

Collision of the COVID-19 and Addiction Epidemics

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Coronavirus disease 2019 (COVID-19) is causing untold challenges to health care and wider social structures. Among the vulnerable populations are persons who smoke or vape, use opioids, or have a substance use disorder (SUD). Because of direct challenges to respiratory health, those with SUD may be especially susceptible to infection by the virus that causes COVID-19 and associated complications. And because of impediments to delivering care to this population, persons with SUD who develop COVID-19 may find it harder to get care. Those in recovery will also be uniquely challenged by social distancing measures.

Risk for severe COVID-19 and death escalates with older age but is also concentrated among those who are immunocompromised or have underlying health conditions, including diabetes, cancer, and heart and respiratory diseases. Many of the latter arise from smoking and thus may increase risk for death and illness among smokers (tobacco or cannabis). Data from the Chinese Center for Disease Control and Prevention have suggested that COVID-19 has a case fatality rate of 6.3% for individuals with chronic respiratory disease, compared with 2.3% overall (1). Comorbid chronic obstructive pulmonary disease, cardiovascular disease, and other respiratory diseases, which are more frequent among chronic smokers and persons with other SUDs, have been shown to worsen prognosis with other coronaviruses, including those causing severe acute respiratory syndrome and Middle East respiratory syndrome (2).

Persons whose lungs may be compromised from vaping nicotine or tetrahydrocannabinol (or even just flavorings) may also be at risk. The highly publicized lung illnesses from vaping, including “popcorn lung” and e-cigarette or vaping product use-associated lung injury, alert us to the potential for lung injury from vaping, which is on the rise especially in young persons. Preclinical studies show that e-cigarette aerosols can damage lung tissue, cause inflammation, and diminish the lungs' ability to respond to infection (3).

Compromised lung function from COVID-19 could also put at risk those who have opioid use disorder (OUD) or methamphetamine and other psychostimulant use disorders. Chronic respiratory disease increases risk for fatal overdose in those who use opioids therapeutically (4). In addition, slowed breathing due to opioids causes hypoxemia, which can lead to cardiac, pulmonary, and brain complications (5) and, if severe, can result in overdoses and death. At least 2 million persons in the United States have OUD, and more than 10 million misuse opioids; these individuals may be at increased risk for the most adverse consequences of COVID-19. Methamphetamine is a highly toxic drug that causes pulmonary damage, pulmonary hyperten-

sion, and cardiomyopathy (6), and its use has markedly increased in the United States; clinicians should be alert to the possibility of increased risk for adverse COVID-19 outcomes in methamphetamine users.

Many risks of the current pandemic to persons with SUD are indirect. They arise from such factors as housing instability and incarceration, as well as reduced access to health care and recovery support services. A high percentage of individuals with SUD experience homelessness, and vice versa. Among countless other difficulties and risks faced by those who have housing instability, increased risk for disease transmission in homeless shelters is particularly important now. The same is true of incarceration. More than half of U.S. prisoners have SUD, and prison populations are at great risk for disease transmission during epidemics.

Persons with OUD may face challenges obtaining medications for OUD or obtaining services from syringe services programs. Social distancing will increase the likelihood of opioid overdoses happening when there are no observers who can administer naloxone to reverse them and thus when they are more likely to result in fatalities. Emergency department physicians with increased caseloads may be less likely to initiate buprenorphine therapy for patients with OUD, which is an important component of mitigating the effects of the opioid crisis. **In response to these challenges, the Substance Abuse and Mental Health Services Administration has advised opioid treatment programs to provide take-home medication more flexibly during the pandemic (7) and the Drug Enforcement Administration has issued guidance to facilitate controlled substance prescribing (8).**

Persons with SUD are already marginalized and underserved by health care services, largely because of stigma. Much of this stigma is based on the erroneous but persistent belief—widespread even among health care workers—that addiction is the result of weak character and poor choices, whereas science has clearly shown it to be a disorder arising from alterations in brain circuitry. When hospitals are pushed to their capacity, there is added danger of persons with SUD being deprioritized for care if they present with COVID-19 symptoms. It is incumbent on all health care workers to not discriminate against patients with SUD and to treat these individuals with compassion and dignity as they would any others.

Social support is crucial for persons trying to recover from SUD, whereas social isolation is a risk factor for relapse. Even though the social distancing mea-

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asures being implemented nationwide are important for reducing disease transmission, they may be especially difficult for persons in recovery because they limit access to meetings of peer-support groups or other sources of social connection. Although face-to-face interaction is a key feature of recovery support, virtual meetings may be useful for those with access to the internet.

Persons who are isolated and stressed—as much of the population is during a pandemic—frequently turn to substances to alleviate their negative feelings. Those in recovery will face stresses and heightened urges to use substances and will be at greatly increased risk for relapse. Peers, family members, and addiction treatment providers should be alert to this possibility. Clinicians should monitor for signs of substance misuse or use disorders in their patients, given the unprecedented stresses, fears, or even grief they may be facing.

Much is still unknown, but it can be expected that persons who smoke, vape, or use certain drugs will be at increased risk for infection and its more severe consequences, and that strained health care systems and social distancing will present unique challenges to those with SUD. This crisis will also force the health care system, policymakers, and researchers to accelerate new ways of meeting the treatment and recovery needs of this population, through measures ranging from enhancing virtual resources to minimizing office visits via increased use of depot injections of buprenorphine. But under no circumstances can we forget or marginalize persons with SUD during this new public health crisis.

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References

1. Wu Z, McGoogan JM. Characteristics of and important lessons from the coronavirus disease 2019 (COVID-19) outbreak in China: summary of a report of 72 314 cases from the Chinese Center for Disease Control and Prevention. *JAMA*. 2020. [PMID: 32091533] doi:10.1001/jama.2020.2648
2. National Institute of Allergy and Infectious Diseases. Coronaviruses. Reviewed 13 March 2020. Accessed at www.niaid.nih.gov/diseases-conditions/coronaviruses on 18 March 2020.
3. Madison MC, Landers CT, Gu BH, et al. Electronic cigarettes disrupt lung lipid homeostasis and innate immunity independent of nicotine. *J Clin Invest*. 2019;129:4290-4304. [PMID: 31483291] doi:10.1172/JCI128531
4. Leece P, Cavacuiti C, Macdonald EM, et al; Canadian Drug Safety and Effectiveness Research Network. Predictors of opioid-related death during methadone therapy. *J Subst Abuse Treat*. 2015;57:30-5. [PMID: 26014916] doi:10.1016/j.jsat.2015.04.008
5. Zibbell J, Howard J, Duhart Clarke S, et al. Non-fatal opioid overdose and associated health outcomes: final summary report. U.S. Department of Health and Human Services. 4 September 2019. Accessed at <https://aspe.hhs.gov/basic-report/non-fatal-opioid-overdose-and-associated-health-outcomes-final-summary-report> on 18 March 2020.
6. Zhao SX, Kwong C, Swaminathan A, et al. Clinical characteristics and outcome of methamphetamine-associated pulmonary arterial hypertension and dilated cardiomyopathy. *JACC Heart Fail*. 2018;6:209-218. [PMID: 29496022] doi:10.1016/j.jchf.2017.10.006
7. Substance Abuse and Mental Health Services Administration. Opioid treatment program guidance. 16 March 2020. Accessed at www.samhsa.gov/sites/default/files/otp-guidance-20200316.pdf on 18 March 2020.
8. Drug Enforcement Administration. COVID-19 information page. 2020. Accessed at www.deadiversion.usdoj.gov/coronavirus.html on 31 March 2020.

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