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# Healthcare utilization patterns among persons who use drugs during the COVID-19 pandemic

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## ABSTRACT

Persons with drug use disorders are an underserved and stigmatized population, and the COVID-19 pandemic could exacerbate these issues. The discussion around those with drug use disorders in the midst of the pandemic has focused on the need to ensure uninterrupted treatment access; however, very few in this population actually receive treatment, and retention is a substantial issue among those who do. Evidence from other chronic conditions suggests persons at high risk for severe COVID-19 complications are foregoing care due to fear of contracting the virus. Persons with drug use disorders tend to fall into this high-risk category, and thus may be avoiding healthcare facilities. Our data suggest this is true. If so, adverse outcomes, and increased severity of use disorders and associated health complications, could become prevalent. Clinicians should identify persons with drug use disorders who may be foregoing treatment, and engage them using methods that minimize the risk of COVID-19 transmission.

## 1. Background

The COVID-19 pandemic has created novel healthcare and behavioral concerns; among them are questions regarding changes in healthcare utilization patterns, and the consequences of these changes, among persons with drug use disorders. According to the most recent national figures, 8.1 million U.S. persons had a drug use disorder in 2018 (Substance Abuse and Mental Health Services Administration, 2019a), and 67,367 died of a drug overdose (Centers for Disease Control and Prevention, 2020). Persons with drug use disorders are already an underserved and stigmatized population and the addition of the COVID-19 pandemic has the potential to exacerbate these issues.

Given the commonality of access barriers to evidence-based treatment for drug use disorders in the pre-COVID landscape, much of the discussion around persons with drug use disorders in the midst of the pandemic has focused on the need to ensure uninterrupted treatment access, and the widely praised responses from the Drug Enforcement Administration (DEA), Substance Abuse and Mental Health Services Administration (SAMHSA), and others (American Society of Addiction Medicine, 2020). For example, authorized practitioners and opioid treatment providers (OTPs) can continue to treat patients with buprenorphine via telehealth, including via telephone due to the temporary

relaxation of Health Insurance Portability and Accountability Act (HIPAA) regulatory requirements by the U.S. Department of Health & Human Services (HHS) Office of Civil Rights. OTPs can also provide unsupervised take-home methadone to existing patients via telehealth/telephone. Additionally, Medicare has expanded the range of telehealth services it will cover, and increased the rate at which it covers them, and the HHS Secretary has waived the requirement that providers hold a license in the same state as the person they are treating. Authorized practitioners are now allowed to forgo the in-person physical examination for new patients with opioid use disorder that is required prior to initiating buprenorphine treatment; new patients who prefer methadone must still be seen in-person prior to initiation. However, only 9% of persons with a drug use disorder received specialty treatment in 2018 (Substance Abuse and Mental Health Services Administration, 2019a), and among persons who do initiate treatment, many have difficulty adhering to that treatment, due to the chronic, relapsing nature of substance use disorders. Research has established that no, or inadequate, treatment for drug use disorder is associated with increased utilization of high-cost healthcare resources, particularly those of an emergent nature, which often culminate in an inpatient stay (Gryczynski et al., 2016; Murphy & Polsky, 2016). For example, more than 270,000 people received treatment for a drug use disorder in the emergency room in

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2018 (Substance Abuse and Mental Health Services Administration, 2019a).

Healthcare visits by persons with a drug use disorder can and should serve as critical touchpoints with the system, offering providers the opportunity to connect these patients to evidence-based treatment. The most recent data on admissions to facilities that receive government funds for treatment of substance use disorders indicate that 11% ( $n = 113,738$ ) of admissions for a primary substance of opioids or stimulants were referred from a healthcare provider specializing in the treatment of substance use disorder, and another 5% ( $n = 52,504$ ) were referred from a healthcare provider other than one specializing in the treatment of substance use disorder (Substance Abuse and Mental Health Services Administration, 2019b).

## 2. Healthcare utilization during COVID-19: potential changes and consequences

A major response to the COVID-19 pandemic has been the strong encouragement or requirement of social distancing to prevent the spread of the virus. This is particularly true for persons who face an increased risk of severe COVID-19 complications, including mortality (Centers for Disease Control and Prevention, 2020b). Consequently, the manner in which many individuals access the healthcare system has rapidly transitioned from in-person physical care to virtual visits, where possible, while willingness to seek medical care may have declined in situations where virtual visits are not feasible.

