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## Substance Use in the Era of COVID-19: A Synthesis of the Problem, Sequelae, and Viable Strategies for the Future

Rebecca A. Bates  
*ADAPT, University of Baltimore*, [rbates1@wb.hidta.org](mailto:rbates1@wb.hidta.org)

Pam S. Imm  
*LRADAC, Wandersman Center*, [drpamimm@gmail.com](mailto:drpamimm@gmail.com)

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## **Substance Use in the Era of COVID-19: A Synthesis of the Problem, Sequelae, and Viable Strategies for the Future**

### **Introduction**

The COVID-19 pandemic has highlighted the chronic problem of substance use as a public health epidemic in the United States. Our nation has been significantly impacted by the pandemic with more than 579,000 Americans dead and over 32.5 million infected as of May 5, 2021.<sup>1</sup> Ongoing national trauma continues to impact individuals, families, and communities with many wondering the extent to which the nation will be negatively impacted by related outcomes such as increased substance use, completed suicides, child abuse, and domestic violence. This syndemic, an interaction of biologic and social conditions, has highlighted the need to address vulnerabilities that lead to poor health outcomes.<sup>2,3</sup> Substance use has also been exacerbated across all regions by COVID-19, and both have been inadequately addressed by healthcare systems.<sup>4,5</sup> Additionally, community organizations and partnerships are struggling to meet demands with inadequate funding, outdated legislation, and overtaxed human resources.<sup>6</sup> A number of negative sequelae have already resulted from COVID-19 such as worsening health disparities and health outcomes that could be mitigated with implementation of comprehensive evidence-based strategies to build the necessary infrastructure and prepare for disasters such as the current syndemic.<sup>7</sup>

This article highlights key findings regarding the prevention, assessment, and treatment of substance use during the coronavirus pandemic; negative sequelae associated with public health recommendations instituted to reduce the risk of coronavirus (eg, social distancing); and anticipated future sequelae. As vaccines and some treatments are now widely available, the need to socially distance or isolate to prevent the spread of the virus may soon diminish but the current public health measures are also well-known risk factors for substance use, violence, and suicide and these sequelae will need to be appropriately addressed.<sup>8,9</sup> As researchers and practitioners continue to gather local information to determine how health outcomes have changed from pre-pandemic conditions, it will be years before definitive data are available about COVID-19's impact on measures of safety and violence.<sup>10</sup> An example of how grassroots community organizations can pivot to meet the needs of those in recovery is provided. Policy implications for current and predicted challenges are also discussed to provide context for further research.

## **Methods**

### **Literature Synthesis Process**

An initial literature search was conducted using Medline Full Text, APA PsycInfo, and SocINDEX with Full Text databases. The searches used medical subject headings (MeSH) and keywords related to population, COVID-19, social isolation, substance use, domestic violence, child abuse, depression, and anxiety. Search terms included: adult, adolescent, child, COVID, COVID-19, SARS-CoV2, coronavirus, isolation, solitude, loneliness, confinement, aloneness, quarantine, withdrawal, seclusion, substance use, domestic violence, child abuse, depression, and anxiety. Results were limited to peer-reviewed journals and English language, and a total of 382 peer-reviewed journal articles were found. Titles and abstracts were reviewed for all the identified journals; one duplicate was found and removed, resulting in 32 articles identified as relevant.

Articles were removed if they did not directly address the problem of substance use during the time of COVID-19. Of the 382 identified articles, 349 were removed because they did not address COVID-19, results were not generalizable, or they did not address substance use during the time of COVID-19 after further review of the full text. Additional articles were identified from ancestry searches of the included articles and open-source articles not previously identified through the systematic literature review. As data about COVID-19, substance use, and sequelae were updated in real time, the authors included the relevant information in this article.

