Transferring COVID-19 High-Risk Patients to Safer Housing
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Introduction

We are now into the eighth month of the COVID-19 pandemic. Responding to the pandemic remains the highest priority for both the California Department of Corrections and Rehabilitation ("CDCR") and California Correctional Health Care Services ("CCHCS"). Since early 2020, we have implemented unprecedented organizational changes to respond to COVID-19 while also facing global Personal Protective Equipment ("PPE") shortages and testing delays. Over the course of the last several months, CDCR and CCHCS, in collaboration and after regularly consulting with public health experts including the California Department of Public Health ("CDPH"), have revised operational practices, implemented regular statewide testing of staff and patients, taken initial steps to de-populate dorms, provided educational programs for staff, implemented gate screening, mandated use of face coverings, aggressively distributed and required use of PPE, provided cleaning supplies and hand sanitizer, and created complex movement guidelines to minimize the risk of spread. Additional information can be found on the COVID-19 Preparedness website (https://www.cdcr.ca.gov/covid19/) and in the Receiver's Forty-fifth Tri-Annual Report filed with the Court on October 1, 2020 (https://cchcs.ca.gov/wp-content/uploads/sites/60/TR/T45_20201001_TriAnnualReport.pdf).

From a systemwide perspective, CDCR's population has experienced a COVID-19 positive case rate and death rate that is similar to what other prisons around the country have experienced. But we can do better. Because of the risk of greater morbidity and mortality to patients with certain defined COVID-19 risk factors (most importantly, age), throughout the pandemic, we have paid special attention to measures to reduce risks to this population. We now have actual data based on CDCR's own experience with COVID-19, and that data, combined with the recent determination by the Centers for Disease Control and Prevention ("CDC") that COVID-19 can spread by aerosolization, strongly points to a single conclusion:

> Dorm and open-cell-front housing poses particularly high risks of morbidity and mortality to our patients with COVID-19 risk-factors.

This conclusion drives an urgent search for additional steps that would reduce or eliminate those particularly high risks to those patients. We recommend that CDCR extend an offer to the over 8,200 patients with COVID-19 risk scores of 3 and above[1] who are currently housed in dorms or open-cell-front housing the opportunity to transfer into closed-front cells either at their existing institution or at another institution.

[1] Based upon our data and CDC guidelines, we developed a tool for assigning each patient a "COVID-19 risk score" which represents that individual's risk for having serious illness or death if they become infected with COVID-19.

Status Report on CDCR's COVID-19 Cases and Deaths

Prisons and jails have not been designed, built or operated with consideration of the risks posed by communicable diseases. As noted over a decade ago by CCHCS's Statewide Medical Executive, Dr. Joseph Bick, "most jails and prisons were constructed to maximize public safety, not to minimize the transmission of disease or to efficiently deliver health care." Joseph A. Bick, M.D., "Infection Control in Jails and Prisons," 45 Clinical Infectious Diseases 1047-1055 (Oxford Academic 2007).

Faced with the COVID-19 pandemic, a particularly dangerous and rapidly spreading infectious disease, prisons have struggled to protect their patients. CDCR's experience with COVID-19 is similar to the experience of prisons and other congregate living environments around the country (e.g., skilled nursing facilities, shelters, and cruise ships). Focusing on the federal prison system and the ten largest state prison systems, CDCR has had a larger number of cases per capita than most, but a lower number of deaths per capita than most. The following two tables are based on data reported by The Marshall Project's "State by State Look at Coronavirus in Prisons" as of October 10, 2020 (https://www.themarshallproject.org/2020/05/01/a-state-by-state-look-at-coronavirus-in-prisons):[2]

State (numeric ranking of largest prison systems)	**Cases**	**Per 10,000**
Florida (#3)	16428	1942
Texas (#1)	23065	1904
Michigan (#10)	5572	1612
California (#2)	**14870**	**1528**
Ohio (#5)	6499	1443
Federal Prisons	16012	1086
Arizona (#9)	2599	659
Illinois (#8)	1846	591
Georgia (#4)	1917	385
New York (#6)	791	213
Pennsylvania (#7)	469	109

