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COVID-19 Cases Among Employees of U.S. Federal and State Prisons



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Introduction: Previous research has found COVID-19 cases to be disproportionately prevalent among U.S. prisoners. Similar to prisoners, prison staff experience ventilation and social distancing hazards and may have limited access to testing, paid sick leave, personal protective equipment, and other workplace protections. Yet, systematic case surveillance among prison staff remains unexplored. The objective of this study is to document the trends in COVID-19 cases among U.S. correctional staff relative to those among prisoners and the U.S. population.

Methods: Reports of COVID-19 cases among prisoners and staff were collected from state Departments of Corrections and the Federal Bureau of Prisons from March 31, 2020 to November 4, 2020. In November 2020, this series of aggregated case records was linked to population estimates to calculate COVID-19 period prevalence among prison staff and residents in comparison with the U.S. population trends.

Results: Within the prison environment, COVID-19 case burden was initially higher among staff than among prisoners in 89% of jurisdictions. Case prevalence escalated more quickly among prisoners but has remained persistently high among staff. By November 4, 2020, COVID-19 was 3.2 times more prevalent among prison staff than among the U.S. population.

Conclusions: Prison staff experienced substantially higher COVID-19 case prevalence than the U.S. population overall. Across prison staff and resident populations, cases were rapidly rising in November 2020, indicating poor outbreak containment within the prison environment. An Emergency Temporary Standard, issued by federal and state Occupational Safety and Health Administrations, and priority vaccination are urgently needed to reduce COVID-19 occupational risk. Reduced occupational transmission of COVID-19 will benefit workers, incarcerated people, and community members alike.

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INTRODUCTION

The novel coronavirus disease 2019 (COVID-19) pandemic represents an unprecedented occupational hazard to employees of state and federal prisons in the U.S. Prison employees (including corrections officers, administrators, healthcare providers, and others) have experienced obligatory social contact throughout the pandemic. The context of these interactions, the prison environment, is often defined by high social density, indoor activity, limited supply of disinfectant and personal protective equipment, poor ventilation, and understaffing leading to long work hours and

prolonged workplace exposures.¹ Without proper mitigation strategies, these factors increase the occupational risk for disease transmission.²

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Previous research has described COVID-19 cases among prisoners and staff,³ disproportionate case and death rates among prisoners,⁴ and work-related risk factors,⁵ but systematic case surveillance among staff remains unexplored. The objective of this study is to document the trends in COVID-19 cases among correctional staff through early November 2020 and compare these trends to those of residents of U.S. prisons and the U.S. population.

METHODS

From March 31, 2020 to November 4, 2020, the UCLA Law COVID-19 Behind Bars Data Project extracted COVID-19 case counts from publicly available reports and press releases, typically updated daily, from the Federal Bureau of Prisons (BOP) and Departments of Corrections in all states and the District of Columbia. For this analysis, facility-level data were aggregated to states.

To calculate period prevalence, staff and prisoner populations were estimated using the most recent reports available from Departments of Corrections and the Federal BOP as of November 2020. For 38 states, the District of Columbia, and the federal system, current year (2020) counts were used. In the remaining 12 states, 2019 data were used. Nonresidential participants in parole and community-based supervisory programs were excluded.

To estimate employee population size, Department of Corrections and Federal BOP annual reports, press releases, approved budgets, and online descriptions were triangulated, as available. Data for 21 states, the District of Columbia, and the Federal BOP were current to 2020. In 21 states, data were current to 2019. A total of 5 states reflected 2015–2018 staffing.

Ultimately, 5 states were excluded from the analysis: 3 (Hawaii, North Carolina, and North Dakota) did not report cases for staff during most of the study period, Hawaii and Utah did not report employee population size, and Virginia's mechanism of staff case reporting did not allow for calculation of cumulative cases. For the remaining jurisdictions, population prevalence was calculated using COVID-19 case counts from the Johns Hopkins Coronavirus Resource Center and 2019 U.S. Census Bureau estimates.

For all populations, the period prevalence was calculated using cumulatively reported current, recovered, and decedent cases. To examine national trends, staff, prisoner, and population prevalence were plotted over time. A human subjects research waiver was granted by Johns Hopkins University IRB owing to the study's exclusive use of aggregated public data.