### **Substance Use in the Era of COVID-19: The Current Problem**

#### ***Overdose Deaths***

The Centers for Disease Control and Prevention (CDC) recently released drug-overdose death data that showed a 28.8% increase in predicted drug overdoses during the 12 months preceding September 2020.<sup>11</sup> Initial numbers indicated that deaths involving fentanyl (including illicitly manufactured fentanyl), cocaine, and methamphetamine continue to increase as polysubstance use is common.<sup>12</sup> Some suggest that the policy of limiting carfentanyl was primarily responsible for the small overdose decline from 2017 to 2018.<sup>13</sup> However, synthetic opioids including illicitly manufactured fentanyl and co-involving psychostimulants were already primary drivers of overdose deaths in 2017.<sup>14</sup> Psychostimulants with abuse

potential include prescription stimulants as well as illicit drugs such as methamphetamine, cocaine, and ecstasy.

In May 2020, the Overdose Detection Mapping Application Program (ODMAP) reported that more than 20 states had increases in opioid-related mortality since COVID-19 began to spread in the United States<sup>15</sup>. As the nation becomes more sophisticated in its approach to surveillance and monitoring, it will be able to prepare communities for emerging drug trends such as the distinct and predictive waves of the opioid crisis. The first wave, which started in the 1990s with prescription opioid medications, moved into the second wave with a rise in overdose deaths involving heroin, and the third wave starting in 2013 with increased overdoses involving fentanyl and its illicitly manufactured analogs.<sup>12</sup> As the crisis moves into its fourth wave--an increased use of psychostimulants--communities and coalitions of key stakeholders will ideally be able to implement effective prevention, treatment, and recovery services to minimize the drugs' impact.<sup>16</sup>

### ***Alcohol Use***

As the pandemic unfolds with the continuing drug epidemic in the background, there is a legitimate concern about increased use of other legal and illegal substances that would significantly affect our nation's mental health. Specifically, indications are that alcohol use has increased both in the amount of alcohol purchased as well as in self-reported changes in alcohol use.<sup>17</sup> In a study that measured three main indicators of alcohol use over time (February 2020 to April 2020), the authors reported that respondents who increased their consumption were mostly those who drank more than their usual quantity and those who were not initially drinking more than recommended guidelines in the month of February. The largest increases in all three outcome measures were observed in the western US (including Alaska and Hawaii) when compared to other US regions.<sup>17</sup> In September 2020, the National Institute on Alcohol Abuse and Alcoholism (NIAAA) reported an increase of up to 37% in monthly alcohol sales (spirits, wine, beer). Among the 12 states with reported data, 11 states reported increases compared to the prior 3-year average for September and 1 state reported net decreases.<sup>18</sup>

Outcomes of RAND's American Life Panel indicated that the overall frequency of alcohol consumption increased by 14% among adults over age 30, compared to the same time in 2019.<sup>19</sup> While health-related consequences because of sustained alcohol use may occur, there is also concern about alcohol's impact on psychological symptoms such as depression and anxiety.<sup>20</sup>

## ***Marijuana***

Similarly, among emerging adults who used alcohol and cannabis prior to the pandemic, those who self-isolated during the pandemic increased their cannabis use by 20% compared to those who did not self-isolate.<sup>21</sup> Of note is the increasing use of marijuana among young adults ages 18-25 that was noted prior to the pandemic. In this age group, 20.8% reported past month use of marijuana in 2016 with a 23% increase in 2019. The reported daily use of marijuana for this young-adult age group significantly increased from 6.4% in 2016 to 7.5% in 2019. The use of methamphetamine among those over age 25 also showed significant increases from 0.5% in 2016 to 0.8% in 2019.<sup>21</sup>

While maternal substance use has serious risks for the pregnant woman and her fetus, society still struggles with ways to best deal with this complicated issue. The directives of the lockdown and quarantine orders suggest that consequences such as reduced accessibility to health resources and family and work stressors could impact the health of all females, with pregnant women being particularly vulnerable. This may be especially true if they are at high risk for substance use or are in early recovery.