Table 1. Cases in Federal and Top Ten State Prisons

[2] The per capita calculations for California in these tables is based upon an assumed population of 97,317. According to the Project's website, its population numbers were updated as of July 28, 2020. In California, there had, by that time, been a substantial reduction in CDCR's population. During the early months of the pandemic, CDCR's population was much larger (e.g., its population in March was over 120,000). Because of the difference between the population number used by the Project and CDCR's generally higher population numbers during much of the pandemic, the per capita rates for California listed in Tables 1 and 2 are slightly overstated.

State (numeric ranking of largest prison systems)	Deaths	Per 10,000
Ohio (#5)	100	22
Michigan (#10)	73	21
Florida (#3)	141	17
Georgia (#4)	69	14
Texas (#1)	161	13
Federal Prisons	134	9
California (#2)	**69**	**7**
Arizona (#9)	28	7
New York (#6)	17	5
Pennsylvania (#7)	11	3
Illinois (#8)	22	n/a

Table 2. Deaths in Federal and Top Ten State Prisons

It is much more difficult to compare cases and deaths in prisons with how COVID-19 has affected the general public in California, the United States or any other possibly relevant geographic unit. One of many methodological challenges in making such comparisons is that the number of cases and deaths in the prisons tends to be much more precise than the number of cases and deaths reported in the free world. For example, it is generally agreed that the number of reported COVID-19 confirmed cases in the United States substantially undercounts the number of actual COVID-19 cases. This is because, among other things, testing for COVID-19 has not been as widespread as it would need to be to count the actual number of cases. For example, according to CDCR's COVID-19 Tracker, there have been 340.2 tests per 1,000 persons in the United States. This means that two-thirds of the population in the United States has not had a COVID-19 test. By contrast, CDCR has tested 800.3 per 1,000 of its patients, making CDCR's count of cases much closer to the true number. A number of studies have concluded that it is likely there are *at least* 6 times more COVID-19 cases in the United States than have been reported (the range of underreporting goes from 6 to 24 times). *See, e.g.*, "Seroprevalence of Antibodies to SARS-CoV-2 in 10 Sites in the United States, March 23 – May 12, 2020," JAMA Internal Med. (July 21, 2020) (doi:10.1001/jamainternmed.2020.4130). The State of California has done a little more testing per 1,000 persons than the United States, but its testing rate of 395.4 per 1,000 also suggests that its reported count of COVID-19 cases is likely to be low.

The following table, Table 3, depicts the COVID-19 case rate for CDCR, the United States, California and Los Angeles. To account for the likely undercount of cases in the United States, California and Los Angeles County, the second column reports an unadjusted case rate based on the cases being currently reported, and the third column reports a case rate adjusted by

multiplying the case rate in the second column by 6, the lowest multiplier suggested by the undercount studies cited above:[3]

	Case Rate (unadj) per 100,000	Case Rate (6x adj) per 100,000
CDCR	13,944	Not Applicable
United States	2,344	14,063
California	2,133	12,798
Los Angeles County	2,710	16,264

Table 3. Case Rates in CDCR, the United States, California and Los Angeles.

A similar problem exists with respect to the reported number of deaths from COVID-19. Because CDCR's population is so much smaller than the United States or California, and because we actually monitor the condition of each patient in CDCR, the number of deaths CDCR reports from COVID-19 is likely to be more accurate than the death rates reported for the United States and California. The magnitude of the undercount in free world reports is not as well studied as the undercount in cases, making it nearly impossible to adjust free world death rates to account for the likely undercount.

