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COVID-19 Burden in Adult Correctional or Detention Facilities and the Surrounding Communities, January 1, 2020–July 20, 2021

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Abstract

We estimated the COVID-19 burden in adult correctional or detention facilities and associated counties by state, facility jurisdiction, and county urbanicity. COVID-19 cumulative incidence (cases per 1,000 persons) for each U.S. correctional or detention facility and people ages 18 years and older in the associated county was estimated between January 1, 2020 and July 20, 2021. Across 46 U.S. states, 1,083 correctional or detention facilities in 718 counties were included. The median COVID-19 incidence rate was higher in facilities than in associated counties for 42 of 46 states and for all facility jurisdictions and county urbanicity categories. COVID-19 burden was higher in most facilities than in associated counties. Implementing COVID-19 mitigation measures in correctional settings is needed to prevent SARS-CoV-2 transmission in facilities and associated counties.

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Authors' Contributions

Lead: R.B.H., conceptualization, methods, data curation, formal analysis, writing—original draft. Lead: S.P.W., supervision. Supporting authors: J.C.B., conceptualization, supervision, writing—review and editing; L.N., conceptualization, writing—review and editing; N.M., methods, data curation, writing—review and editing, project administration; M.E., data curation, writing—review and editing, project administration; E.T.: data curation, writing—review and editing, project administration; S.P.W., conceptualization, writing—review and editing.

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Disclaimer

The findings and conclusions in this article are those of the authors and do not necessarily represent the views of the Centers for Disease Control and Prevention.

Keywords

COVID-19; correctional health; incarcerated and detained populations; disease transmission

Introduction

The COVID-19 burden among incarcerated or detained populations is higher than in national, state, or county general populations (Casanova *et al.*, 2021; Lemasters *et al.*, 2020; Marquez *et al.*, 2021; Nowotny *et al.*, 2021; Saloner *et al.*, 2020; Toblin & Hagan, 2021). SARS-CoV-2 transmission between correctional or detention facilities and surrounding communities is likely (Hooks & Libal, 2020; Ndeffo-Mbah *et al.*, 2018; Reinhart & Chen, 2020, 2021). SARS-CoV-2 may be introduced into facilities by staff movements between the community and facilities and newly transferred people (Dunne *et al.*, 2021; Hershow *et al.*, 2021; M. Wallace *et al.*, 2021; Nowotny *et al.*, 2021).

Granular analyses at the facility and county level are needed to improve understanding on SARS-CoV-2 transmission in correctional and community settings. We estimated COVID-19 cumulative incidence rates in adult correctional and detention facilities and associated counties among people ages 18 years and older in 46 U.S. states as of July 20, 2021. Additionally, we estimated COVID-19 cumulative incidence rates in correctional and community settings by state, facility jurisdiction, and county urbanicity.

Method

The study used the publicly available dataset from the UCLA Law COVID Behind Bars Data Project (2021), which included all federal facilities, immigration facilities, and 42 state prison systems, to calculate COVID-19 cumulative incidence rates in U.S. adult correctional or detention facilities.¹ The UCLA Law COVID Behind Bars Data Project compiles COVID-19 case, population, and facility data among incarcerated and detained people in U.S. facilities from public websites (e.g., websites for carceral agencies and the Federal Bureau of Prisons).

County-level COVID-19 cumulative incidence rates among people ages 18 years and older were calculated using Centers for Disease Control and Prevention (CDC)'s Data Collation and Integration for Public Health Event Response (DCIPHER; CDC, n.d.; U.S. Department of Health and Human Services, 2020) for laboratory-confirmed COVID-19 case counts and 2019 census data (U.S. Census Bureau, n.d.) for county population estimates, the county where each facility is located was included. Jurisdictional health departments reported COVID-19 case data to DCIPHER.

Using SAS 9.4 (SAS Institute, Cary, NC), COVID-19 cumulative incidence (cases per 1,000 persons) for each correctional or detention facility and people ages 18 years and older in the associated county was estimated as of July 20, 2021. Reporting of county-level data

¹The vast majority of people detained or incarcerated in facilities in the analysis are 18 years or older. In rare circumstances, minors may have been in custody in correctional facilities and families may have been detained in immigration facilities.

began January 1, 2020; the initial reporting dates for facility-level data varied by facility and state. As most facilities do not regularly report updated population estimates, the last reported facility population estimates before the end of February 2020 were used. These population estimates are likely higher or equivalent to those during the investigation period due to population reduction efforts (Franco-Paredes *et al.*, 2021).

