. Thirty-eight states, including Missouri, received full points for an adequate state response of providing masks to all individuals (ACLU and Prison Policy Initiative 2020).

Missouri: On April 3, 2020, MODOC Director Anne Precythe published a bulletin announcing that Missouri Vocational Enterprises, a work program for people in Missouri prisons, would begin producing non-medical face masks (Precythe 2020). By late April 2020, all staff and prison residents had been issued at least one face covering (Nelson 2020a). Despite universal access to masks, MODOC did not mandate that correctional officers should wear masks at all times in MODOC facilities until the fall of 2020 (Sitter 2020). MODOC leadership later acknowledged that due to understaffing, they were not sanctioning correctional officers who failed to wear masks (Haldiman 2021).

ii) COVID-19 Testing in State Prisons

Initial state responses to the COVID-19 pandemic in testing prison staff members and individuals in prison were evaluated on the commitment to testing and whether testing commitments were met. For the testing of staff, an adequate state response was meeting the commitment to test all staff in all facilities and an inadequate state response was not meeting this commitment by failing to test all staff or failing to commit to testing staff. Only three states (Massachusetts, New Mexico, and West Virginia) received full points for an adequate state response. Thirty-two states received no points for failing to commit to testing or not providing information on testing.

For the testing of incarcerated individuals in state prisons, an adequate state response was meeting the commitment to test all individuals and an inadequate state response was not meeting this commitment by failing to test all individuals, only testing symptomatic individuals, or not providing information on testing of individuals. Only five states (Massachusetts, Michigan, Tennessee, Vermont, and West Virginia) received full points for an adequate state response (ACLU and Prison Policy Initiative 2020).

Missouri: By late May 2020, MODOC had tested only 2% of its prisons' residents; by comparison, in the same timeframe, the Kansas Department of Corrections had tested 20% (Moore 2020). Toward the end of May, MODOC committed to universal testing of all staff and residents of its facilities (Schallhorn 2020). The universal testing was completed in late August 2020 (Cliburn 2020a). After universal testing was complete, MODOC began testing its facilities' wastewater for unusual levels of viral material as a detection system for resurgent case counts (Cliburn 2020b).

iii) Availability of State Prison COVID-19 Data

Availability of state prison COVID-19 data was evaluated on the availability, update frequency, and disaggregation by race of data for cases among staff and prison residents. For the data transparency of state prisons, an adequate state response was making all case data available to the public, updating this data regularly, and disaggregating the data by race. An inadequate state response was only making some data available to the public, not keeping the data up to date, or not disaggregating the data by race. Twelve states received full points for an adequate state response, but only eight of these states (Delaware, Maine, Michigan, Missouri, Oklahoma, Tennessee, Vermont, and West Virginia) submitted data disaggregated by race (although not all data is publicly available) (ACLU and Prison Policy Initiative 2020).

Missouri: MODOC has made data on COVID-19 cases among staff and residents available on its website. Case data is disaggregated by facility and by whether the case is active or resolved. Death data is not disaggregated by facility (Missouri Department of Corrections 2021a). The Missouri Department of Corrections has made data disaggregated by race available to the Marshall Project (ACLU and Prison Policy Initiative 2020); however, it has not made race-disaggregated data available to the public on its own COVID-19 data page (Missouri Department of Corrections 2021a).

iv) COVID-19 Executive Orders

Initial state responses to the COVID-19 pandemic via state governor executive orders were evaluated on the type of order, whether for releasing medically vulnerable incarcerated individuals or releasing individuals near the end of their sentences, as well as the completeness of the order. It should be noted that state governor executive orders were analyzed as they related to state correctional facilities, including state jails. Executive orders for halting jail admission were also analyzed.

For the state governor executive orders as related to state correctional facilities, an adequate response was a complete order for the release of medically vulnerable incarcerated individuals and individuals near the end of their sentence. An inadequate state response was only ordering release of individuals with specific medical conditions, strongly encouraging release instead of ordering release, or only ordering release of individuals near the end of their sentences related to specific offenses. No states received full points for an adequate response. Twenty-seven states had no order for medically vulnerable incarcerated individuals, and twenty-one states had no order for individuals near the end of their sentence.

Missouri: Missouri's Governor Michael Parson issued no executive orders releasing medically vulnerable incarcerated people, releasing people near the end of their sentences, or halting jail admissions (ACLU and Prison Policy Initiative 2020).

v) Reduction of State Prison Incarcerated Population

Initial state responses to the COVID-19 pandemic by reducing state prison populations were evaluated on the reduction percentage statewide. The state with the largest state prison population decline was New Hampshire, with an 18.5% decline. Seven states had between a 10-20% decline, ten states between 6-10%, and thirty states between 2-5%. The state with the lowest reduction was Wyoming, at 1%.

Missouri: MODOC's population declined by approximately 3.5% from January to April/May 2020 (ACLU and Prison Policy Initiative 2020). As MODOC's population has declined at least seven of the fiscal years from 2012 to 2020, it is not clear how much of the early 2020 decline is due to COVID-19 (Missouri Department of Corrections 2021e).

B) Transparency of State Prison COVID-19 Pandemic Responses

Part B analyzes the transparency of states in providing to the public the number of COVID-19 cases and deaths in state prisons, as well as the transparency of states in providing COVID-19 state prison policies and keeping these state prison policies current.

Comparison of Transparency of State Prison COVID-19 Pandemic Responses

A. Transparency of COVID-19 Cases and Deaths in State Prisons	
Model State Approach	Missouri's Approach
Kansas	
<ol style="list-style-type: none"> 1. Tracks COVID-19 cases and deaths by facility for both incarcerated residents and staff 2. Kansas Department of Corrections provides a chart for each facility including the number of: <ul style="list-style-type: none"> • number of current staff cases • current resident cases • current positive residents • cumulative staff cases • cumulative resident cases 3. Provides number of staff and resident deaths per facility kept current each week (08/30/21) <p><i>(Kansas Department of Corrections 2021)</i></p>	
Texas	
<ol style="list-style-type: none"> 1. Texas Department of Criminal Justice updates its state dashboard for prisons and jails (08/30/21) 2. Dashboard provides the following statewide data for total number of: <ul style="list-style-type: none"> • cases • deaths • tests • recoveries 3. Data is disaggregated by facility and includes number of: <ul style="list-style-type: none"> • active cases for prison residents and employees • medical restrictions • medical isolations <p><i>(Texas Department of Criminal Justice 2021a)</i></p> <ol style="list-style-type: none"> 4. Texas Commission on Jail Standards provides data for jails and includes number of: <ul style="list-style-type: none"> • resident cases • resident deaths • tests for residents • cases for employees • pending tests for employees <p><i>(Texas Commission on Jail Standards 2021)</i></p>	