There is a second methodological problem in trying to compare CDCR COVID-19 death rates with free world COVID-19 death rates. The rate of COVID-19 deaths is highly dependent upon age with well over 70% of deaths occurring in persons age 65 and older, and the age distribution of patients within CDCR does not match the age distribution of free world populations. In general, CDCR's population is slightly younger. Absent an adjustment to match the age distribution of CDCR's population to the age distribution of free world populations, the effective rate of CDCR COVID-19 deaths will be lower than if an age adjustment is made.

A third methodological problem is that it is generally recognized that persons who live for lengthy periods of time in prison tend, in terms of their health, to age more quickly than persons who are not in prison. A person who has been living in prison for decades and who has reached age 50 and above is likely to have an effective age anywhere from 5 to 10 years higher than their actual age. Whether this general tendency applies to the risk of death from COVID-19 is unknown at this time making any age adjustment of death rates even more problematic.

Given the uncertainties described above, Table 4 depicts the COVID-19 death rate for CDCR, the United States, California and Los Angeles County without making any adjustment for actual or effective age, or for the likely undercount of free world deaths. Because of the methodological challenges in comparing CDCR's death rate with free world death rates, the numbers in Table 4 should be viewed with extreme caution:

[3] The rates reported in Tables 3, 4, and 5 are calculated using a CDCR population number of 108,387 which is equal to the average of the monthly population during the pandemic.

	Death Rate per 100,000
CDCR	64
United States	65
California	42
Los Angeles County	65

Table 4. Death Rates in CDCR, the United States, California and Los Angeles.

It is not surprising that CDCR's case and death rates would be somewhat similar to the rates experienced in the state and in the country. Prisons are not hermetically sealed. Tens of thousands of employees and contractors enter CDCR institutions from their communities every day, hundreds of patients are transferred from one institution to another each week, and scores of patients are sent out to or return from court and local hospitals every month. CDCR's prisons are part of the community for COVID-19 purposes.

Discussion of COVID-19 in Dorms and Open-Cell-Front Housing

The data above is based on the cumulative number of cases and deaths throughout the CDCR system. However, we have more granular data for each institution which shows that dorm housing used at institutions throughout CDCR and open-cell-front housing used at San Quentin State Prison and Folsom State Prison pose a significantly higher risk to our patients than closed-cell-front housing.[4] The disparity in risk is so great that it demands focus on the housing assignments for our COVID-19 high-risk patients.

As of October 10, 2020, 69 patients in CDCR custody have died from COVID-19-associated illnesses. Eighty-four percent (84%) of those 69 deaths had a COVID-19 risk score of 3 or above at the time of death, and there has been only one patient with a risk score of 0 who has died from COVID-19. Table 5 depicts the number of deaths and death rates by COVID-19 risk score:

[4] There actually are a number of different dorm designs used within CDCR that are likely to have materially different COVID-19 spread risks: e.g., 270 Dorms, E-Dorms, Cross-Top Dorms, and Small 4-8 Man Dorms with Closed Doors. Further analysis and discussion may conclude that closed-door, small dorms are an appropriate alternative to residing in a large dorm with shared air space. However, for purposes of this paper, all dorm types have been grouped together in a single "dorm" category. If it is ultimately determined that the 4-8 man dorms are reasonably safe housing for the COVID-19 high-risk population, a significant number of patients will not require relocation since there appear to be approximately 3,475 COVID-19 high-risk patients currently living in such housing.

COVID-19 Risk Score	Deaths	Patient Count with Score	Death Rate per 1,000
0	1	43987	0.023
1	3	25817	0.116
2	7	11779	0.594
3	10	5954	1.679
4	4	3145	1.272
5	6	1962	3.058
6	7	1628	4.300
7	6	1322	4.539
8	10	1025	9.756
9	5	637	7.849
10 to 17	10	1097	9.116
Grand Total	69	98353	0.702

Table 5. Deaths and Death Rates by COVID-19 Risk Score.