Exclusion criteria for facilities included missing COVID-19 case or population estimates in the dataset, and being categorized as jails, which were not well-represented in the dataset due to limited timely and publicly available data. Juvenile or administrative (e.g., agency headquarters, training academies) facilities were also excluded as they tend to operate differently (e.g., reduced crowding and security requirements) than other adult facilities; therefore, the COVID-19 risks may be different (Barnert, 2020; Buchanan *et al.*, 2020). This activity was reviewed by CDC for human subjects protection and determined to be nonresearch.²

Results

After excluding 638 facilities, the sample consisted of 1,083 correctional or detention facilities in 718 counties across 46 U.S. states (Table 1). On average, 28.5% (range = 1.3%–80.0%) of the counties in each state were included; the variability in percentage of counties included was likely due to differences in missing facility-level COVID-19 case or population data by state. Of the 1,083 facilities, 831 (76.7%) were public state facilities, 97 (9.0%) were public federal facilities, 53 (4.9%) were private state facilities, and 102 (9.4%) were immigration facilities (public federal or private facilities holding people detained by Immigration and Customs Enforcement [ICE]).

Most correctional or detention facilities reported at least one COVID-19 case ($n = 1,056/1,083$; 97.5%). The median COVID-19 cumulative incidence rate was higher in correctional or detention facilities than in associated counties in 42 of 46 states. COVID-19 incidence rates varied by county and facility within and between states. The median COVID-19 incidence rates were higher in correctional or detention facilities than in counties for all facility jurisdictions; the highest rates were in immigration facilities. The median COVID-19 incidence rates were also higher in facilities than in counties for all county urbanicity categories (Table 1).

Discussion

COVID-19 cumulative incidence was higher in most correctional or detention facilities than in associated counties, with immigration facilities showing the highest burden. Controlling SARS-CoV-2 transmission in correctional or detention facilities is difficult due to limited SARS-CoV-2 testing; inadequate mask usage; low-to-moderate COVID-19 vaccination coverage; and insufficient space for physical distancing, medical isolation, and quarantine (Berk *et al.*, 2021; CDC, 2020; Hagan, Dusseau *et al.*, 2021; D. Wallace *et al.*, 2021; M. Wallace, Marlow *et al.*, 2020). COVID-19 outbreaks in correctional or detention facilities

²U.S. Department of Health and Human Services, Title 45 Code of Federal Regulations 46, Protection of Human Subjects.

are common, with attack rates above 50% reported (Hagan, McCormick *et al.*, 2021; Hershow *et al.*, 2021; Lewis *et al.*, 2021; M. Wallace *et al.*, 2021; Zawitz *et al.*, 2021).

The COVID-19 incidence rates in facilities and counties differed across counties and states. Larger disparities between correctional and community settings in some counties or states may be explained by facility outbreaks or low community testing rates; smaller disparities may be explained by low facility testing rates (Lemasters *et al.*, 2020).

The highest COVID-19 incidence rates were found in immigration facilities, likely due to higher population turnover (average stay of 38 days) and inadequate COVID-19 mitigation measures (Casanova *et al.*, 2021; Office of Inspector General, 2019; Openshaw & Travassos, 2021). Prior analyses found that counties with ICE detention centers reported higher COVID-19 incidence rates than counties without such a facility (Hooks & Libal, 2020). Notably, our study found that COVID-19 incidence tends to be higher within immigration facilities compared to associated counties.

Comparisons between COVID-19 incidence rates in correctional and community settings should be interpreted with caution as adjustment for age and other facility factors (e.g., COVID-19 policies for staff, dormitory units) was not possible due to limited data. Incidence rates in correctional settings were likely underestimated because (a) correctional or detention facilities started publicly reporting COVID-19 cases at different times during the pandemic and cumulative case counts may exclude cases early in the pandemic (i.e., January–May 2020) and (b) low SARS-CoV-2 testing rates have been documented in correctional or detention facilities as compared to the general population (Lemasters *et al.*, 2020; Toblin & Hagan, 2021). Conversely, facilities with high population turnover may have inflated incidence rates due to detection of ongoing SARS-CoV-2 transmission as people moved through the facility.

We were unable to assess whether testing or COVID-19 vaccination rates explained differences in COVID-19 burden estimates as these data were unavailable for most facilities. Finally, facilities without publicly available COVID-19 case or population data and jails were excluded and may be systematically different from those included, limiting generalizability of our findings to all U.S. correctional or detention facilities.

Conclusions

The COVID-19 burden appeared to be higher in most facilities than in their associated counties, likely due to crowding, shared spaces (e.g., dormitories, lavatories), limited medical isolation and quarantine spaces, and routine movement of staff and incarcerated or detained people in and out of the facility (Nowotny *et al.*, 2021; M. Wallace, Hagan *et al.*, 2020; M. Wallace, Marlow *et al.*, 2020). Multiple COVID-19 mitigation measures are needed in correctional settings, especially with the circulation of more infectious variants (Hagan, McCormack *et al.*, 2021; Ryckman *et al.*, 2021).

