

Affidavit of Danielle C. Ompad, PhD regarding SARS-CoV-2 infection (otherwise known as COVID-19) in correctional settings

I, Dr. Danielle C. Ompad, state that the following is a true and accurate statement to the best of my knowledge and belief:

1. I am currently an Associate Professor of Epidemiology at the New York University School of Global Public Health. I have a BS in biology from Bowie State University, and an MHS and PhD in infectious disease epidemiology from the Johns Hopkins School of Public Health.
2. Classically trained as an infectious disease epidemiologist, I am an expert on social determinants of health associated with urban life. My research is focused on the health and wellbeing of people living in urban settings, especially communities that are highly marginalized and vulnerable. Many of these communities have high rates of heroin, crack, and/or cocaine use. My program of research is focused on individual- and structural-level risk and protective factors for the initiation, use, and cessation of specific drugs as well as risk for infectious diseases such as HIV, hepatitis B and C viruses (HBV and HCV), and sexually transmitted infections like herpes and human papillomavirus. Additional and related programs of research include (1) understanding sexual risk and (2) vaccine access among people who use drugs (PWUD) and other vulnerable populations.
3. I have been working with people who use drugs since 1997, many of whom have experience with the criminal justice system. I am providing this affidavit about the risk of SARS-CoV-2 infection, also known as COVID-19 or the novel coronavirus, because correctional settings may be particularly vulnerable to the effects of this pandemic.
4. I am the author of more than 125 peer-reviewed research articles, six book chapters, and two encyclopedia entries.
5. **Overview of the COVID-19 pandemic**
 - a. The first case of COVID-19 was diagnosed in Wuhan, China on 29 December 2019. The virus is transmitted through droplets and contaminated surfaces,¹ and possible airborne transmission.² Both symptomatic and asymptomatic people can transmit COVID-19.³ The average incubation period (i.e., time from infection to symptoms) for COVID-19 has generally been reported to be 5.1 days and 97.5% of those who develop symptoms will do so within 11.5 days.⁴
 - b. Older adults and people with underlying health conditions like cardiovascular diseases, respiratory diseases, diabetes, and liver disease are at increased risk for severe COVID-

¹ Adhikari SP, Meng S, Wu YJ, et al. Epidemiology, causes, clinical manifestation and diagnosis, prevention and control of coronavirus disease (COVID-19) during the early outbreak period: a scoping review. *Infect Dis Poverty*. 2020;9(1):29. Published 2020 Mar 17. doi:10.1186/s40249-020-00646-x

² van Doremalen N, Bushmaker T, Morris DH, et al. Aerosol and Surface Stability of SARS-CoV-2 as Compared with SARS-CoV-1 [published online ahead of print, 2020 Mar 17]. *N Engl J Med*. 2020; 10.1056/NEJMc2004973. doi:10.1056/NEJMc2004973

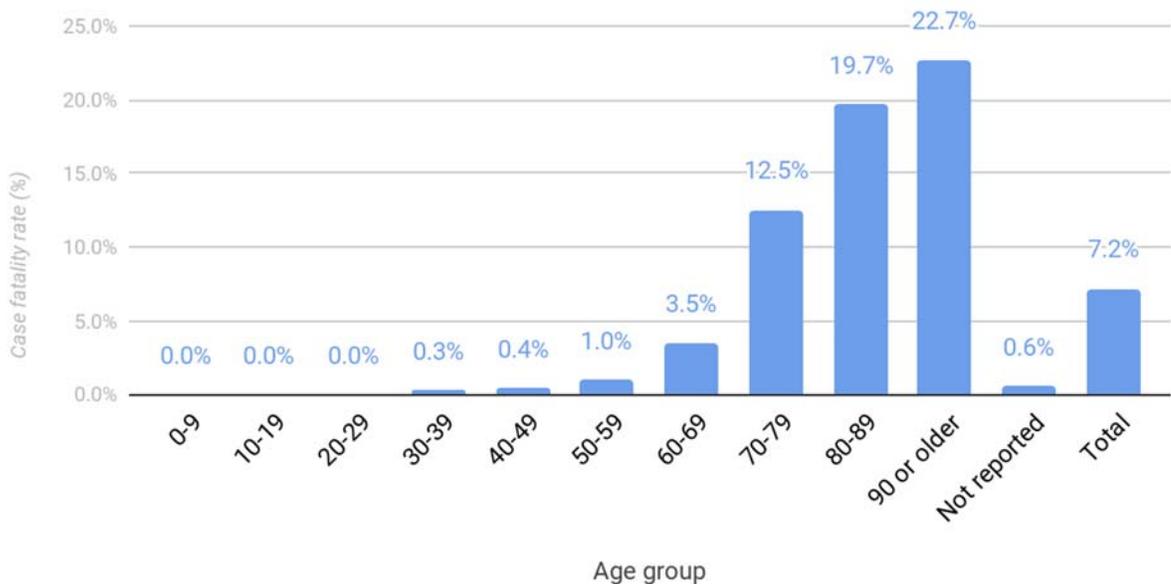
³ Tong ZD, Tang A, Li KF, et al. Potential Presymptomatic Transmission of SARS-CoV-2, Zhejiang Province, China, 2020 [published online ahead of print, 2020 May 17]. *Emerg Infect Dis*. 2020;26(5):10.3201/eid2605.200198. doi:10.3201/eid2605.200198