Comparison of Transparency of State Prison COVID-19 Pandemic Responses

B. Transparency of COVID-19 State Prison Policies	
Model State Approach	Missouri's Approach
Kansas	<ol style="list-style-type: none"> 1. MODOC does not have a publicly available COVID-19 policy manual 2. The state does have a COVID-19 Update page on its website which includes the following: <ul style="list-style-type: none"> • vaccines • visitation • PPE • testing • containment <p><i>(Missouri Department of Corrections 2021c)</i></p>
<ol style="list-style-type: none"> 1. Kansas Department of Health and Environment implemented Prevention and Control of COVID-19 in Correctional and Detention Facilities 2. Provides analysis questions for determining whether to conduct initial screening of residents, staff and visitors 3. Details the need for ventilation and air cleaning in facilities 4. Lists the types of PPE needed in different settings <p><i>(Kansas Department of Health and Environment 2020)</i></p>	
Texas	
<ol style="list-style-type: none"> 1. Texas Department of Criminal Justice created the comprehensive Correctional Managed Health Care Infection Control Manuals 2. Entails multiple manuals with separate policies for different health conditions 3. Includes policies specific to employees and facilities <p><i>(Texas Department of Criminal Justice 2021b)</i></p> <ol style="list-style-type: none"> 4. COVID-19 Manual provides procedures for: <ul style="list-style-type: none"> • infection control: cleaning and disinfection, laundry, social distancing strategies, use of face cloths, medical isolation, contact tracing and management of exposed staff • re-entry and release • PPE: type of PPE to use by staff and residents in different settings (i.e. transportation, clinical settings, public spaces, etc.) • testing • reporting • clinical and dental management <p><i>(Texas Department of Criminal Justice 2021c)</i></p>	
Illinois	
<ol style="list-style-type: none"> 1. Illinois Department of Corrections uploads all information related to COVID-19 response on its website 2. Illinois Department of Corrections' (IDOC) website includes: <ul style="list-style-type: none"> • case numbers • testing for staff and residents • inventories of chemical and medical supplies <p><i>(Illinois Department of Corrections 2021a)</i></p> <ol style="list-style-type: none"> 3. Uploaded a link to the John Howard Association (JHA) which independently monitors the policies and practices of Illinois correction facilities 4. JHA conducted a COVID-19 survey for residents in the IDOC facilities and published their findings and recommendations for areas of improvements <p><i>(John Howard Association 2020)</i></p> <ol style="list-style-type: none"> 5. IDOC responded to the survey to be more transparent but the IDOC has not published the response on its website <p><i>(Illinois Department of Corrections 2021b)</i></p>	

Comparison of Transparency of State Prison COVID-19 Pandemic Responses

C. Currentness of COVID-19 State Prison Policies	
Model State Approach	Missouri's Approach
Kansas	<p>In August 2021, MODOC's COVID-19 main page has been updated to account for the phase 3 vaccinations that began in April 2021</p> <p><i>(Missouri Department of Corrections 2021c)</i></p> <p>In May, MODOC announced that visitation would begin June 1 and provided information about visitation policies and links to a Visitor Application on the Visiting page of its website</p> <p><i>(Missouri Department of Corrections 2021d)</i></p>
<p>April 2020: The Kansas Prevention and Control of COVID-19 in Correctional and Detention Facilities was created</p> <p>November 19, 2020: Last time the Kansas Department of Health and Environment updated its policy (08/2021)</p> <p><i>(Kansas Department of Health and Environment 2020)</i></p>	
Illinois	
<p>Released protocols for transitioning back to in-person services through its COVID-19 Visitation Plan - Phase 1 explaining:</p> <ul style="list-style-type: none"> • how to schedule visitation • how facilities will restrict waiting room capacity • visitor and resident mask mandates • schedules for deep cleaning and visitation for 60 days <p>Notes that the plan will be updated daily for any changes or cancellations related to COVID reasons</p> <p><i>(Illinois Department of Corrections 2021c)</i></p>	
Not A Model State Approach	
West Virginia	
<p>March 2020: West Virginia Department of Health and Human Resources published a one page "Guidance for Correctional Facilities"</p> <p><i>(West Virginia Department of Health and Human Resources 2020)</i></p> <p>March 26, 2020: Memo sent to the West Virginia Division of Corrections and Rehabilitation facility superintendents and directors with interim CDC guidance for correction facilities</p> <p><i>(West Virginia Officer of the Commissioner 2020).</i></p> <p>March 20, 2020: West Virginia Division of Corrections and Rehabilitation created its own COVID-19 Response plan and has been updated in February 2021</p> <p>West Virginia Department of Corrections and Rehabilitation has not published its COVID-19 response plan on its website</p> <p><i>Redacted versions of the policy directives can be found on the West Virginia Department of Health and Human Resources website</i></p> <p><i>(West Virginia Division of Corrections and Rehabilitation 2021)</i></p>	

C) States' Vaccine Policies for Incarcerated People

In October 2020, the Centers for Disease Control and Prevention published a report giving guidance to states and other jurisdictions in charge of allocating vaccines. This report outlined the three phases of vaccine distribution and included descriptions of “critical populations” whose vaccination ought to be prioritized, including people in congregate living facilities and people at greater risk of COVID-19 infection; people incarcerated or detained in correctional facilities were explicitly listed among the critical populations (Centers for Disease Control and Prevention 2020).

In response to the CDC’s guidance, 31 states and Washington D.C. made incarcerated people eligible for vaccination in Phase 1, four states made them eligible in Phase 2, and two states in Phase 3. Thirteen states did not specify in their plans when incarcerated people would be eligible for vaccination (Maner 2021).

Missouri: Missouri was one of only two states that explicitly did not make incarcerated people generally eligible for vaccination until Phase 3 (Maner 2021).

Appendix 2.1: Timeline of COVID-19 in the Missouri Department of Corrections

MARCH 2020 TO MAY 2021

What follows is a timeline of COVID-19 in the Missouri Department of Corrections (MODOC), from the first case in MODOC custody in March 2020 to the Governor's signing of a supplemental budget bill to address chronic prison understaffing in May 2021.

In brief, the timeline shows that MODOC responded to address shortages of hand sanitizer and cloth facemasks by having people in prison manufacture them, starting in April 2020; however, universal masking was not mandated. While testing of staff and residents was scant at the beginning of the pandemic, MODOC began universal testing at the end of May 2020 and concluded in August 2020. Universal testing uncovered large COVID-19 outbreaks at a number of facilities, suggesting that mask access in the absence of mask mandates had failed to contain the spread of the virus.

In November 2020, MODOC announced that a universal mask mandate had been handed down at some point in fall 2020; however, MODOC later stated that there were no penalties for staff who refused to follow the mandate because understaffing made firing noncompliant staff logistically unfeasible.

In April 2021, people in MODOC prisons became generally eligible to receive the COVID-19 vaccine. In May 2021, the governor signed a bill to increase funding for correctional officer salaries by \$235,599 (Office of Governor Michael L. Parson 2021; 101st General Assembly 2021; Ritzdorf 2021b). As MODOC had more than 700 vacant correctional officer positions *before* the COVID-19 pandemic, this amount allocated is entirely inadequate to address MODOC's chronic understaffing (Bogan 2019).

