COVID-19 mitigation strategies for reduced transmission in U.S. prisons

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HIGHLIGHTS

- Prisons have been hotspots during the COVID-19 pandemic.
- Increased transparency on COVID-19 testing, infection, death, and vaccination rates in prisons is needed in order to effectively inform policies to reduce transmission.
- A comprehensive framework which evaluates the availability of data and presence of key policies is needed to hold states accountable and to protect the health of prisoners, staff, and the surrounding communities.

During the global COVID-19 pandemic, prisons have been the center of numerous outbreaks. Current efforts in virus containment have largely failed, due to a lack of standardized guidelines and reporting of key data regarding testing, cases, and deaths within state prisons. This article addresses challenges associated with pandemic management in prisons and policy options to reduce risk to inmates, prison staff, and the communities surrounding prisons. A comprehensive framework for evaluating a state prison's virus management can facilitate improved responses, in particular amongst the rise of more virulent strains and ongoing cases. Such a framework may also serve as guidance in other situations of a similar nature.

The COVID-19 pandemic presents a challenge to public health, causing a loss of human life while exposing flaws in existing health policies [1]. In October 2019, prior to the pandemic, the Johns Hopkins Center for Health Security

published a first-of-its kind study that estimated the pandemic preparedness of all 195 countries using indicators grouped into six main categories: prevention, early detection and reporting, rapid response, health system, compliance with international norms, and risk to biological threats [2]. The U.S. earned an overall Global Health Security index score of 83.5 out of a maximum 100, ranking No. 1 in five of six categories and No. 1 overall [2]. However, now more than one year since the World Health Organization's declaration of the pandemic on March 11, 2020, the U.S. sits within the top five countries with the highest death toll per 100,000 population [3]. A report by Columbia University's National Center for Disease Preparedness compared U.S. policy and death toll to that of six other high-income countries and estimated that the lack of a cohesive public health response to combat the virus led to as many as 210,000 avoidable deaths in the U.S. within the first six months of the pandemic [4]. Response and mitigation strategies to the pandemic differed by state, and even by county, leaving much room for improvement and for more integrated policies. Such considerations are still important in the effort to achieve herd immunity with vaccine distribution, and to continually limit transmission of the virus with other effective prevention and detection methods.

Correctional facilities in particular, including prisons, jails, and juvenile facilities, have been significant hotspots for the spread of COVID-19 in the US, and on a global level, due to overcrowding and movement through facilities [5]. In fact, at one point during late summer of 2020, the top 10 largest COVID-19 clusters in the U.S. were all in correctional facilities [6]. The U.S. criminal justice system holds nearly 2.3 million people nationwide in local jails, state and federal prisons, juvenile correctional facilities, and immigration detention facilities [7]. In 2019, state prisons held over 1.2 million people, more than half of the incarcerated population in the US, and seven times as many people as federal prisons [8]. We therefore focus our article on these state facilities and their responses to mitigating the spread of COVID-19.

Data reported from state prisons show that the carceral world has suffered disproportionately from the COVID-19 pandemic. Through June 2021, a total of 398,627 cases and 2,715 deaths had been reported among incarcerated individuals in the U.S. [9]. Outbreaks of COVID-19 with

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infection rates exceeding 65% in several facilities were observed in select prisons [10]. In Massachusetts, the rate of COVID-19 among incarcerated individuals was nearly three times that of the state's population and five times that of the U.S. rate [11, 12]. Adjusting for age and sex, the death rate in the prison population was three times higher than what was expected for the U.S. population of the same distribution [12].

However, even these data may be incomplete. Information on the conditions and practices within prison facilities is often sparse, unreliable, and offered in multiple formats [13], leading to repeated calls for action from the broader public health and medical communities [14, 15]. The lack of reporting and quality standards for data reported by correctional facilities makes it challenging to understand the extent of the transmission and impact of COVID-19 in the prison system. Effective oversight to ensure the safety and health of prisoners, staff, and the surrounding communities relies on the availability of accurate and meaningful information. Improved reporting systems and requirements are therefore needed to inform response strategies to COVID-19 transmission in state prisons, evaluate correctional facilities' performance in mitigating the virus' spread, and decide on resource allocation to prison facilities.

This article first reviews the dynamic of COVID-19 spread in U.S. state prisons and the policy measures that have been adopted to date, and then outlines the key health measures and data reporting frameworks necessary to contain the spread of COVID-19 in state correctional facilities. In Section I, we identify central problems associated with the spread of COVID-19 in prisons. In Section II, we identify actions which may be effective at reducing risks associated with the spread of the virus. We eventually discuss which mitigation actions would address particular issues and the challenges and benefits associated with their implementation, in an attempt to provide a framework for comprehensive pandemic management and evaluation of COVID-19 in prisons.

I. ISSUES

In the context of a global pandemic, prisons face challenges on multiple fronts, including the health of the prisoners, prison infrastructure and environment, and availability of funding [16]. In this section, we identify key problems associated with spread of COVID-19 in state prisons, and notable policies which have been implemented to address them to date.