For purposes of further analysis, "COVID-19 high-risk patients" refers to all patients with a COVID-19 risk score of 3 and above. This threshold has been chosen primarily because, as depicted in Table 5, there is a substantial increase in the death rate from risk score 2 to risk score 3, and the death rate beginning at risk score 3 and above is higher than the overall death rate for the entire population

An analysis of the housing location of all COVID-19 patients who have died highlights dorm and open-cell-front housing as being particularly problematic to our COVID-19 high-risk patients. Eighty-one percent (81%) of the 69 deaths acquired COVID-19 while living in a dorm or open-cell-front housing unit.

In addition, it is noteworthy that the six largest outbreaks in CDCR institutions – outbreaks resulting in more than 1,000 confirmed COVID-19 patients – have all been in institutions that predominately house patients in common airspace, dorm and open-cell-front housing units:

Prison	Total cases (as of 10/20/2020)	Prison Population (as of 10/14/2020)	Percent of population testing COVID-19 positive[5]
Avenal State Prison	2938	3514	83%
San Quentin Prison	2239	2898	77%
Cuckawalla Valley State Prison	1397	1940	72%
California Rehabilitation Center	1624	2316	70%
California Institution for Men	1403	2265	62%
Folsom State Prison	1339	2229	60%

Table 6. COVID-19 Cases at Institutions with Six Largest Outbreaks

Two additional prisons, California Conservation Center (CCC) and California Correctional Institution (CCI) also sustained major outbreaks, with 661 and 845 cases, respectively. In both institutions, the outbreaks occurred primarily in the areas of the institutions where patients live in dorms as opposed to closed-cell-front housing. As a general matter, outbreaks at prisons which house patients primarily in closed-cell-front spaces have been much more successful in containing the size of outbreaks. A study by Amend and the Berkeley School of Public Health commissioned by the Receiver of the outbreak at California Men's Colony confirms the conclusion that COVID-19 outbreaks are easier to manage successfully in celled housing units with solid doors than in open air dorms which are "primed for super-spreader events." *See* Drew Cameron, Catherine Duarte, Ada Kwan, Sandra McCoy, with Brie Williams and Stefano Bertozzi, *Evaluation of the April-May 2020 COVID-19 Outbreak at California Men's Colony* (July 20, 2020) (https://amend.us/wp-content/uploads/2020/07/CMC_Report_20200720.pdf).

Dorms and open-cell-front housing are more dangerous than closed-door cells because, as very recently confirmed by the CDC, transmission of COVID-19 occurs both through droplets and through aerosolization. Early on in the pandemic, it was believed that transmission occurred only through droplets which supported putting the social distancing requirement at 6 feet (since droplets can only rarely travel more than 6 feet from the source) and not being as concerned about situations where aerosol spread might occur. In response to that understanding, CDCR made efforts to depopulate enough dorm space so that there was 6-feet of distance between groups of 8.

As the world's experience with the pandemic progressed, it increasingly became clearer that transmission was occurring through aerosolization in addition to droplet spread. Pathogens that spread via aerosolization can travel in air currents over greater distances and remain in the air for longer periods of time as opposed to large droplets which rapidly fall to the ground within

[5] These percentages do not take into account movement into and out of the listed prisons. However, since movement has been severely restricted during the pandemic, the percentages are very close estimates.

approximately six feet. As a result, aerosolized organisms result in an increased risk of transmission in closed rooms and spaces where the virus can infect people who are more than 6 feet from an original source.

The fact of spread by aerosolization makes dorms and open-cell-front housing substantially more problematic in terms of the speed and extent of COVID-19 spread among our patients than closed-cell-front housing. COVID-19 high-risk patients, who are at a much higher risk of morbidity and mortality, should not be housed in dorms or open-cell-front housing.