MARCH 2020

- March 4: A man incarcerated at the Western Reception, Diagnostic, and Correctional Center in St. Joseph, MO comes under observation for respiratory distress.
- March 12: Missouri DOC (MODOC) suspends visitation and transfers to its facilities (KQ2 2020).
- March 23: MODOC report that the man is the first person in their custody to test positive for COVID-19 (Greenstein 2020).
- March 31: MODOC Director Anne Precythe announces that there are no active COVID-19 cases among people incarcerated in MODOC custody. MODOC has tested 20 people in its custody: 14 negative, 5 pending, and 1 resolved (KQ2 2020). At the same press conference, it is announced that MODOC has enacted the following policies:
 - Screening incarcerated people upon intake
 - Screening correctional staff each time they enter a MODOC facility
 - Identifying cells, units, and wings to be used as quarantine and isolation spaces in the event of an outbreak (WGEM 2020).

APRIL 2020

- April 3: Director Precythe publishes a bulletin for MODOC workers acknowledging that medical-grade masks, non-medical masks, and hand sanitizer are in short supply. She announces that Missouri Vocational Enterprises, a work program for people in Missouri prisons, has begun producing hand sanitizer and will begin producing non-medical masks for use in MODOC facilities. Medical-grade masks are required for staff working in the housing units of people who have tested positive for COVID-19; face coverings are otherwise “optional” (Precythe 2020).
- April 21: A story breaks that 1 incarcerated man and 3 staff members at SECC have now tested positive for COVID-19. By this point, all staff and prison residents have been issued at least one face covering (Nelson 2020a).

MAY 2020

- May 22: MODOC has uncovered 44 positive COVID-19 cases while having tested only 2% of its population. At this same time, the Kansas Department of Corrections has tested 20% of its incarcerated population (Moore 2020).
- May 26: MODOC begins mass testing for all staff and all people in its prisons (Schallhorn 2020). The mass testing will continue in phases through the end of August (Cliburn 2020a).

JUNE 2020

- June 19 and 20: Mass testing reveals outbreaks at MODOC prisons in Bonne Terre, MO and Vandalia, MO (Nelson 2020b; Dunlap 2020).

JULY 2020

- July 20: Although the mass testing conducted in June at Chillicothe Correctional Center in Chillicothe, MO revealed no positive COVID-19 cases, a large outbreak (189 residents, 9 staff) overtakes the prison in July (Farzan 2020).
- July 22: Despite large outbreaks at multiple facilities and complaints from incarcerated people, universal masking in MODOC facilities is still not required of staff (Czopek 2020).

AUGUST 2020

- August 20: From August 1 to August 20, COVID-19 cases among MODOC staff and residents increase “by more than 50%” (Suntrup 2020).
- August 20: Allegedly due to understaffing, decreased services, and poor conditions, residents seize control of a housing unit at the MODOC facility in Bonne Terre (Krull 2020a).
- August 28: MODOC completes mass testing of residents and staff (WBUR 2020).

SEPTEMBER 2020

- September 1: An anonymous correctional officer alleges that MODOC is so understaffed that prisons have been ignoring the results of staff symptom screenings and allowing feverish staff to work. A resident is quoted alleging that due to understaffing, people in his prison no longer have access to regular meals, regular showers, or timely medical care (Krull 2020a).

OCTOBER 2020

- October 1: MODOC reports that it has begun testing facilities’ wastewater for the presence of novel coronavirus so that it can sample test facilities with higher levels of virus (Cliburn 2020b)

NOVEMBER 2020

- November 20: Executive Director of the Missouri Corrections Officers Association (MOCO), Tim Cutt, says that recent assaults on corrections staff are due to understaffing. Understaffing at MODOC is chronic but has been exacerbated by COVID-19 (Krull 2020b).
- November 25: MODOC Communications Director Karen Pojmann announces in response to advocate complaints that a universal mask mandate for staff has been in place in all MODOC facilities since “the fall”; however, MOCO executive director Tim Cutt claims that MODOC administrators are not ensuring that the mask mandate is followed (Sitter 2020).

DECEMBER 2020

- December 8: MODOC has purchased and is planning to install in all facilities both “ionization generators” that purify air and “electrostatic sprayers” that emit disinfectant in order to kill ambient coronavirus (Nozicka 2020).

JANUARY 2021

- January 4: More than 5,000 residents of Missouri state prisons have now contracted COVID-19. Residents continue to tell journalists that correctional officers do not consistently wear masks or enforce social distancing and that prison health care workers do not consistently monitor the condition of residents sick with COVID-19 (Moore 2021).

FEBRUARY 2021

- February 8: MODOC Communications Director Karen Pojmann tells journalists that COVID-19 cases among staff and residents have been reduced 80% since MODOC began installing ionization generators and electrostatic sprayers in its facilities in December 2020 (Nelson 2021).
- February 13: MOCO executive director Tim Cutt and interviewees in Missouri prisons claim that MODOC was “not following its own viral containment protocols” for much of the COVID-19 pandemic and thereby risking the health of staff and residents (Ritzdorf 2021a).

MARCH 2021

- March 4: At a virtual town hall organized by the Missouri NAACP, MODOC Director Anne Precythe and Deputy Director Matt Stern reiterate their commitment to a universal mask policy but acknowledge that MODOC will not fire staff who refuse to wear masks because understaffing makes firing noncompliant correctional officers untenable (Haldiman 2021).
- Mid-March: MODOC announces the temporary closure of two Missouri prisons due to understaffing (AP News 2021).
- Some residents of Missouri prisons tell reporters that they are hesitant to receive the COVID-19 vaccine because they do not trust prison health care, which has neglected residents infected with COVID-19 during the pandemic (Berger 2021).

APRIL 2021

- April 9: Phase 3 of the COVID-19 vaccination rollout begins. All Missouri adults, including residents of Missouri state prisons, are now eligible for a COVID-19 vaccine (McCaskill 2021).

MAY 2021

- May 13: Governor Parson signs a supplemental budget bill allocating \$235,599 to MODOC to help address staff shortages (Office of Governor Michael L. Parson 2021; 101st General Assembly 2021; Ritzdorf 2021b).
- An entry-level MODOC correctional officer makes between \$32,226 - \$44,476 per year (Missouri Department of Corrections 2021b). The supplemental budget allocation of \$235,599 is sufficient to pay **between 5 and 7 entry-level correctional officers** for one year. Before the pandemic, which exacerbated staffing problems, the Missouri Department of Corrections had **776 vacant positions for entry-level correctional officers** (Bogan 2019).