1. Prison populations have higher rates of comorbidities or chronic health conditions. When compared to the general public, prison populations have a higher prevalence of infection with human immunodeficiency virus (HIV), methicillin-resistant strains of *Staphylococcus aureus* (MRSA), hepatitis B, hepatitis C, syphilis, gonorrhoea, chlamydia, and tuberculosis (TB). Prisoners are also more likely to suffer from adverse consequences due to the rather high burden of existing non-communicable comorbidities such as asthma, hypertension, diabetes, substance abuse, and other mental health conditions [16, 17]. These conditions put individuals at a higher risk for developing severe complications once infected with the virus.

2. Close living quarters and overcrowding limit ability to social distance. Effective infection prevention protocols, such as minimizing rates of contact via the practice of "social distancing," are difficult if not impossible to comply with given the cramped conditions within prison environments [18].

The Prison Policy Initiative reports at least a dozen states have taken action to reduce population in local jails (which often hold people awaiting trial), with some counties seeing population reductions of almost 50% [19]. This is achieved in a variety of ways, including by reducing bail to \$0 for most misdemeanors (California), releasing those held for low level and/or nonviolent crimes (Maine, New Jersey, Washington, Oregon, Alabama, Texas, Pennsylvania), releasing those with little time (e.g., 60 days) remaining on their sentences, and releasing those deemed vulnerable (e.g., over 55, with preexisting medical conditions). Policy changes for local jails that reduce admissions (e.g., vacating outstanding warrants, changes in policing) are important in reducing "jail churn," a term that describes the high rate at which people enter and leave a jail.

Population reduction, including decongestion and decarceration, strategies have been implemented outside the U.S. as well. The group Harm Reduction International performed an in-depth study and found that 109 countries implemented some form of decongestion measures to mitigate the spread of COVID-19 [20]. They observe the following main measures used: (1) early releases, often through sentence commutation, used in 54 countries, (2) pardons, used in 34 countries, (3) diversion to home arrest, used in 16 countries, and (4) release on bail/parole, used in 8 countries.

3. Ventilation inside prison facilities is poor and mask-wearing is scant. The respiratory droplets generated by an infected person, which may be inhaled by others, are now considered the primary mode of transmission of COVID-19. Cell ventilation in correctional facilities is poor, presenting a higher risk for both inmates and staff to contract the virus [21]. Following an outbreak at California's San Quentin State Prison in June 2020, a team of health experts toured the facility and published an urgent memo reporting their observations and suggesting guidance for immediate actions. The team noted the lack of ventilation in the facility, with windows welded shut, no fans, and shared air moving easily through the bars enclosing the cells [22].

Additionally, as of August 24, 2020, only around half of U.S. states required staff to wear masks [23]. This is an ongoing problem; two inmates brought a civil case against Oregon's Department of Corrections, claiming that they received poor care which put their lives at risk, a petition that centered on the practice of mask-wearing by staff at the facility. The case was heard in February of 2021, and a state judge ordered that the Department provide proof and documentation as to how the facility enforces mask-wearing. Research asserts that wearing masks is highly effective in preventing transmission, preventing both receiving and spreading of viral particles.

Further, only 15 states require prisoners to wear masks.

4. Proper sanitation is often lacking. Although the risk of transmission via infected surfaces is considered to be low, prisons face sanitation challenges which may contribute to the spread of COVID-19 [24]. For example, open toilets, shared showers, and lack of access to sanitary products can potentially lead to increased transmission. Current policies in some state facilities require that prisoners buy hygiene packets, and thus have restricted access to soap [25]

5. Correctional facilities are often underfunded and understaffed. All fifty states in the U.S. have reported prison staffing shortages since 2017, a problem that persists today and is exacerbated by the global pandemic [26]. Fewer correctional staff are available to provide medical care, mitigate violence, and rehabilitate inmates. Further, existing staff are forced to work long hours and many overtime shifts. There has also been a constrained supply of personal protective equipment for inmates and staff alike where masks and other personal protective equipment (PPE) were only provided in case there were sufficient supplies. [27]–[29].

6. Correctional facilities have poor testing protocols and lacked transparency in data reporting. While the majority of states make basic information available, such as the cumulative number of cases and deaths among the prisoner population, a number of states are missing key info [?]. For example, over half of state prison agencies fail to report the number of staff deaths from COVID-19. Three states, Arkansas, Illinois, and Mississippi, still do not report the number of COVID-19 deaths of prisoners. One of these states, Mississippi, reported a significant number of deaths in 2020, but refused to disclose how many deaths were due to COVID-19 [?, 30]. The state is currently under federal investigation, conducted under the Civil Rights of Institutionalized Persons Act (CRIPA), due to the alarmingly high number of reported deaths in early 2020 [31]. Thirteen states do not report the number of tests administered in prisons.

The Prison Policy Initiative and ACLU has developed one methodology of evaluating state actions to prevent the spread of COVID-19 in jails and prisons [32]. In this methodology, states earn points based on the availability of public case data, testing practices, and population reduction actions among other metrics, leading to a composite letter-grade score. As of February 2021, all states earned a failing grade.