RESULTS

Throughout the study period, staff case prevalence was persistently 3–5 times higher than the U.S. population prevalence (Figure 1). On average, case prevalence grew daily by 42 cases per 100,000 employees, compared with 61 cases per 100,000 prisoners and 13 cases per 100,000 U.S. residents. Initially, from March 31, 2020 to May 5, 2020, case prevalence among staff

increased at a mean daily rate of 40 new cases per 100,000 employees. From May 5, 2020 to June 26, 2020, reported daily prevalence among staff slowed to 21 new cases per 100,000 employees before accelerating to an average of 52 new cases per 100,000 employees from June 26, 2020 to November 4, 2020. Among U.S. resident and prisoner populations, case prevalence was less variable, increasing most rapidly among prisoners once cases were detected.

The COVID-19 case prevalence was initially greater among staff than among prisoners in 89% of prison systems ($n=42$) (Figure 2). On May 5, 2020, staff and prisoner prevalence were comparable, with 17,590 cumulative cases among prisoners (1,477 per 100,000) and 5,674 cumulative cases among staff (1,469 per 100,000). On November 4, 2020, the national COVID-19 period prevalence among prison staff was 9,316 cases per 100,000 employees, 3.2 times greater than the U.S. population prevalence (2,900 cases per 100,000) and 30% lower than the U.S. incarcerated population prevalence (13,384 cases per 100,000). Across all included prison systems, 9% of prison staff had experienced confirmed cases of COVID-19 by November 4, 2020.

DISCUSSION

This study found that in early November 2020, COVID-19 confirmed case histories were 3.2 times more common among U.S. prison staff than among U.S. residents. These findings are consistent with data independently collected by other research teams.⁶ Within the prison environment, COVID-19 case prevalence was initially higher among staff than among prisoners, but by November 4, cumulative case prevalence among prisoners had risen to 1.4 times that of staff. This analysis suggests that staff surveillance is critical to the prompt detection of COVID-19 in prisons. It additionally provides an early indication of the potential magnitude of COVID-19 disease burden across all occupants of the prison environment.

Limitations

Some limitations should be considered. First, only prisons were examined; findings may not generalize to jails or other detention facilities owing to differences in population turnover, population density, and other distinctions. Second, testing protocols vary nationally and across the 3 examined populations. Some states (e.g., New Jersey, Vermont) reported universal testing of prisoners and staff. Elsewhere, reliance on community-based testing, lack of employer reimbursement for out-of-pocket expenses, or incomplete self-reporting of results may have weakened staff surveillance.³ Alternatively,