References

- ACLU and Prison Policy Initiative. (2020). *Failing Grades: States' Responses to COVID-19 in Jails and Prisons*. Retrieved May 17, 2020 from https://www.aclu.org/sites/default/files/field_document/failing_grades_states_responses_to_covid-19_in_jails_prisons_063020.pdf
- AP News. (2021, March 17). Staffing shortages prompt temporary Missouri prison closures. AP. Retrieved May 18, 2021 from <https://apnews.com/article/kansas-city-prisons-st-joseph-missouri-tigers-mens-basketball-fulton-8b46bf068450dac523228b5836d6d542>
- Berger, E. (2021, March 24). Inmates' distrust of prison health care fuels distrust of COVID vaccines. *St. Louis Post-Dispatch*. Retrieved May 14 from https://www.stltoday.com/lifestyles/health-med-fit/coronavirus/inmates-distrust-of-prison-health-care-fuels-distrust-of-covid-vaccines/article_959d15db-186b-533f-91df-27906a203b97.html
- Bogan, J. (2019, April 14). They're some of the most dangerous and challenging jobs in Missouri. And they start at \$15 an hour. *St. Louis Post-Dispatch*. Retrieved May 14, 2021 from https://www.stltoday.com/news/local/crime-and-courts/theyre-some-of-the-most-challenging-and-dangerous-jobs-in-missouri-and-they-start-at/article_1819aaac-c462-5836-8e4a-53441cef99d2.html
- Centers for Disease Control and Prevention. (2020, October 29). *COVID-19 Vaccination Program Interim Operational Guidance Jurisdiction Operations*. CDC Centers for Disease Control and Prevention. Retrieved May 17, 2021 from https://www.cdc.gov/vaccines/imz-managers/downloads/Covid-19-Vaccination-Program-Interim_Playbook.pdf
- Cliburn, E. (2020a., June 25). Mass COVID-19 testing planned for Moberly, Boonville prisons. *Moberly Monitor-Index*. Retrieved May 11, 2021 from <https://www.moberlymonitor.com/story/news/local/2020/06/25/mass-covid-19-testing-planned-for-moberly-boonville-prisons/42334515/>
- Cliburn, E. (2020b, October 1). Stark differences noted in COVID-19 case numbers in Missouri prisons. *St. Louis Post-Dispatch*. Retrieved May 11, 2021 from https://www.stltoday.com/lifestyles/health-med-fit/coronavirus/stark-differences-in-covid-19-case-numbers-noted-in-missouri-prisons/article_a2c56867-2565-5fa2-abee-61a8e08603fa.html
- Czopek, M. (2020, July 22). Missouri lags behind with limited mask mandate in prisons. *Columbia Missourian*. Retrieved May 11, 2021 from https://www.columbiamissourian.com/news/state_news/missouri-lags-behind-with-limited-mask-mandate-in-prisons/article_ba7a4a9e-c774-11ea-95ae-e3de4b868686.html
- Dunlap, C. (2020, June 20). Coronavirus: testing finds 11 COVID-19 cases in state women's prison in Vandalia. *Springfield News-Leader*. Retrieved May 11, 2021 from <https://www.news-leader.com/story/news/local/missouri/2020/06/20/missouri-cornavirus-covid-19-state-prison-vandalia/3223606001/>
- Farzan, S. (2020, July 20). Coronavirus cases surge at women's prison; advocates call for action. *St. Louis Public Radio*. Retrieved May 11, 2021 from <https://news.stlpublicradio.org/health-science-environment/2020-07-20/coronavirus-cases-surge-at-missouri-womens-prison-advocates-call-for-action>
- Greenstein, M. (2020, March 23). Missouri DOC confirms first COVID-19 case in inmate. 41 *KHSB Kansas City*. Retrieved May 10, 2021 from <https://www.kshb.com/news/coronavirus/missouri-doc-confirms-first-covid-19-case-in-inmate>
- Haldiman, J. (2021, March 5). NAACP, partners ask DOC officials to address COVID in Missouri Corrections facilities. *News Tribune*. Retrieved May 10, 2021 from <https://www.newstribune.com/news/local/story/2021/mar/05/naacp-partners-ask-doc-officials-to-address-covid-in-missouri-corrections-facilities/862415/>
- Illinois Department of Corrections. (2021a). *COVID-19 Response*. Retrieved May 19, 2021 from <https://www2.illinois.gov/idoc/facilities/Pages/Covid19Response.aspx>
- Illinois Department of Corrections. (2021b). *COVID-19 JHA Survey 2020 Response*. Retrieved May 19, 2021 from <https://static1.squarespace.com/static/5beab48285ede1f7e8102102/t/5ee8ed76626a7f2c7562e805/1592323446959/IDOC+Response+June+2020+to+JHA+COVID-19+Survey.pdf>
- Illinois Department of Corrections. (2021c). *COVID-19 RESPONSE Visitation Plan – Phase 1 (60 Days)*. Retrieved May 19, 2021 from https://www2.illinois.gov/idoc/facilities/Documents/COVID-19/Visitation%20Plan_Phase%201.pdf
- John Howard Association. (2020, June 9). *JHA System-Wide Survey on COVID-19 in IDOC: Initial Results Released*. Retrieved May 19, 2021 from <https://static1.squarespace.com/static/5beab48285ede1f7e8102102/t/5ee1079a071bb95d6d897f59/1591805850091/JHA+COVID-19+Survey+Results+Released+6.9.20.pdf>
- Kansas Department of Corrections (2021). *KDOC COVID-19 Status*. Retrieved May 19, 2021 from <https://www.doc.ks.gov/kdoc-coronavirus-updates/kdoc-covid-19-status>
- Kansas Department of Health and Environment. (2020). *Prevention and Control of COVID-19 in Correctional and Detention Facilities*. Retrieved May 19, 2021 from <https://www.coronavirus.kdheks.gov/DocumentCenter/View/346/Prevention-and-Control-of-COVID-19-in-Correctional-and-Detention-Facilities-PDF-Reviewed-11-19-20>
- KQ2. (2020, April 1). Missouri Department of Corrections: No positive cases of COVID-19 in prison system. KQ2. Retrieved May 10, 2021 from <https://www.kq2.com/content/news/Missouri-Department-of-Corrections-No-positive-cases-of-COVID-19-in-prison-system-569291621.html>
- Krull, R. (2020a, September 1). Understaffed during COVID-19, Missouri prison is a danger, union says. *Riverfront Times*. Retrieved May 11, 2021 from <https://www.riverfronttimes.com/newsblog/2020/09/01/understaffed-during-covid-19-missouri-prison-is-a-danger-union-says>
- Krull, R. (2020b, November 20). Low staff levels blamed for assaults at Missouri prisons. *Riverfront Times*. Retrieved May 11, 2021 from <https://www.riverfronttimes.com/newsblog/2020/11/20/low-staff-levels-blamed-for-assaults-in-missouri-prisons>
- Maner, M. (2021, May 7). *An Analysis of Interim COVID-19 Vaccination Plans*. The COVID Prison Project. Retrieved May 17, 2021 from <https://covidprisonproject.com/blog/data/data-analysis/an-analysis-of-interim-covid-19-vaccination-plans/>
- McCaskill, C. (2021, April 5). All Missouri adults to be eligible for vaccines starting Friday. *Columbia Missourian*. Retrieved May 14, 2021 from https://www.columbiamissourian.com/news/covid19/all-missouri-adults-to-be-eligible-for-vaccines-in-phase-3-starting-friday/article_745c7eec-9622-11eb-8ce9-0be592ec9915.html
- Missouri Department of Corrections. (2021a). *COVID-19 Data*. Retrieved March 1, 2021, from <https://doc.mo.gov/media-center/newsroom/covid-19/data>
- Missouri Department of Corrections. (2021b). *Jobs – Correctional Officer 1*. Retrieved May 14, 2021 from <https://doc.mo.gov/divisions/human-services/employment-opportunities/correctional-officer-1>
- Missouri Department of Corrections. (2021c). *COVID-19*. Retrieved August 26, 2021 from <https://doc.mo.gov/media-center/newsroom/covid-19>

References (cont.)