7. Prison outbreaks pose a threat to surrounding communities. Prisons also present an increased risk to act as a hot-spot for the spread of the infection not only within the prison but also across the surrounding communities once prisoners are released or when members of the community are in close contact with the prison staff [33]. According to a recent study by the Prison Policy Initiative, prisons contributed to an additional half million cases between May and August 2020 [34].

8. Vaccination rates in some prisons lags behind that of the general population. No uniform strategy has been

adopted for prison inmates and vaccination guidelines are defined on a state-by-state basis [35]. Following the American Medical Association's and National Academies' calls for action [36, 37] and the National CDC vaccination guidelines of December 2020 recommending placing inmates as priority vaccine recipients, 20 U.S. States had prioritized inmates as Phase 1 vaccine recipients as of February 2021 [38]. Several U.S. States — Indiana, Maryland, Nebraska, New Hampshire, Ohio and Rhode Island — have limited inmates' eligibility to those concurrently falling under other priority categories [38].

II. ACTIONS

There are many potential protocols that can be implemented to reduce the spread of COVID-19 to and within prisons. We first identify key data related to monitoring COVID-19 transmission, testing, and fatality, and then outline key pandemic response practices and the extent to which they are currently implemented.

A. Implement data reporting mandates. Mandated data reporting and compliance legislation will improve transparency and enable subsequent data-driven improvements in COVID-19 pandemic management in the correctional system.

A number of initiatives, ranging from non-profit journalism projects to reports by academic institutions, evaluate and advocate for transparency in the reporting of key COVID-19 data by correctional facilities. Key metrics include number of cases among staff, number of cases among prisoners, number of tests administered, number of staff COVID-19 deaths, number of prisoner COVID-19 deaths, and, more recently, number of vaccines administered. A testing reporting mandate may also specify the frequency at which tests should be administered in a correction facility.

B. Reduce prison population. Overcrowding in correctional facilities leads to higher rates of contact and transmission of COVID-19.

Although actions are being taken at the local level, the Prison Policy Initiative report that only a handful of states have taken steps toward population reduction in state prisons. A careful analysis of the effectiveness of state prison population reduction strategies will be key in reducing spread among prisoners.

C. Implement mask-wearing mandates. Policies which mandate mask-wearing are important, however the enforcement and implementation of these policies will dictate whether reduction in transmission is realized. These requirements would need to be accompanied by mask procurement distribution methods for a given facility.

D. Increase access to hygiene products. Washing of hands is strongly recommended to reduce risk of contracting COVID-19. Therefore, soap is a key element of effective virus management. During a pandemic, structures and practices which are directly related to health and safety of inmates should be carefully considered.

E. Design careful isolation procedures for prisoners.

Quarantining is a well-known measure to prevent spread of COVID-19. However, it is important to consider how this practice is carried out, and the potential incentives that may accompany it. For example, if an inmate is confirmed to have COVID-19 and is sent to solitary confinement, they may be confined to their cells for as much as 22 hours per day. During the first COVID-19 peak in April 2020, there was a 500% spike in solitary confinement. Therefore, prisoners may refuse testing or be reluctant to seek treatment out of fear of "punative" isolation, and such mitigation might in fact lead to increased transmission instead [39].

F. Prioritize vaccine distribution. The early vaccination of the prison population and prison workers would have also contributed to a slowdown in COVID-19 transmission in and outside prison facilities. In practice, while prison staff usually qualified in states' vaccination plans for early vaccination as front-line workers [38], vaccines have experienced limited traction among prison guards [40]–[42].

U.S. States could therefore work on greater coordination among vaccination plans and define both prison workers and inmates as priority vaccine recipients under Phase 1 of each state's vaccination plan. Additional measures such as pay raise, bonuses, or additional benefits may also prove useful to increase vaccination rate among prison workers.

G. Adopt a composite scoring system. Scoring and rating systems have been adapted extensively in fields such as medicine and education [43,44]. This gamification strategy has led to the extrinsic motivation of improvements in those industries who seek to improve their scores. When further paired with positive and negative reinforcement strategies, further improvements can be elicited. Evaluating a state on overall transparency and pandemic response can be done by considering the practices and availability of key COVID-19 data jointly. This would require explicit definition of evaluation criteria and a robust weighting of particular measures over others. Further, states would benefit most from such a comprehensive evaluation if it is clear where action is needed, thus presenting a need for comprehensible reports and overall effective communication of such an evaluation.

III. CONCLUSIONS

It is important to consider potential mitigation actions and the extent to which they address issues, the feasibility or effort involved in their implementation or enforcement, and the timeline of action. Decarceration stands as one of the mitigation measures with the highest potential for impact, alleviating nearly all of the issues associated with risk of COVID-19 transmission in prisons. However, it is an issue that may encounter several bureaucratic and political barriers, and may not be fully realized in practice. Requiring that correctional facilities provide information on the transmission inside their facility is a crucial step to understanding the conditions which prisoners and correctional staff face. With the nationwide rollout of the vaccine, it is important that careful consideration is granted to prisoners given the role

that prison institutions play in spreading the virus. A careful and comprehensive evaluation of the protocols can allow successful mitigation of the spread of COVID-19 in prisons.

Citation

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