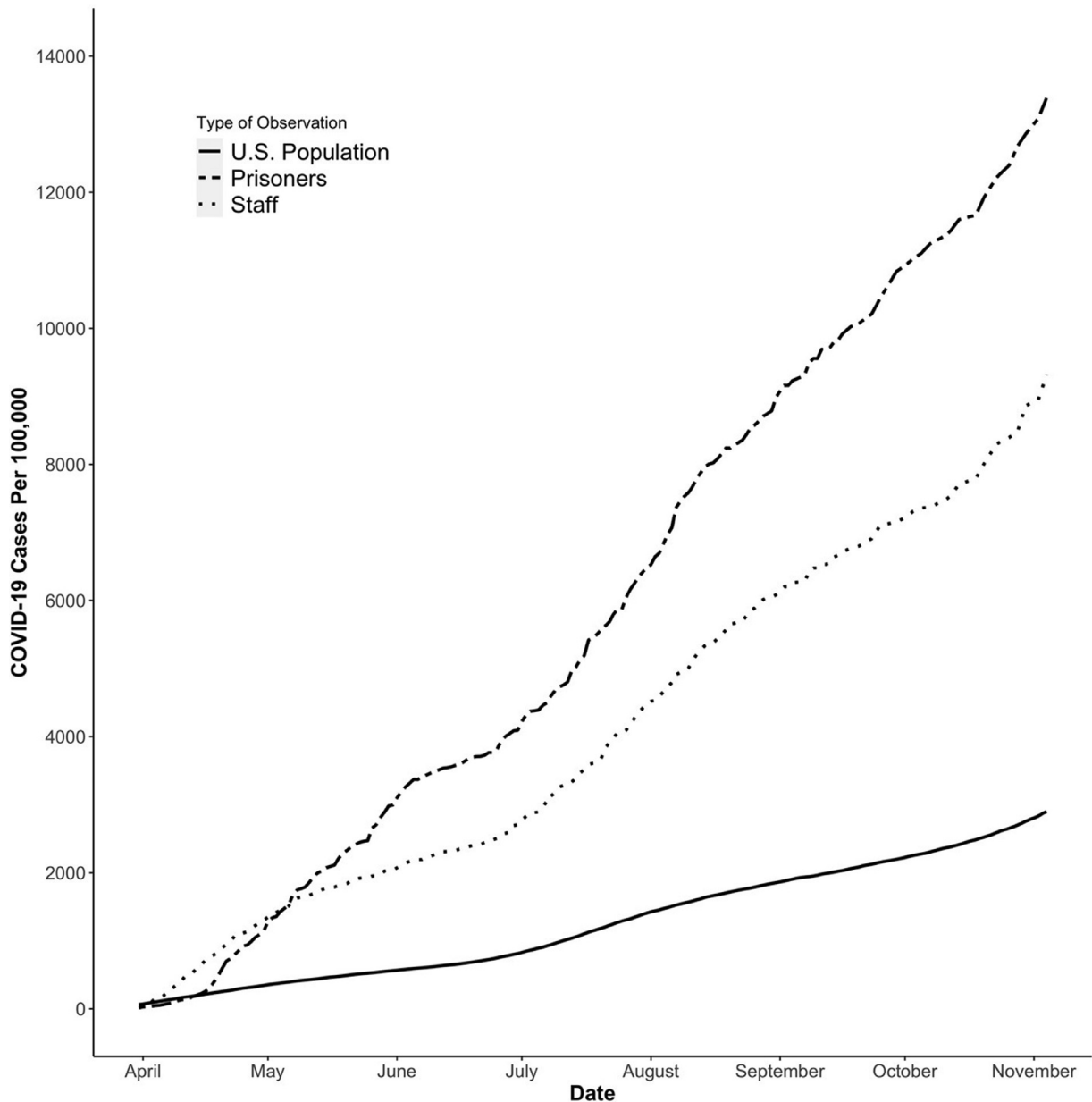


Figure 1. COVID-19 case prevalence among prison residents, prison staff, and U.S. population, March 31, 2020–November 4, 2020.

Note: Prison population was 1,190,884, staff population was 386,311, and U.S. population was 303,832,028 (Hawaii, North Carolina, North Dakota, Utah, and Virginia excluded). Prisoner and staff case data were obtained from the UCLA Law COVID-19 Behind Bars Data Project. U.S. case data from Johns Hopkins University. U.S. population data were obtained from U.S. Census Bureau.

worksite screenings may have prompted staff to pursue higher rates of testing than the U.S. population. Increased testing is likely to reveal increased disease prevalence, but testing is unlikely to explain the full disease burden gap found in this analysis. Although many U.S. adults transitioned to unemployment or remote work during the pandemic, prison staff occupational exposures remained high.⁷

CONCLUSIONS

In prison facilities currently reporting no COVID-19 cases, delaying introduction and promptly detecting disease in the prison environment is paramount. All facilities should anticipate the potential need to control, respond, and recover from an outbreak under reduced staffing conditions.⁸ Many prisons have attempted to