- Missouri Department of Corrections. (2021d). *Visiting*. Retrieved May 17, 2021 from <https://doc.mo.gov/programs/family-friends/visiting>
- Missouri Department of Corrections. (2021e). *Profile of the Institutional and Supervised Offender Population 2020*. Retrieved August 26, 2021 from <https://doc.mo.gov/media/pdf/offender-profile-fy-20>
- Missouri Department of Health Resources. 2021. *Show Me Strong Recovery Plan: Data*. Retrieved May 13, 2021 from <https://showmestrong.mo.gov/data/>
- Moore, K. (2020, May 22). Missouri prisons have 44 COVID-19 cases, but experts say more tests are needed. *Kansas City Star*. Retrieved May 10, 2021 from <https://www.kansascity.com/news/coronavirus/article242684766.html>
- Moore, K. (2021, January 4). 'Leaving us to die': Missouri inmates allege state has mishandled response to COVID. *St. Louis Post-Dispatch*. Retrieved May 11, 2021 from https://www.stltoday.com/lifestyles/health-med-fit/coronavirus/leaving-us-to-die-missouri-inmates-allege-state-has-mismanaged-response-to-covid/article_fef20c94-69a2-5114-9c93-1f425eb51b.html
- Nelson, A. (2020a., April 21). Missouri prison inmate tests positive for coronavirus. *Missourinet*. Retrieved May 10, 2021 from <https://www.missourinet.com/2020/04/21/missouri-prison-inmate-tests-positive-for-coronavirus/>
- Nelson, A. (2020b, June 19). Coronavirus outbreak at southeast Missouri prison. *Missourinet*. Retrieved May 11, 2021 from <https://www.missourinet.com/2020/06/19/coronavirus-outbreak-at-southeast-missouri-prison/>
- Nelson, A. (2021, February 8). Missouri prison system experiences significant drop in COVID-19 cases. *Missourinet*. Retrieved May 11, 2021 from <https://www.missourinet.com/2021/02/08/missouri-prison-system-experiences-significant-drop-in-covid-19-cases/>
- Nozicka, L. (2020, December 8). Missouri prisons to install air purifiers, sprayers to help slow spread of COVID-19. *Kansas City Star*. Retrieved May 11, 2021 from <https://www.kansascity.com/news/coronavirus/article247693935.html>
- Office of Governor Michael L. Parson. (2021, May 13). *Governor Parson signs FY 2021 supplemental budget bill*. Retrieved May 14, 2021 from <https://governor.mo.gov/press-releases/archive/governor-parson-signs-fy-2021-supplemental-budget-bill>
- Precythe, A. (2020, April 3). *IMPORTANT MESSAGE FROM DIRECTOR PRECYTHE: Staff Face Coverings, Personal Masks, and Hand Sanitizer*. Missouri Department of Corrections. Retrieved May 10, 2021 from <https://content.govdelivery.com/accounts/MODOC/bulletins/284d479>
- Ritzdorf, Q. (2021a, February 13). Prison staff, inmates raise alarm over COVID-19 procedures. *News-Press NOW*. Retrieved May 10, 2021 from https://www.newspressnow.com/news/local_news/coronavirus/prison-staff-inmates-raise-alarm-over-covid-19-procedures/article_8591e65a-6505-11eb-91b5-e7dc2d451cb7.html
- Ritzdorf, Q. (2021b, April 21). Missouri legislature addressing prison staff shortage. *News-Press NOW*. Retrieved May 14, 2021 from https://www.newspressnow.com/news/local_news/government/missouri-legislature-addressing-prison-staff-shortage/article_200700dc-a208-11eb-8c15-0f71342c15c4.html
- Schallhorn, K. (2020, May 26). Missouri begins testing all inmates, staff at Corrections facilities. *The Missouri Times*. Retrieved May 10, 2021 from <https://themissouritimes.com/missouri-begins-testing-all-inmates-staff-at-corrections-facilities/>
- Sitter, P. (2020, November 25). Advocates, Missouri Department of Corrections spar over handling of COVID-19. *News Tribune*. Retrieved May 10, 2021 from <https://www.newstribune.com/news/missouri/story/2020/nov/25/advocates-missouri-department-corrections-spar-over-handling-covid-19/850346/>
- Suntrup, J. (2020, August 20). COVID-19 cases in Missouri prison system increase 50% in less than a month. *St. Louis Post-Dispatch*. Retrieved May 11, 2021 from https://www.stltoday.com/lifestyles/health-med-fit/coronavirus/covid-19-cases-in-missouri-prison-system-increase-50-in-less-than-a-month/article_f42cccbd-9f47-5b69-9380-6d2aed8fff81.html
- Texas Commission on Jail Standards. (2021). *TJCS COVID-19 REPORT*. Retrieved May 19, 2021, from https://www.tcjs.state.tx.us/wp-content/uploads/2021/05/TCJS_COVID_Report.pdf
- Texas Department of Criminal Justice. (2021a). COVID-19 Updates. Retrieved May 19, 2021, from <https://txdps.maps.arcgis.com/apps/opsdashboard/index.html#/dce4d7da662945178ad5fbf3981fa35c>
- Texas Department of Criminal Justice. (2021b). *Correctional Managed Health Care Infection Control Policy Manual*. Retrieved May 19, 2021, from https://www.tdcj.texas.gov/divisions/cmhc/infection_control_policy_manual.html
- Texas Department of Criminal Justice. (2021c). *Correctional Managed Health Care Infection Policy Control Manual: Coronavirus Disease 2019 (COVID-19)*. Retrieved May 19, 2021, from https://www.tdcj.texas.gov/divisions/cmhc/docs/cmhc_infection_control_policy_manual/B-14.52.pdf
- Texas Office of the Secretary of State. (2021). *Texas Administrative Code*. Retrieved May 19, 2021 from [https://texreg.sos.state.tx.us/public/readtac\\$ext.ViewTAC?tac_view=2&ti=](https://texreg.sos.state.tx.us/public/readtac$ext.ViewTAC?tac_view=2&ti=)
- WBUR. (2020, August 28). Missouri mass tests prisons for coronavirus. *WBUR*. Retrieved May 11, 2021 from <https://www.wbur.org/hereandnow/2020/08/28/missouri-prisons-covid-19-tests>
- West Virginia Department of Health and Human Resources. (2020). *Coronavirus Disease 2019 (Covid-19) Guidance for Correctional Facilities*. Retrieved May 19, 2020 from https://coronavirus.wvgovstatus.com/COVID19_guidance_correctional_facility.pdf
- West Virginia Department of Health and Human Resources. (2021). *Coronavirus Disease 2019 (COVID-19) > Correctional Facilities*. Retrieved May 19, 2021 from <https://dhhr.wv.gov/COVID-19/Pages/Correctional-Facilities.aspx>
- West Virginia Division of Corrections and Rehabilitation. (2021.) *COVID-19 Response Plan Policy Directive*. Retrieved May 19, 2021 from https://dhhr.wv.gov/COVID-19/Documents/DCR_COVID19%20Response%20Plan_Policy_337-vers2021_02-15_redacted.pdf
- West Virginia Office of the Commissioner. (2020). *Memo Re: Interim Guidance from the Centers for Disease Control and Prevention*. Retrieved May 19, 2021 from https://dhhr.wv.gov/COVID-19/Documents/COVID19_DCR_Jividen%20memo-CDC%20guidance_2020_03-26.pdf
- WGEM. (2020, March 31). Missouri governor provides updates on COVID-19 response. *WGEM*. Retrieved May 10, 2021 from <https://wgem.com/2020/03/31/missouri-governor-provides-updates-on-covid-19-response/>
- 101st General Assembly. (2021). *House Bill No. 15*. Retrieved May 14, 2021 from <https://house.mo.gov/billtracking/bills211/hlrbillspdf/0015H.05T.pdf>