⁴ Lauer SA, Grantz KH, Bi Q, et al. The Incubation Period of Coronavirus Disease 2019 (COVID-19) From Publicly Reported Confirmed Cases: Estimation and Application [published online ahead of print, 2020 Mar 10]. *Ann Intern Med*. 2020;10.7326/M20-0504. doi:10.7326/M20-0504

19 complications and death. Of note, risk for death appears to increase substantially with age although actual age-specific death rates should be considered in the context of a lack of widespread testing in most countries, including the U.S. In most countries testing is being conducted among hospitalized cases and health care workers. South Korea is the exception, where mild and severe cases have been tested with over 300,000 people have been tested.

- c. The case fatality rate (CFR) is the number of deaths divided by the number of people with COVID-19. Note that the denominator (i.e., number of people with COVID-19) is determined by the number of people tested as well as the testing criteria. Therefore, the CFR is likely inflated (i.e., an overestimate). The World Health Organization estimates that the overall case fatality rate is 3.4%.⁵ Table 1 provides case fatality rates from Italy by decade of age. You can see that risk of death starts increasing among people in their sixties and then increases dramatically for each decade of life thereafter.

Figure 1. COVID-19 case fatality rates by age group as of 15 March 2020, Italy



- d. Recent reporting revealed that young people are experiencing severe disease. The New York Times reported that approximately 40% of hospitalized COVID-19 cases were under the age of 60.⁶
- e. Prevention of COVID-19 transmission is highly dependent on physical social distancing (i.e., at least six feet from other people) as well as hand washing and sanitizing with an alcohol-based hand sanitizer. Surfaces should be cleaned and disinfected regularly. Confirmed COVID-19 cases (with or without symptoms) must be quarantined to prevent transmission. People who have been exposed to someone who has (or may have) COVID-19 are asked to self-isolate for at least two weeks. Many US jurisdictions are

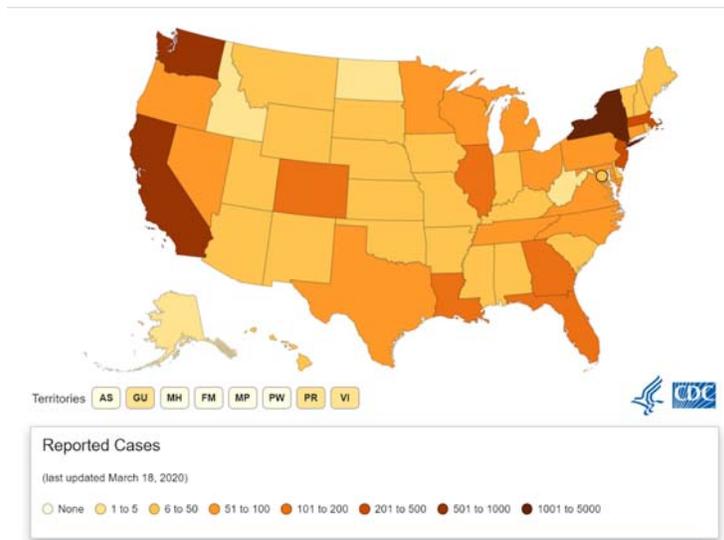
⁵ [WHO Director-General's opening remarks at the media briefing on COVID-19 - 3 March 2020](#) - World Health Organization, March 3, 2020

⁶ Belluck P. [Younger Adults Make Up Big Portion of Coronavirus Hospitalizations in U.S.](#) New York Times. 20 March 2020

beginning to ask residents to engage in physical social distancing and self-isolation. Non-essential workers and businesses are being asked to close.