In addition to continued implementation of infection prevention and control measures, efforts should be made to increase access to and acceptance of COVID-19 vaccination for incarcerated or detained people (Berk *et al.*, 2021; Chin, Leidner *et al.*, 2021; Hagan,

Dusseau *et al.*, 2021; Peterson *et al.*, 2021; Stern *et al.*, 2021). It is also important to offer routine and symptom-based SARS-CoV-2 testing to incarcerated or detained people (Hagan *et al.*, 2020; Kirbiyik *et al.*, 2020; Njuguna *et al.*, 2020; Wadhwa *et al.*, 2021). Finally, studies suggest that population reductions in correctional or detention facilities may help facilities more effectively implement COVID-19 mitigation measures (Chin, Ryckman *et al.*, 2021; Vest *et al.*, 2021).

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Table 1.

COVID-19 Cumulative Incidence Rates in Correctional Settings and Associated Counties as of July 20, 2021^{a,b}

State	<i>Correctional settings^c</i>		<i>Associated counties^d</i>	
	<i>No. (%) of correctional or detention facilities (N = 1,083)</i>	<i>Median COVID-19 cumulative incidence rate (range)</i>	<i>No. (%) of counties (N = 718)</i>	<i>Median COVID-19 cumulative incidence rate (range)</i>
Alabama	31 (2.9)	68 (3–324)	20 (2.8)	77 (48–94)
Arizona	27 (2.5)	357 (0–3590)	8(1.1)	128 (99–198)
Arkansas ^e	1 (0.1)	293 (293–293)	1 (0.1)	150 (150–150)
California	50 (4.6)	350 (75–1277)	23 (3.2)	135 (58–206)
Colorado	23 (2.1)	481 (21–1657)	13 (1.8)	150 (76–398)
Connecticut	14 (1.3)	358 (102–731)	6 (0.8)	91 (56–101)
Florida	11 (1.0)	397 (81–2949)	9 (1.3)	114 (61–180)
Georgia	80 (7.4)	47 (0–1112)	62 (8.6)	66 (38–113)
Hawaii	9 (0.8)	217 (0–1059)	4 (0.6)	28 (7–28)
Illinois	42 (3.9)	282 (15–1352)	35 (4.9)	120 (74–173)
Indiana	20 (1.8)	133 (30–821)	16 (2.2)	107 (75–130)
Iowa	12 (1.1)	596 (41–898)	11 (1.5)	111 (83–167)
Kansas	11 (1.0)	620 (323–2667)	10 (1.4)	112 (93–255)
Kentucky	18 (1.7)	561 (115–841)	14 (1.9)	88 (39–163)
Louisiana	19 (1.8)	406 (76–2604)	15 (2.1)	6 (1–17)
Maine	5 (0.5)	20 (0–438)	3 (0.4)	32 (26–47)
Maryland	21 (1.9)	198 (13–528)	9 (1.3)	96 (31–118)
Massachusetts	20 (1.8)	362 (13–2077)	7 (1.0)	101 (38–127)
Michigan	32 (3.0)	609 (161–2590)	22 (3.1)	85 (27–145)
Minnesota	18 (1.7)	318 (22–1352)	15 (2.1)	118 (92–173)
Mississippi	24 (2.2)	52 (0–2210)	24 (3.3)	23 (7–43)
Missouri	3 (0.3)	130 (50–387)	3 (0.4)	106 (65–113)
Montana	15 (1.4)	194 (11–529)	11 (1.5)	115 (66–182)
Nebraska	2 (0.2)	97 (77–118)	2 (0.3)	78 (70–86)
Nevada	19 (1.8)	511 (22–1188)	9 (1.3)	87 (20–137)
New Hampshire	5 (0.5)	191 (160–292)	4 (0.6)	44 (30–66)
New Jersey	16 (1.5)	208 (111–869)	9 (1.3)	118 (79–132)
New Mexico	13 (1.2)	361 (183–5091)	11 (1.5)	122 (76–186)
New York	57 (5.3)	124 (0–494)	27 (3.8)	91 (7–148)
North Carolina	58 (5.4)	264 (0–1012)	46 (6.4)	99 (53–135)
North Dakota	3 (0.3)	439 (262–788)	2 (0.3)	179 (170–179)
Ohio	32 (3.0)	74 (14–7286)	24 (3.3)	94 (70–163)
Oklahoma	4 (0.4)	374 (143–1048)	4 (0.6)	97 (87–105)
Oregon	16 (1.5)	235 (21–460)	12 (1.7)	71 (28–140)