Appendix 3:
The Pandemic Protocol: A Proposal

Respiratory Pandemic Protocol: Divert, Decarcerate, Protect, and Vaccinate

COVID-19 has killed more than half a million people in the U.S. and devastated the economy. Rates of COVID-19 infection and death were higher in correctional facilities than in the general population, and in Missouri, at least, correctional facilities may have increased community case rates. It is incumbent on Missourians to continue protecting our population, including our correctional staff and people residing in our correctional facilities.

It is also incumbent on us to use the lessons of COVID-19 to prepare for the next pandemic. Epidemiologists have suggested that the global community did not adequately learn from two recent coronavirus epidemics prior to COVID-19, SARS emerging in 2002 and MERS in 2012 (Peeri et al. 2020). As the CDC argued *years before* the COVID-19 pandemic, pandemic preparedness is necessary not only for global health but also for national security and the economy (Centers for Disease Control and Prevention 2017). Rather than make the same mistake again, Missouri organizations at all levels should develop adaptable protocols in case of future respiratory pandemics, whether coronaviruses, strains of influenza, or something else.

The general recommendations below are an example of just such an adaptable protocol, intended for use by Missouri's court system, prisons, and jails. The recommendations are divided into four categories: divert, decarcerate, protect, and vaccinate. Each category corresponds to the decision-point in the criminal-legal system at which some actor should intervene to reduce infection risk. *Divert* corresponds to the point where some actor (e.g. a judge, a parole officer) could redirect justice-involved people away from congregate-living facilities like jails or prisons to less infection-conducive environments, such as house arrest or community supervision. *Decarcerate* corresponds to the point where some actor (e.g. a judge, the governor, the parole board) can release incarcerated people from jails or prisons on medical furlough, parole, or some other form of community supervision, and where the Department of Corrections can close below-capacity prisons. *Protect* corresponds to the policies that prison and jail administrators can enact to protect correctional staff and those justice-involved people not removed from congregate living facilities in the previous two steps. Finally, *vaccinate* corresponds to the policies that public health officials and prison and jail administrators can enact to protect correctional staff and people at the point in a pandemic when a vaccine becomes available.

Divert

- **Halt jail admissions for people accused of non-violent crimes.** Instead, release them on their own recognizance or put them under house arrest or electronic monitoring. Reducing jail populations is crucially important to reducing infection risk, both for people detained or employed in jails and for surrounding communities.
- **Halt re-imprisonments for technical violations.** Reducing prison populations is crucially important to reducing infection risk, both for people incarcerated or employed in prisons and for surrounding communities.

Decarcerate

- **Release medically vulnerable individuals on furlough/electronic monitoring.** Who counts as medically vulnerable will depend on the nature of the disease. During the COVID-19 pandemic, medically vulnerable people include but are not limited to people more than 65 years of age and people with conditions that compromise their immune function, such as HIV/AIDS, cancer, or diabetes (Centers for Disease Control and Prevention 2021a).
- **Release individuals near the end of their sentences.**
- **Keep each prison below 85% capacity.** Researchers studying the Texas prison system found lower rates of COVID-19 cases and deaths in those prisons below 85% capacity (Vest et al. 2021).
- **Close prisons.** During the COVID-19 pandemic, Missouri counties with prisons experienced higher case rates than counties without prisons. The correlation between prison presence and higher case rates suggest that prisons are drivers of infectious disease spread in the communities where they are located. As of summer 2020, the Missouri state prison system was at 81.2% capacity (Missouri Department of Corrections 2021). In March 2021, it temporarily closed two prisons due to understaffing (AP News 2021). Missouri DOC should prioritize permanently closing some prisons in Missouri while keeping its remaining prisons below 85% capacity. Closing some prisons would also partially address the problem of understaffing.

Protect

Education

- **Review CDC guidelines related to the pandemic in question.** For example, in the case of COVID-19, administrative staff in charge of any correctional facility's COVID-19 response should personally review the CDC's "Guidance on the Management of Coronavirus Disease 2019 (COVID-19) in Correctional and Detention Facilities" (Centers for Disease Control and Prevention 2021b). The "protect" section of this protocol is a supplement, not a substitute, for CDC guidance on reducing disease transmission in correctional settings.
- **Post and regularly update educational materials about prevention, spread, and treatment in all public areas of each prison or jail.** Materials should include information on symptoms of infection and what correctional staff or incarcerated people should do if they think they may be infected; the definitions and importance of social distancing; and the proper use of personal protective equipment (PPE).
- **Make educational materials readable for all.** Educational materials should be adapted, translated, read aloud, or otherwise made accessible to "non-English speaking individuals and those with low literacy, and [...] those with cognitive or intellectual disabilities and those who are deaf or hard-of-hearing, blind, or have low-vision" (Centers for Disease Control and Prevention 2021b).
- **Provide education and guidance about the disease and the facility's viral containment policies to all staff, incarcerated people, and visitors.**

- Review up-to-date information and guidance with all stakeholders (including incarcerated people, correctional staff, and medical staff) on a published, scheduled basis.

Transparency

- Prisons and jails should make their viral containment manuals and other pandemic-relevant written policies available on their websites. If the facility's manual contains site-specific information relevant to facility security, the facility should redact that information rather than failing to make their manual public.
- Prisons and jails should make case and death counts for staff and resident at each facility available online. Both case and death counts should be disaggregated by staff or resident, by facility, and by race.

PPE, Hygiene, and Social Distancing

- Keep a stockpile of personal protective equipment and masks sufficient for all staff and people incarcerated in Missouri prisons and jails. PPE shortages at the beginning of the COVID-19 pandemic were due in part to failures of stockpiling.
- Immediately distribute and mandate the use of N95s for staff and people incarcerated in prisons and jails. The use of PPE should be mandated, not optional, and the mandate should be enforced.
- Provide soap and hand sanitizer to correctional staff and incarcerated people on a free, as-needed basis (Centers for Disease Control and Prevention 2021b).

- Provide cleaning supplies adequate to the size of the facility and post instructions on when and how to clean. Staff should model and encourage scheduled cleaning behaviors.

- If applicable, repair broken plumbing and address other facility disrepair. Broken toilets and plumbing leaks may be particularly dangerous during infectious disease outbreaks, since some viruses, including COVID-19, can be passed on via contact with the fecal particles of an infected person (Chen et al. 2020).
- Maximize use of available cells and housing units to maximize social distancing. For example, do not house two incarcerated people in a single cell if an empty cell is available.