Prison system	Cumulative cases per 100,000 on May 5 ^a			Cumulative cases per 100,000 on Nov 4 ^b			"Crossover" Date ^c							
	Prisoner	Staff		Prisoner	Staff									
New Mexico	0	176		13,049	220		n/a ^d							
Minnesota	999	977		22,902	10,721		n/a ^d							
Massachusetts	5,572	1,673		8,696	2,577		n/a ^d							
Michigan	5,448	2,566		20,054	9,629		n/a ^d							
District of Columbia	8,827	4,519		12,123	7,481		n/a ^d							
Connecticut	4,272	5,610		15,203	5,988		9-Apr							
Indiana	1,917	3,136		6,723	10,165		10-Apr							
Vermont	3,309	1,861		17,647	2,351		11-Apr							
Arkansas	5,515	1,672		47,630	1,751		17-Apr							
Ohio	8,803	3,802		11,884	13,294		18-Apr							
Tennessee	6,757	1,244		19,784	23,490		21-Apr							
Delaware	3,084	2,280		13,891	8,400		22-Apr							
Colorado	1,414	645		9,207	3,021		24-Apr							
Federal BOP	1,313	962		12,339	6,369		29-Apr							
California	316	260		13,614	7,210		4-May							
Kansas	6,424	3,075		45,762	16,122		4-May							
Kentucky	421	841		11,255	5,023		6-May							
Oregon	250	437		9,083	6,770		12-May							
Florida	420	709		17,980	14,398		13-May							
Mississippi	35	125		7,133	125		15-May							
West Virginia	0	0		5,687	4,366		22-May							
Maine	0	84		870	418		26-May							
Texas	1,090	1,674		20,361	18,718		26-May							
New Jersey	1,363	7,100		21,549	13,200		26-May							
Wisconsin	98	322		24,219	16,723		29-May							
Rhode Island	65	786		1,342	6,071		1-Jun							
Montana	72	214		28,489	12,000		6-Jun							
Missouri	110	125		13,503	11,512		26-Jun							
Washington	104	225		3,078	2,700		29-Jun							
Iowa	224	311		15,617	9,907		10-Jul							
Idaho	0	255		26,829	10,153		13-Jul							
South Carolina	269	1,106		19,235	11,340		15-Jul							
Alaska	19	413		5,522	649		21-Aug							
Oklahoma	9	190		18,343	1,427		30-Aug							
Wyoming	0	89		4,394	3,578		2-Sep							
Arizona	188	523		7,771	8,476		10-Sep							
Nebraska	0	199		5,356	3,391		11-Sep							
South Dakota	60	397		57,795	17,063		16-Sep							
Alabama	33	533		3,361	16,333		Never ^e							
Nevada	0	644		218	6,672		Never ^e							
Pennsylvania	202	747		2,410	3,873		Never ^e							
New Hampshire	0	932		41	1,399		Never ^e							
Georgia	617	1,019		4,362	10,627		Never ^e							
Illinois	497	1,323		8,409	11,879		Never ^e							
Louisiana	971	2,464		7,640	10,965		Never ^e							
Maryland	241	2,627		4,853	13,068		Never ^e							
New York	994	4,408		3,846	5,943		Never ^e							
National Total	1,477	1,469		13,384	9,316		5-May							
<1%	1-3%	4-6%	7-9%	10-12%	13-15%	16-18%	19-21%	22-24%	25-27%	28-30%	31-33%	34-36%	37-39%	40+%

Figure 2. COVID-19 case burden by prison system and population (May versus Nov).

Note: Cell shade darkens as the percentage of the population with confirmed cases of COVID-19 to date increases.

^aOn May 5, 2020, the U.S. population cumulative case prevalence was 385 per 100,000.

^bOn November 4, 2020, the U.S. population cumulative case prevalence was 2,900 per 100,000.

^cEstimated date when case burden among prisoners first exceeded case burden among staff.

^dJurisdictions marked n/a initially reported proportionately greater cases among prisoners than among staff.

^eJurisdictions marked never had higher case prevalence among staff for the duration of the study.

Apr, April; Aug, August; BOP, Bureau of Prisons; Jul, July; Jun, June; n/a, not applicable; Nov, November; Sep, September.

mitigate disease spread by halting visitation and initiating daily screening of staff for symptoms, 14-day case isolation, mask distribution, and enhanced sanitation practices. Stronger interventions, including engineering controls (e.g., improved ventilation), resident-reduction initiatives, and limiting staff contact networks, have been rarer. Unlike people who are incarcerated, staff can exit the prison environment and may be more able to perform self-protective behaviors within it. Such actions may have contributed to the temporary case rate slowing observed among staff relative to that observed among prisoners. Still, compared with the U.S. population, the disease burden among prison staff was persistently high, indicating the need for stronger infectious disease protections for prison workers.

As of February 2021, the federal Occupational Safety and Health Administration lacks an infectious disease standard for nonhealthcare worksites and has failed to issue an Emergency Temporary Standard for COVID-19, making worker protections voluntary; citation issuance under the general duty clause is exceedingly rare. Limited jurisdictions have adopted local Emergency Temporary Standards (e.g., Virginia, Oregon, Michigan, California) or have pursued worker protections through union advocacy. The rapid escalation and nationwide persistence of COVID-19 transmission in prisons suggest an urgent need for more widespread protections. Carceral staff are a high-risk occupational group working with prisoners in high-risk living conditions; priority vaccination is essential.⁹ Moreover, sustained access to testing, proper ventilation, sufficient personal protective equipment, legislated sick pay, assurances of employer accountability, and whistleblower protections are needed. The health and safety of prison workers, incarcerated people, and community members are at stake.

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