To understand the current situation regarding healthcare utilization patterns among persons with a drug use disorder during COVID-19, it may be helpful to see how healthcare utilization patterns for other medical conditions have changed. Garcia et al. (2020) reviewed 9 high-volume cardiac catheterization laboratories in the U.S. following the emergence of COVID-19 and found a 38% decrease ( $p < 0.001$ ) in ST-Elevation Myocardial Infarction (STEMI) activations, which is similar to the 40% reduction reported in Spain (Rodríguez-Leor et al., 2020). Anecdotal evidence suggests that this reduction is due in large part to fear of entering healthcare facilities and contracting COVID-19, given their increased risk of severe COVID-19 complications (McFarling, 2020). Similar evidence exists for stroke, where one study found U.S. patients seeking care for stroke dropped 39% following the onset of COVID-19 (Kansagra, Goyal, Hamilton, & Albers, 2020). The number of high-risk persons foregoing care while their condition worsens, perhaps to the point where it is too late, is disconcerting.

Persons who use drugs also tend to be at higher risk for severe COVID-19 complications, and thus may behave similarly. Most individuals with a drug use disorder use multiple substances, including alcohol and tobacco (Substance Abuse and Mental Health Services Administration, 2019a). In addition to the risk of overdose and more obvious direct physical consequences of drug use, this population faces a significantly increased risk of numerous physical health conditions that, in turn, directly increase their risk of severe COVID-related illness, such as chronic-lung, kidney, liver, and heart disease, as well as asthma and immunocompromization.

## 3. Preliminary evidence

Our review of preliminary data from 4 large New York City hospitals showed that addiction consults in the hospitals decreased by half during March, April, and May 2020 when new cases of COVID-19, and related hospitalizations and deaths, were peaking in New York City; however, the hospitals made no changes to the staffing or operations of the addiction team during this time. Addiction consults were primarily handled by the psychiatry consultation-liaison service. This service was delivered by an in-person team at some sites, and by a telepsychiatry team at other locations (both before and during the COVID-19 pandemic). The team consisted of board-certified consultation-liaison psychiatrists and addiction psychiatrists, as well as social work supports.

**Table 1**  
Referrals to treatment, by month.

Date	Number of referrals
2019	
October	37
November	41
December	41
2020	
January	49
February	41
March	21
April	11
May	20
June	34
July	34

New referrals to treatment also fell substantially in March, April, and May, as shown in Table 1 (17.3 new referrals to treatment per month, on average), compared to the period of October 2019 through February 2020 (41.8 new referrals to treatment per month, on average). In June and July, the number of consults returned to baseline, and there were 34 new referrals to treatment/month.

## 4. Discussion

If patients with drug use disorders avoid healthcare facilities out of fear of contracting COVID-19, we are likely to witness an increase in the prevalence of adverse health outcomes associated with drug use disorder and related conditions, such as drug overdose and overdose deaths, HIV/HCV infections, and suicidal behavior (Substance Abuse and Mental Health Services Administration, 2019a). This would be true regardless of whether these persons are seeking treatment for their drug use disorder, or a different condition, in which case they could have been identified as having a drug use disorder and referred to treatment. In fact, the American Medical Association (2020) recently published an Issue Brief containing national reports and reports from 39 states declaring rising drug relapse rates, and concomitant overdose and overdose death rates associated with COVID-19, as well as concerns regarding those with mental health disorders, including rising suicide rates. Preliminary national estimates indicate that drug overdoses (fatal and nonfatal) increased by 18%, 29%, and 42% in March, April, and May 2020, respectively, relative to the same period last year (Wan & Long, 2020). Another analysis found that U.S. drug-related deaths had risen approximately 13% in the year leading up to July 2020, compared to 2019 (Katz, Goodnough, & Sanger-Katz, 2020).

The reduction in consultations and referrals was possibly partially a function of the general disruption to the New York City healthcare system during the peak of the COVID-19 pandemic, including rapid transition to outpatient virtual visits, even though the hospital made no changes to the staffing or operations of the addiction team. Regardless of the extent to which the reduction was due to patients delaying care versus the healthcare system being overwhelmed, identifying persons with drug use disorder and connecting them to evidence-based addiction treatment remains a top priority during the COVID-19 pandemic; moreover, given the increased risk of severe COVID-19 complications that this vulnerable population faces, it is important to utilize pre-established treatment initiation algorithms that minimize the risk of COVID-19 transmission, such as those we discuss in the Background section. For example, researchers and providers can continue to work together to develop tools that utilize “real-world” data from electronic health records (EHRs) to aid in the recognition and phenotyping of persons with drug use disorder (Afshar et al., 2019; Chartash et al., 2019; Sanchez-Roige & Palmer, 2019; Sharma et al., 2020), which would allow providers to better identify both new and existing patients. Providers can also continue to develop methods to improve identification and linkage of persons with drug use disorder within their current

environment, such as linking EHR data with information from statewide prescription drug monitoring programs (Holmgren & Apathy, 2020).