Testing

- Test all people newly admitted to prison or jail.
- Quarantine those newly admitted to a facility in cohorts.
- Quarantine correctional staff and incarcerated people who are considered close contacts of staff or incarcerated people who test positive.
- Isolate incarcerated people suspected or known to be positive.
- Implement stay-at-home orders for staff known to be positive. Give staff paid sick leave specific to the pandemic; do not require them to use their paid vacation or sick days, even if they appear to have contracted the virus outside of the work environment.

- **Perform routine virus surveillance testing on all correctional staff and people residing in prisons and jails.** When people enter and leave correctional facilities with their infection status unknown, it puts everyone working and residing in the facilities at risk. A bright spot of Missouri DOC's COVID-19 pandemic response was the universal COVID-19 testing it undertook May – August 2020 and its subsequent wastewater testing program. Such testing should be continued for the duration of the COVID-19 pandemic and during any subsequent pandemics as soon as adequate tests become available. Jails should also implement their own surveillance testing programs, in collaboration with local health departments.

Access to Health Services

- **Adjust medical services to meet the needs of people in prisons and jails during the pandemic.** Take steps to ensure prompt evaluation and treatment for people who report possible symptoms of infection.
- **Improve the ability of people in prisons and jails to independently and reliably access health services and decrease barriers to accessing emergent, urgent, and routine care.** If providing people in prisons and jails reliable access to health care requires hiring more staff, more staff should be hired.
- **Do not charge people in prisons and jails co-pays for accessing correctional medical services that are in any way pandemic-related.** Charging co-pays may discourage or prevent people in prisons and jails from seeking pandemic-related medical care.

Policies and Policy Enforcement

- **For each jail and prison, adapt, disseminate, and implement anti-viral policies and procedures specific to the facility.** While CDC recommendations will be generally applicable to each facility, some facilities may have needs and concerns specific to their physical infrastructure, census, or surrounding community. Administrators should adapt policies to reflect additional needs on the ground.
- **Enforce directives requiring staff and people incarcerated in prisons or jails to wear masks.** While the Missouri Department of Corrections has stated that it eventually required general mask-wearing, reports from individual prisons suggested that the requirement was not enforced and some prison staff chose to ignore it.
- **Give correctional staff raises and create a pandemic hazard pay fund.**
 - **Raises:** Public comments from Missouri DOC administrators suggest that MODOC, chronically understaffed even before the pandemic, did not enforce its mask mandate for staff because its prisons would have been dangerously understaffed if noncompliant correctional officers had been fired. Raises for Missouri prison staff, who are paid less than comparable workers in neighboring states, would help attract and retain staff so that MODOC could enforce staff policies more strictly. The supplemental funding for MODOC that passed in May 2021 is not adequate to attract and retain the minimum acceptable number of additional staff.

- **Hazard pay:** As congregate living facilities, correctional facilities are dangerous places to live or work during an infectious disease outbreak. Staff may choose to quit their jobs during a pandemic unless offered incentives to stay. Prisons and jails cannot guarantee safety, regular recreation, prompt trips to medical services, or even on-time meals to the people incarcerated during a pandemic unless the facilities are adequately staffed. To prevent understaffing, which may have contributed to extremely poor conditions within Missouri correctional facilities during COVID-19, correctional staff should receive hazard pay during pandemics.

Vaccinate

- **Vaccinate people in prisons and jails and correctional staff at the same time and as quickly as possible.** In Missouri, correctional officers were eligible for vaccination during Phase 1B – Tier 1. Incarcerated people were not prioritized; unless their age or medical conditions qualified them earlier, they became eligible for vaccination during Phase 3 with the rest of the general population. Vaccinating people in prisons and jails after correctional staff is bad epidemiology. When the reproduction number (R_t) – a mathematical representation of contagiousness – of a disease is high, as it is in a poorly ventilated prison or jail when the majority of residents are not vaccinated, vaccination is less protective for everyone (Paltiel et al. 2020). Protecting correctional staff requires vaccinating people in prisons and jails, and vice versa, to lower the R_t and reduce breakthrough infections. Moreover, vaccinating both people in prisons and jails

and correctional staff as early as possible protects not only them but also the communities in which prisons and jails are located.

- **Disseminate accurate information and pro-vaccine messaging to people in prisons and jails and correctional staff.** Disseminate materials explaining both the individual benefits of vaccination and the social benefits such as herd immunity and protection of social contacts with underlying conditions (Brewer et al. 2018).
- **Make vaccinations for people in prisons and jails and correctional staff opt-out rather than opt-in.** People are more likely to get vaccinated when vaccination is convenient and presented as normative (Betsch, Bohm, and Chapman 2015; Brewer et al. 2018). Thus, in a pandemic where a vaccine is available, correctional facilities should schedule vaccines for residents and staff proactively to make vaccination convenient. Residents and staff would be allowed to reschedule or opt out of vaccination if they desired.
- **Do not charge people in prisons and jails co-pays for any medical services related to vaccination.** Any financial burden may disincentivize vaccination.

Appendix 3.1: The Saint Louis County Jail: A Model for Reform

By Fred Rottnek, MD

The Saint Louis County Jail is located in the Buzz Westfall Justice Center in Clayton, MO. It has a capacity of 1250. This well-maintained facility opened in 1998. The jail has an infirmary with 28 beds—half-medical and half-psychiatric, a medical clinic, and four floors of regular housing—each split into four 2-level pods, with cells on the perimeter of a shared day room.

The jail administrative structure, Justice Services, reports directly to the County Executive. The medical services are provided at the jail and at the juvenile detention facility by the Saint Louis County Department of Public Health (DPH), with contracted family physicians from Saint Louis University. The jail is the only one in the state that is accredited by the American Correctional Association.

An established effective partnership among Justice Services, the DPH, and Saint Louis County Public Works (PW) was enhanced during the early months of the pandemic due to daily meetings and shared decision making. They combined resources and access to vendors for supplies. They also moved swiftly and created processes and protocols to mitigate entrance of the coronavirus into the facility and spread within the facility. Their policies and protocols typically predated CDC guidelines. As the CDC guidelines for correctional facilities evolved, county leaders adjusted their protocols. As a result, at the time of this report, **they have had no one die from COVID-19 in the facility and no one transferred out for higher acuity care at a local hospital.**

From April 2020 through March 2021, out of 8070 tests, 153 were positive—roughly 2%. 58 (38% of all positives) were from an outbreak in October, and 21 (14% of total positives) were from a smaller outbreak in the beginning of March. Saint Louis County's community positivity rate never dropped below 3% during the same time period (Covid Act Now 2021).

While some processes, protocols, and physical enhancement were only possible due to the jail's relatively well-resourced status, many changes were relatively simple and low-cost interventions.