The percentage of pregnant women reporting daily or almost-daily use of marijuana rose from 1.5% in 2018 to 1.7% in 2019, representing about 36,000 pregnant woman using marijuana.<sup>22</sup> Pregnant women are usually highly motivated to stop using alcohol and substances during pregnancy, but many are not willing to disclose their use because of fear of being judged, reprimanded, or possibly alerting law enforcement.<sup>23</sup> Many leaders discuss the importance of universal screening for alcohol and all substance use with all pregnant woman at every appointment. Because there is no known safe amount of substance use during pregnancy, early identification of any use and appropriate intervention may decrease the risk of substance-related birth defects and developmental disabilities.<sup>23</sup>

## ***Other Drugs***

Deaths involving psychostimulant use have mirrored deaths from opioids since 2009 and are now considered the fourth wave, as cocaine and methamphetamine deaths became more prevalent than prescription opioids or heroin deaths in 2019.<sup>24</sup> Among clinical drug testing samples from a nationwide laboratory, there was no increase in positive findings for cocaine, amphetamines, oxycodone, or tramadol compared to findings prior

to the pandemic.<sup>25</sup> Among tests that were positive for nonprescription fentanyl, however, there were significant increases for amphetamines (89%) and cocaine (34%).<sup>25</sup> One of the challenges with psychostimulant use is that there are no approved drug treatments as there are for alcohol, nicotine, and opioids. Additionally, for drug tests that were processed and positive for nonprescribed fentanyl, there was a 39% increase in opiates.<sup>25</sup>

### ***Negative Consequences***

Psychological symptoms during COVID-19 have significantly increased.<sup>26</sup> Causes for this are not clear, but previous literature suggests that personal and economic upheaval, social isolation, disruptions to routines of daily life, grief over the deaths of loved ones, decreases in positive emotions, fear of uncertainty, and trauma related to these experiences during COVID-19 contribute to the rise in depression, anxiety, suicidal ideation, and stress.<sup>26-29</sup> Of particular importance is identification of young adults and subpopulations such as those who identify as nonbinary gender and who are particularly vulnerable to social and psychological disruptions resulting from recommendations and policies meant to protect the population from COVID-19.<sup>30</sup>

As youth potentially experience more adverse childhood events as a result of the pandemic (eg, loss of parent, child abuse and neglect), there is concern that the national suicide crisis will be accelerated.<sup>31</sup> Early indications from U.S. cohort studies of adults in April, May, and June 2020 suggest elevated adverse mental health conditions associated with COVID-19. Younger adults, racial and ethnic minorities, essential workers, and unpaid adult caregivers report experiencing disproportionately worse mental health outcomes including increased substance use and elevated suicidal ideation.<sup>32</sup> In March 2020, a national sample of adults revealed high levels of depression and fear, particularly in areas with more COVID-19.<sup>33</sup>

Data from the 2019 *National Survey of Drug Use and Health* indicates that substance use disorders are associated with suicidal thoughts, plans, and attempts among adults age 18 and older. That is, those with a substance use disorder (SUD) are more likely to have thoughts of suicide, develop a plan, and make an attempt than those without SUD.<sup>22</sup> In 2018, there were 1.4 million suicide attempts in the US and suicide resulted in 2 1/2 times more deaths than homicide.<sup>34,35</sup> Between 1999-2018, the suicide rate in the United States increased 35% and was the second leading cause of death among those ages 10-34 years.<sup>36</sup>

One consequence of changing alcohol and drug use trends is historically rising mortality rates for middle-aged adults; particularly deaths

from poisoning, suicide, chronic liver disease, and cirrhosis.<sup>37</sup> These “deaths of despair” are fueled by drug-related deaths that have increased dramatically since the early 1990s. As mental health and substance use disorders continue to negatively impact individuals and families, many are further impacted by tragic responses such as suicide attempts and completed suicides. There are many shared risk factors among substance misuse, addiction, and suicidal behaviors. While researchers highlight that no one risk factor reliably predicts who will die by suicide, the emergence of COVID-19 has potentially created a perfect storm of salient risk factors.<sup>34</sup> This is particularly important because social isolation and related feelings of loneliness are the main risk factors associated with suicidal outcomes in the US and throughout the developed world.<sup>38</sup> Steps that policymakers, health care leaders, and organizational leaders can take to mitigate suicide risk during and after the pandemic are outlined in a special commentary provided by the American Foundation for Suicide Prevention (AFSP).<sup>39</sup>