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### Declaration of competing interest

No competing interests to declare.

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### References

- Afshar, M., Joyce, C., Dligach, D., Sharma, B., Kania, R., Xie, M., ... Karnik, N. S. (2019). Subtypes in patients with opioid misuse: A prognostic enrichment strategy using electronic health record data in hospitalized patients. *PLoS One*, *14*(7), Article e0219717.
- American Medical Association. (2020). Issue brief: Reports of increases in opioid-related overdose and other concerns during COVID pandemic. Retrieved from: <https://www.ama-assn.org/system/files/2020-07/issue-brief-increases-in-opioid-related-overdose.pdf>. (Accessed 08/11/2020).
- American Society of Addiction Medicine. (2020). COVID-19 resources. Retrieved from: <https://www.asam.org/Quality-Science/covid-19-coronavirus>. (Accessed 08/04/2020).
- Centers for Disease Control and Prevention. (2020). Drug overdose deaths in the United States, 1999–2018. NCHS Data Brief: National Center for Health Statistics.
- Centers for Disease Control and Prevention. (2020b). People who are at higher risk for severe illness. Retrieved from: <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-at-higher-risk.html>. (Accessed 05/11/2020).
- Chartash, D., Paek, H., Dziura, J. D., Ross, B. K., Noguee, D. P., Boccio, E., ... Patel, M. D. (2019). Identifying opioid use disorder in the emergency department: Multi-system electronic health record-based computable phenotype derivation and validation study. *JMIR Medical Informatics*, *7*(4), Article e15794.
- Garcia, S., Albaghdadi, M. S., Meraj, P. M., Schmidt, C., Garberich, R., Jaffer, F. A., ... Chambers, J. (2020). Reduction in ST-segment elevation cardiac catheterization laboratory activations in the United States during COVID-19 pandemic. *Journal of the American College of Cardiology*, *75*(22), 2871–2872.
- Gryczynski, J., Schwartz, R. P., O'Grady, K. E., Restivo, L., Mitchell, S. G., & Jaffe, J. H. (2016). Understanding patterns of high-cost health care use across different substance user groups. *Health Affairs*, *35*(1), 12–19.
- Holmgren, A. J., & Apathy, N. C. (2020). Evaluation of prescription drug monitoring program integration with hospital electronic health records by US county-level opioid prescribing rates. *JAMA Network Open*, *3*(6), e209085.
- Kansagra, A. P., Goyal, M. S., Hamilton, S., & Albers, G. W. (2020). Collateral effect of Covid-19 on stroke evaluation in the United States. *New England Journal of Medicine*, *383*, 400–401. <https://doi.org/10.1056/NEJMc2014816>.
- Katz, J., Goodnough, A., & Sanger-Katz, M. (2020). *In shadow of pandemic*. The New York Times: U.S. Drug Overdose Deaths Resurge to Record.
- McFarling, U. L. (2020). "Where are all our patients?": Covid phobia is keeping people with serious heart symptoms away from ERs (STAT).
- Murphy, S. M., & Polsky, D. (2016). Economic evaluations of opioid use disorder interventions: A systematic review. *Pharmacoeconomics*, *34*(9), 863–867.
- Rodríguez-Leor, O., Cid-Álvarez, B., Ojeda, S., Martín-Moreiras, J., Rumoroso, J. R., López-Palop, R., ... Cruz, I. (2020). *Impacto de la pandemia de COVID-19 sobre la actividad asistencial en cardiología intervencionista en España* (REC Interv Cardiol).
- Sanchez-Roige, S., & Palmer, A. A. (2019). Electronic health records are the next frontier for the genetics of substance use disorders. *Trends in Genetics*, *35*(5), 317–318.
- Sharma, B., Dligach, D., Swope, K., Salisbury-Afshar, E., Karnik, N. S., Joyce, C., & Afshar, M. (2020). Publicly available machine learning models for identifying opioid misuse from the clinical notes of hospitalized patients. *BMC Medical Informatics and Decision Making*, *20*, 1–11.
- Substance Abuse and Mental Health Services Administration. (2019a). National survey on drug use and health (NSDUH). Retrieved from <https://www.samhsa.gov/data/data-we-collect/nsduh-national-survey-drug-use-and-health>. (Accessed 06/04/2020).
- Substance Abuse and Mental Health Services Administration. (2019b). *Treatment episode data set (TEDS): 2017*. U.S. Department of Health and Human Services (HHS).
- Wan, W., & Long, H. (2020). "Cries for help": Drug overdoses are soaring during the coronavirus pandemic (The Washington Post).