Easy-to-implement enhancements included the following:

- Widespread CDC-authored signage and posters throughout the facility on COVID-19, hygiene practices, and vaccine information.
- Free on-demand soap and other hygiene supplies
- Regular access to cleaning supplies on pods, as well as cleaning schedules, for cells and common areas. In addition to residents cleaning cells, workers cleaned common areas and designated areas such as the infirmary, the medical clinic, the kitchen, and the laundry. Cleaning is scheduled, and inventory lists are used to keep supplies current.
- Provision and exchange of masks to all residents and to all arrestees upon admission to facility
- Strict adherence to mask wearing among all residents and staff
- Initial limitation of one-person only, non-contact visitation

Low-to-no cost changes in processes (changes in housing patterns and administrative processes) allowed decrease in resident census and allowance for cohorting among newly admitted residents and increased social distancing:

- Explicit cohorting processes so that all new detainees are tested and quarantined as appropriate. (Cohorting is a practice to group new detainees by the day they are admitted so they can be monitored for signs and symptoms of infection, tested as a group, and isolated from the general population for either 14 days—without testing—or until the entire cohort is tested and found negative for the virus).
- Staggered dayroom access to allow residents access to dayroom activities—showering, phone use, recreation, and library—so that initially five residents were out of their cells and in their dayroom at a given time. Now one third of the residents in a given housing unit are in common areas at a given time.
- Taking advantage of lower census to spread residents out in the housing units
- Justice Services and DPH leaders meet every week with judges to discuss legal status of residents and housing situations in the jail.
- Judges have established a call schedule so that Justice Services can call regarding need to incarcerate positive or possible positive arrestees as well as arrestees accused of low-level offenses.
- In the first weeks of the pandemic, when PPE was extremely limited, the laundry worker sewed about 1000 masks in about 10 days and then sewed dozens of tie-back gowns for medical use.

Moderate cost changes (requiring changes in staffing or purchase of environmental hygiene products) to mitigate the spread of virus and promote social distancing:

- Screening for all arrestees, visitors, medical and correctional staff, and vendors.
- Assertive surveillance testing, beginning in April 2020, to track entrance and spread of COVID-19 infections in the facility. Currently, all residents are tested in 1-2 days of admission.
- Use of foggers (e.g. VectorFog) on a scheduled basis in high-use areas, medical areas, and when residents move out of cells upon transfer or release (VectorFog 2021).
- Plexiglass barriers were erected in closer proximity areas, e.g., intake medical screening, to reduce exposure to air-borne virus.
- Wall units with hand sanitizer were installed in common areas throughout the facility.

Higher cost interventions (significant changes in staffing patterns, provision of communication tools, and building modifications) to mitigate the spread of coronavirus:

- Use of tablets in the several areas of the jail to allow legal communication, family communication, and other visits and requests
- Use of tablets for uncomplicated/low acuity medical care in a telehealth model so that residents can remain on their pod and not move throughout the facility
- Establishment of evening hours in the medical clinic as well as smaller cohorts of residents per session to allow more social distancing
- Saint Louis County Public Works (PW) implemented several mitigation factors in 2020 related to HVAC and air handling. These were prompted by the October 2020 outbreak and included:
 - Installation of VidaShield lights in the infirmary, the medical clinic, and in the dental clinic. VidaShield lights use ultraviolet light, UV-C, “to reduce bacteria and fungi in the air” (VidaShield 2021).
 - Air filters have been permanently upgraded from MERV-8 to MERV-13 throughout the facility. This allows finer matter to be filtered out of the circulating air.
 - PW is in the process of installing ionization units in all the air handlers. Ionizers emit charged particles to help air filters trap contaminants.
 - The Department of Public Health established a 24/7 Community Liaison role to accept inquiries to the jail and juvenile detention and respond within 2 business days.

As of April 2, 2021, any resident requesting a COVID vaccination can receive one. Vaccination has already been offered to COVID high-risk residents and staff.

References

- AP News. (2021, March 17). Staffing shortages prompt temporary Missouri prison closures. AP. Retrieved May 18, 2021 from <https://apnews.com/article/kansas-city-prisons-st-joseph-missouri-tigers-mens-basketball-fulton-8b46bf068450dac523228b5836d6d542>
- Betsch, C., Bohm, R., & Chapman, G.B. (2015). Using behavioral insights to increase vaccine policy effectiveness. *Policy Insights from the Behavioral and Brain Sciences* 2(1), 61-73. <https://doi.org/10.1177/2372732215600716>
- Brewer, N.T., Chapman, G.B., Rothman, A.J., Leask, J., & Kempke, A. (2018). Increasing vaccination: putting psychological science into action. *Psychological Science in the Public Interest* 18(3), 149-207. <https://doi.org/10.1177/1529100618760521>
- Centers for Disease Control and Prevention. (2017). Why it matters: the pandemic threat. CDC. Retrieved June 11, 2021 from <https://www.cdc.gov/globalhealth/healthprotection/fieldupdates/winter-2017/why-it-matters.html>
- Centers for Disease Control and Prevention (2021a). People with certain medical conditions. CDC. Retrieved June 9, 2021 from <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-with-medical-conditions.html>
- Centers for Disease Control and Prevention (2021b). Interim guidance on management of coronavirus disease 2019 (COVID-19) in correctional and detention facilities. CDC. Retrieved June 9, 2021 from <https://www.cdc.gov/coronavirus/2019-ncov/community/correction-detention/guidance-correctional-detention.html>
- Chen, Y., Chen, L., Deng, Q., Zhang, G., Wu, K., Ni, L., Yang, Y., Liu, B., Wang, W., Wei, C., Yang, J., Ye, G., Cheng, Z. (2020). The presence of SARS-CoV-2 RNA in the feces of COVID-19 patients. *Journal of Medical Virology* 92(7), 833-840. doi:10.1002/jmv.25825.
- Covid Act Now. (2021). St. Louis County, MO. Retrieved May 20, 2021, from https://covidactnow.org/us/missouri-mo/county/st_louis_county/?s=1851768
- Missouri Department of Corrections. (2021). *2020 Profile of the Institutional and Supervised Offender Population*. Retrieved May 7, 2021 from <https://doc.mo.gov/media/pdf/offender-profile-fy-20>.
- Paltiel, A.D., Schwartz, J.L., Zheng, A., & Walensky, R.P. (2020). Clinical outcomes of a COVID-19 vaccine: implementation over efficacy. *Health Affairs* 40(1), 42-52. <https://doi.org/10.1377/hlthaff.2020.02054>
- Peeri, Noah C., Nistha Shrestha, Md Siddikur Rahman, Rafdzah Zaki, Zhengqi Tan, Saana Bibi, Mahdi Baghbanzadeh, Nasrin Aghamohammadi, Wenyi Zhang, & Ubydul Haque. (2020). The SARS, MERS, and novel coronavirus (COVID-19) epidemics, the newest and biggest global health threats: what have we learned? *International Journal of Epidemiology* 49(3), 717 – 726. <https://doi.org/10.1093/ije/dyaa033>
- VectorFog. (2021). Portable ULV fogging machine with 1.5 liter tank. Retrieved May 20, 2021, from <https://www.vectorfog.com/c20-ulv-fogger/>
- Vest, N., Johnson, O., Nowotny, K., & Brinkley-Rubenstein, L. (2021). Prison population reductions and COVID-19: a latent profile analysis synthesizing recent evidence from the Texas state prison system. *Journal of Urban Health* 98, 53-58. <https://doi.org/10.1007/s11524-020-00504-z>
- VidaShield. (2021). VidaShield UV24 – Fast, Continuous UV-C Air Purification. Retrieved May 20, 2021, from <https://www.vidashield.com/>