- f. As 20 March 2020, the Johns Hopkins COVID-19 dashboard⁷ reports that there are 259,215 cases worldwide and 11,283 deaths. COVID-19 cases have been detected in all 50 states, the District of Columbia, American Samoa, Guam, Puerto Rico, and the U.S. Virgin Islands (Figure 2). As of 20 March 2020, there are 17,303 reported cases and 215 deaths in the United States.⁸ Testing for COVID-19 infections has not been fully implemented and is mainly targeted to hospitalized people with COVID-19 symptoms (i.e., dry cough, fever, shortness of breath, acute respiratory distress syndrome), those with contact with a suspected or known cases, and health care workers with symptoms, known exposure to a case, or travel history to countries with cases; people with mild symptoms are not generally being tested because of the limited supply of tests. As a result, any case counts are an underestimate of the true number of cases.

Figure 2. Distribution of COVID-19 cases in the United States as of 18 March 2020 (U.S. Centers for Disease Control and Prevention)

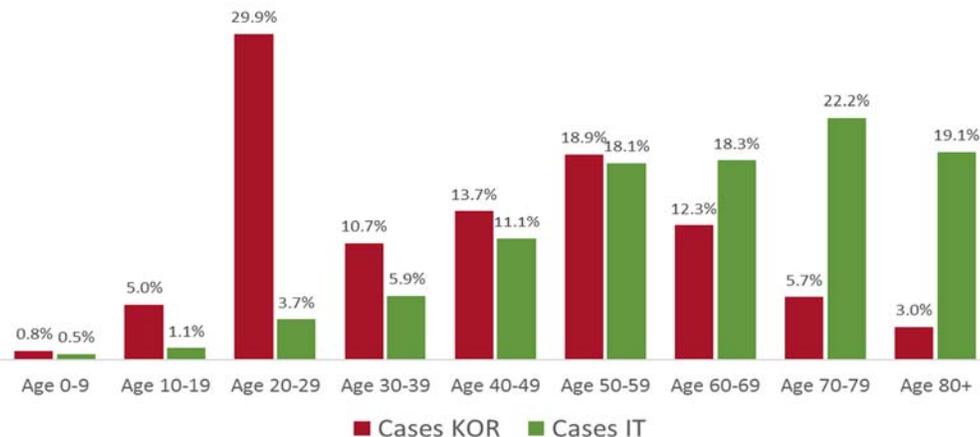


⁷ <https://www.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6>

⁸ Reported cases include both confirmed and presumptive positive cases of COVID-19 reported to CDC or tested at CDC since January 21, 2020, with the exception of testing results for persons repatriated to the United States from Wuhan, China and Japan.

- g. Data from South Korea, where testing is conducted for mild and severe cases (more than 300,000 tested so far),⁹ suggest that individuals in their 20s have the highest prevalence of COVID-19 infection (Figure 3).¹⁰