	<i>Correctional settings^c</i>		<i>Associated counties^d</i>	
	<i>No. (%) of correctional or detention facilities (N = 1,083)</i>	<i>Median COVID-19 cumulative incidence rate (range)</i>	<i>No. (%) of counties (N = 718)</i>	<i>Median COVID-19 cumulative incidence rate (range)</i>
Pennsylvania	36 (3.3)	322 (57–1500)	26 (3.6)	95 (69–203)
Rhode Island	7 (0.6)	382 (58–1880)	1 (0.1)	151 (151–151)
South Carolina	25 (2.3)	151 (0–1487)	18 (2.5)	113 (77–147)
South Dakota	10 (0.9)	601 (287–924)	5 (0.7)	128 (110–174)
Tennessee	17 (1.6)	234 (30–757)	11 (1.5)	125 (93–242)
Texas	126 (11.6)	232 (12–9078)	70 (9.7)	9 (0–111)
Utah	3 (0.3)	1200 (655–1780)	3 (0.4)	143 (139–153)
Vermont	6 (0.6)	51 (5–441)	6 (0.8)	38 (25–47)
Virginia	43 (4.0)	295 (0–2849)	33 (4.6)	77 (44–146)
Washington	24 (2.2)	183 (0–771)	15 (2.1)	53 (14–167)
West Virginia	19 (1.8)	203 (0–1000)	17 (2.4)	4 (2–10)
Wisconsin	36 (3.3)	375 (8–808)	22 (3.1)	111 (78–135)
Facility characteristic ^e				
Facility jurisdiction				
Public, state	831 (76.7)	214 (0–2590)	578 (71.4)	87 (1–398)
Public, federal	97 (9.0)	287 (2–2949)	93 (11.5)	94 (0–206)
Private, state	53 (4.9)	125 (10–831)	47 (5.8)	111 (2–398)
Private, federal	0 (0.0)	—	—	—
Immigration (public or private) ^g	102 (9.4)	667 (22–9078)	92 (11.4)	90 (0–198)
County characteristic				
Urbanicity of associated counties ^h				
Noncore	234 (21.6)	233 (0–9078)	197 (27.4)	79 (1–398)
Micropolitan	223 (20.6)	244 (0–2210)	156 (21.7)	84 (1–206)
Small metro	152 (14.0)	286 (0–2604)	103 (14.3)	94 (1–198)
Medium metro	185 (17.1)	233 (0–5091)	110 (15.3)	89 (2–167)
Large fringe metro	189 (17.5)	190 (0–7286)	111 (15.5)	86 (0–240)
Large central metro	100 (9.2)	263 (0–2111)	41 (5.7)	106 (0–180)

^aExclusion criteria for correctional or detention facilities: (a) missing COVID-19 case or population estimates in the dataset, (b) being categorized as jails, and (c) being categorized as juvenile or administrative (e.g., agency headquarters, training academies) facilities.

^bCOVID-19 cumulative incidence is defined as the number of cases reported per 1,000 persons as of July 20, 2021. Incidence rates in correctional settings are median rates across correctional facilities. Incidence rates in surrounding communities are median rates among people ages 18 years and older across counties where correctional facilities are located.

^cCOVID-19 incidence rates in correctional settings are calculated as the median rates across correctional or detention facilities. Incidence rates may exceed 1,000 per 1,000 persons due to movement of incarcerated or detained people in and out of the facilities.

^dCOVID-19 incidence rates in surrounding communities are calculated as the median rates among people ages 18 years and older across counties where correctional or detention facilities are located.

^eOnly one Arkansas facility is included in the analytic sample because the Arkansas Department of Corrections does not report facility-level data for state prisons.

^fThe total number of counties exceeds 718 because categories are not mutually exclusive for the facility jurisdiction (n = 810 counties) variable.

^gFacilities holding people detained by Immigration and Customs Enforcement.

^hClassifications are from the National Center for Health Statistics' six-level urban-rural classification scheme for U.S. counties (https://www.cdc.gov/nchs/data_access/urban_rural.htm). Large central metro counties are located in MSAs of 1 million population that (a) contain the entire population of the largest principal city of the MSA, (b) are contained within the largest principal city of the MSA, or (c) contain at least 250,000 residents of any principal city in the MSA. Large fringe metro counties are located in MSAs of 1 million or more population that do not qualify as large central metro counties in MSA of 250,000 to 999,999 population. Small metro counties are located in MSAs of less than 250,000 population. Micropolitan counties are located in micro- politan statistical areas (urban cluster population of 10,000–49,999). Noncore counties are located in areas that did not qualify as micropolitan.

MSAs = metropolitan statistical areas.

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