Table 7 depicts the distribution of COVID-19 high-risk patients (i.e., those with COVID-19 risk scores of 3 and above) in dorm, open-cell-front and closed-cell-front housing:

Housing Type	Number of Patients with COVID-19 Risk Score of 3 and Above
Dorm	6,916
Open-cell-front	1,357
Closed-cell-front	8,420
Total	16,693

Table 7. Housing of COVID-19 High-Risk Patients

In summary, about fifty percent (50%) of the COVID-19 high-risk population remain in the most problematic housing for the transmission of COVID-19. Strategies for reducing these risks include:

- Consideration for release from CDCR of COVID-19 high-risk patients in problematic housing;
- Inter-institution transfer of COVID-19 high-risk patients from dorms and open-cell-front housing to closed-cell-front housing;
- Intra-institution transfer of COVID-19 high-risk patients from dorms and open-cell-front housing to closed-cell-front housing; and,
- Adding housing capacity at select prisons in the form of small tents to further depopulate dorms and open-cell-front housing (certainly not as effective as closed-cell-front housing, but better than large dorms and large open-cell-front housing).

CDCR has already reviewed and considered for release thousands of COVID-19 high-risk patients; a small number of those patients have been released. Consideration for release of COVID-19 high-risk patients in high-risk housing should continue.

If all of the COVID-19 high-risk patients currently in dorms and open-cell-front housing were moved into small tents, it would require some 800 10-person tents to be installed throughout the CDCR system. This number of tents would pose substantial resource and operational challenges, even if that number of tents was readily available. At select institutions, however, installation of 10-person tents may result in a marginal improvement in risk, but this should be a last resort employed only if no other solution is possible because small tents are certainly not as effective as closed-cell-front housing.

The transfer of COVID-19 high-risk patients from dorms and open-cell-front housing to closed-cell-front housing, either by intra-institution transfer or inter-institution transfer, may be feasible on a large enough scale to significantly reduce the risk of COVID-19 to our high-risk patients. As explained in footnote 4 above, further analysis is necessary to determine whether the almost 3,500 patients currently housed in 4-8 man dorms are safe enough in their current housing.

Transferring large numbers of patients within institutions or, particularly, between institutions is not a risk-free endeavor. Much more stringent movement requirements were adopted after the movement of high-risk patients from CIM to Corcoran and San Quentin in May (e.g., pre-transfer quarantine and testing, and post-transfer quarantine and testing). However, no matter what protections are placed around inter-institution transfers, there is a risk that the transfer of large numbers of patients between institutions might itself trigger further COVID-19 spread, particularly at the receiving institution. On the other hand, CDCR is currently transferring hundreds of patients per week between institutions without incident, so the risks associated with transfer already exist within CDCR's system, and the marginal increase in risk of transfers associated with a program to transfer patients from dorms and open-cell-front housing to close-cell-front housing appears to be outweighed by the benefit to patients of offering such a move.

CDCR has already offered intra-institution transfers to several hundred COVID-19 high-risk patients with COVID-19 risk scores of 11 and above, so we have some experience with this type of program. Where it has been tried, a significant percentage of patients has refused the transfer offer. For example, of the 123 patients recently offered such a move, only 19 accepted the offer, an acceptance rate of fifteen percent (15%). Because these moves are intended primarily to benefit the patient, we have respected the patients' decisions to remain in their existing housing. Additional efforts should be employed to encourage high-risk patients to accept transfer to safer housing.

It should be noted that a transfer program of this magnitude cannot occur without close coordination with the *Coleman* Court and its Special Master to ensure appropriate protection of the interests of patients within the mental health program and coordination with the *Armstrong* Court and its Court Expert to ensure appropriate protection of patients with disabilities. The Receiver looks forward to working with the *Coleman* Special Master and the *Armstrong* Court Expert as this transfer program moves forward.

Conclusion

Now is a particularly good time to implement this initiative. As of October 21, 2020, the number of currently active COVID-19 cases throughout CDCR is 477, the lowest number of cases since mid-May. Before case numbers begin rising again during the coming winter months, we should rehouse our high-risk patients in safer settings.

Based on the above analysis, we conclude that CDCR should offer to every patient with a COVID-19 risk score of 3 and above who is currently housed in a dorm setting or in open-cell-front housing, the option of being transferred to closed-cell-front housing either at their existing institution or at some other institution.