Figure 3. COVID-19 cases (%) in South Korea and Italy by age group



6. Transmission risk in correctional settings

- The risk of transmission of COVID-19 in correctional settings is high. Correctional facilities are often crowded and people who are incarcerated (PWI) are likely unable to maintain the requisite social distance of six feet. This is especially an issue within individual cells, where bunked beds make distancing of six feet impossible. Cafeteria areas and dormitory-type sleep quarters also create challenges to social distancing depending on how these spaces are organized and the number of people in the space at any one time.
- Correctional facilities have significant flows of people from the community into the facility and back out. Correctional staff, visitors, and attorneys come to and from the facility from their home communities. In addition, newly incarcerated individuals, who have been circulating in the community prior to entering the facility, are coming into facilities. As a result, current PWI are likely to be exposed to COVID-19 through their interactions with correctional staff, visitors, attorneys, and newly arrived PWI.
- Generally, there is a shortage of personal protective equipment (PPE) such as N95 masks in the U.S. Local jurisdictions are prioritizing health care facilities for scarce PPE, making access to such protective gear challenging for correctional facility staff.
- Client reports from nine Massachusetts correctional facilities revealed that PWI at two facilities did not have access to soap at all and only three had access to free soap. In four facilities, PWI did not have access to hand sanitizer.
- Thus, the risk for transmission in correctional facilities may be high. This will have implications for the general population from which correctional staff, visitors, and attorneys come and as a result, may place communities in which correctional facilities are located at enhanced risk of COVID-19 transmission as well as challenging the limited health care infrastructure and staff in local hospitals.

⁹ Zastrow M. [South Korea is reporting intimate details of COVID-19 cases: has it helped?](#) [news]. Nature 2020.

¹⁰ <https://medium.com/@andreasbackhausab/coronavirus-why-its-so-deadly-in-italy-c4200a15a7bf>

7. Risk for severe disease and death among incarcerated individuals

- a. If COVID-19 enters correctional facilities, the likelihood that there will be severe cases is high. According to the Massachusetts Department of Corrections, 983 PWI (11.2%) were aged 60 and over in 2019 among 8,784 total PWI. As previously mentioned, older adults are at increased risk for severe COVID-19 complications as well as death.
- b. According to data from the 2011-2012 National Inmate Survey,¹¹ there is a substantial burden of disease among correctional populations. Approximately half of state and federal prisoners and jail inmates have ever had a chronic medical condition (defined as cancer, high blood pressure, stroke-related problems, diabetes, heart-related problems, kidney-related problems, arthritis, asthma, and/or cirrhosis of the liver). Twenty-one percent of state and federal prisoners and 14% of jail inmates have ever had tuberculosis, hepatitis B or C, or sexually transmitted infections (excluding HIV or AIDS). Table 1 displays lifetime prevalence of specific chronic conditions with implications for COVID-19 severity and death among state and federal prisoners and jail inmates. Note that older prisoners were about three times more likely than younger persons to have had a chronic condition or infectious disease in their lifetime.

Table 1. Lifetime prevalence of specific chronic conditions and infectious diseases with implications for COVID-19 severity and death among state and federal prisoners and jail inmates, 2011-2012 National Inmate Survey

Condition	State and federal prisoners (%)	Jail inmates (%)
Cancer	3.5	3.6
Diabetes	9.0	7.2
Stroke-related problems	1.8	2.3
Heart-related problems	9.8	10.4
Kidney-related problems	6.1	6.7
Asthma	14.9	20.1
Cirrhosis of the liver	1.8	1.7
Tuberculosis	6.0	2.5
Hepatitis B	10.9	1.7
Hepatitis C	2.7	5.6
HIV/AIDS	9.8	1.3

¹¹ Maruschak LM, Berzofsky M, Unangst J. [Medical problems of state and federal prisoners and jail inmates, 2011-12](#). Washington, DC: US Department of Justice, Office of Justice Programs, Bureau of Justice Statistics; 2015 Feb.

- c. Collectively, these data suggest that there is a risk that a significant proportion of PWI will experience severe COVID-19 disease requiring hospitalization and many are at risk of dying from COVID-19.

8. Healthcare response and correctional settings

- a. Healthcare provision in correctional settings is limited and a rapid increase in COVID-19 cases may overwhelm the capacity of a jail or prison's healthcare facilities. Moreover, health care providers in correctional settings may not have the equipment (i.e., ventilators) or specialty skill set to support PWI with severe COVID-19 disease.
- b. There is already growing concern in the medical community that the need for intensive care unit beds and ventilators will outstrip the supply. We saw this in China, where new hospitals were built to treat the surge in patients. We are seeing this now in northern Italy, where unused wards are being retrofitted to serve as ICUs.
- c. Severe COVID-19 cases in correctional facilities may be transferred to local hospitals. An outbreak at a local correctional facility, where there is a high likelihood of rapid transmission to a large number of people, could quickly overwhelm local hospitals.

9. What would an outbreak look like in a correctional facility?

- a. There are no descriptions of a COVID-19 outbreak in a correctional facility to date. However, we can hypothesize what one may look like drawing on published reports of influenza and tuberculosis outbreaks – both respiratory infections – in correctional facilities.^{12,13}
- b. Introduction of the SAR-CoV-2 virus to the correctional facility could be from visitors, correctional staff, attorneys, and/or a newly incarcerated person. The person will likely be asymptomatic. As a result, the first facility-acquired COVID-19 case will not be detected until the that person is shows symptoms. This means that the person could have transmitting the infection from 2 to 14 days without knowing it.
- c. The opportunities for transmission in correctional facilities are myriad and there is limited ability for PWI to engage in social distancing or self-isolation. The minimum cell size in the U.S. is 80 square feet based on American Correctional Association standards.¹⁴ Some cells in Massachusetts are approximately 73 square feet. Beds can be bunked, ensuring that PWI are within six feet of each other in shared cells. Community meals in cafeteria/chow hall type settings as well as group recreation time in gyms and outdoor spaces also make social distancing challenging.
 - i. At the Hampshire House of Corrections and North Central Correctional Institution in Gardner, groups of inmates are still going to "chow" and sitting and eating together with no instructions regarding social distancing.
 - ii. At the Middleton House of Corrections, a whole unit has been quarantined in the gym.
- d. Given the crowded conditions as well as challenges with social distancing and access to PPE for staff, the infections could spread rapidly and by the time the first case is identified many will have already been infected.
- e. After the first symptomatic case is identified, the number of additional cases is likely to occur rapidly over the next days and weeks. The hospitalization rate is unknown at this

¹² Sosa LE, Lobato MN, Condren T, Williams MN, Hadler JL. Outbreak of tuberculosis in a correctional facility: consequences of missed opportunities. *Int J Tuberc Lung Dis.* 2008;12(6):689–691.

¹³ Awofeso N, Fennell M, Waliuzzaman Z, et al. Influenza outbreak in a correctional facility. *Aust N Z J Public Health.* 2001;25(5):443–446.

¹⁴ http://www.aca.org/ACA_Prod_IMIS/docs/Standards%20And%20Accreditation/RH%20-%20Proposed%20Standards%20.%2012.4.2015.pdf

- point, but given the high burden of high-risk conditions among PWI, we can anticipate the jail and prison health facilities will face shortages of beds, ventilators, PPE, testing supplies, and masks.
- f. When correctional facility health services are exhausted, or the type of care needed for a patient is beyond the capacity of the facility, PWI COVID-19 cases will need to be transferred to local hospitals.

10. Summary

- a. Incarcerating individuals who cannot make bail as well as current PWI that do not pose a danger to the community may increase the risk of COVID-19 outbreaks in correctional facilities when we consider the following issues:
 - i. COVID-19 transmission is possible even when people are asymptomatic and the average incubation period is five days.
 - ii. According to the Massachusetts Department of Corrections, 19.4% of PWI in 2019 were between the ages of 18 and 29. Some evidence suggests that this age group has the highest prevalence of COVID-19.
 - iii. There is high risk for transmission in correctional facilities.
 - iv. A substantial proportion of PWI aged 60 and older and/or with health conditions with implications for severe COVID-19 disease requiring hospitalization and possibly resulting in death
 - v. The implications of a correctional facility outbreak for local hospitals.
- b. By acting now and releasing a significant number of people who are currently detained you will save lives. You can prevent outbreaks in correctional facilities by reducing the number of people who are coming in from the community and reducing the number of people at risk within the facilities. This action would then protect correctional officers, attorneys, and PWI as well as the families of these groups.
- c. This would result in the courts contributing to “Flatten the Curve” efforts because it will increase the ability of PWI and correctional facility staff to engage in social distancing inside as well as allowing released criminal-justice involved people to engage in social distancing and/or self-isolation (as appropriate) in the community, thereby reducing the likelihood of transmission and disease.

Signed this 20th day of March, 2020,



Danielle C. Ompad, PhD¹⁵
Associate Professor of Epidemiology
New York University School of Global Public Health

¹⁵ This statement reflects my own views. I do not speak for New York University or any department therein.