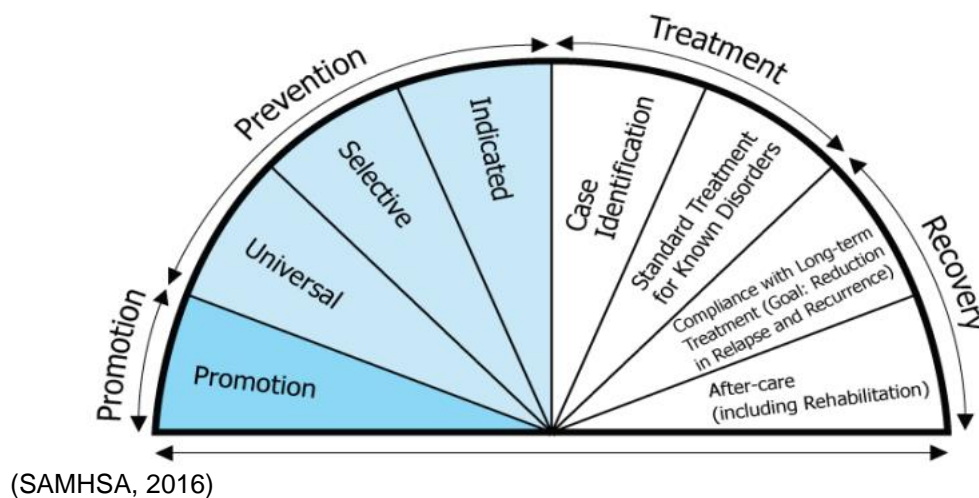
### **The Fifth Wave**

Multiple studies of adverse childhood experiences have documented the impact of household function and child abuse on health behaviors and outcomes later in life.<sup>40,41</sup> The significant increase in psychological distress, fear, substance use, suicide, domestic violence, and loss of healthcare coverage highlights the need to prepare to address these issues now, during this syndemic. Delaying prevention efforts until the children and adolescents of today begin to exhibit substance use, depression, anxiety, and generational trauma will cost more in terms of social decay, healthy life years lost, increased early mortality, and overall healthcare costs in the future.<sup>10</sup> Increasing support for all caregivers to provide safe and stable environments now would be a small investment that would yield large benefits in the future.<sup>42</sup> Preventing the fifth wave will take a concerted effort to address the events, individual experiences, and the effects across all sectors of the social-ecological framework to address this complex issue.<sup>43</sup> Implementing programs in schools and childcare programs to build protective factors is a first step. Screening for substance use in middle and high schools may help identify adolescents who are beginning to use or misuse substances and provide an opportunity to intervene. Anticipating the future outcomes of today’s youth will help guide strategic interventions to prevent subsequent increases in negative outcomes.<sup>30</sup>

### **Enhance Strategies in the Time of COVID-19**

An increasing number of peer-reviewed articles attribute increased substance use to the pandemic. Many reports (as an open letter or commentary) rely on convenience samples with little generalizability beyond the specified location.<sup>32,44</sup> The National Institute on Drug Abuse (NIDA) has called on researchers to adapt their projects to further characterize the impact of COVID-19 on substance use and to investigate the intersection with the pandemic particularly in vulnerable populations.<sup>45</sup> Ensuring a consistent framework in how prevention and intervention activities and subsequent research are conceptualized will allow for progress across the Institute of Medicine's continuum of care.<sup>46</sup>

**Figure 1.** Continuum of Care



The Continuum of Care, as described by the Institute of Medicine and operationalized by the Substance Abuse and Mental Health Services Administration (SAMHSA), includes promotion, prevention, treatment, and recovery (Figure 1).<sup>46</sup> Comprehensive prevention and intervention efforts require implementation of evidence-based programs and policies across different levels of influence. In the time of COVID-19, the prioritization of using established evidence-based initiatives at all levels is paramount. However, there is also an opportunity to innovate using new ideas and technologies to impact the changing conditions of the environment. If this challenge is not met, the negative sequelae will likely manifest in the next generation of young adults as substance use, depression, suicide, domestic violence, child maltreatment, and chronic medical conditions. The financial



and human cost of not implementing primary prevention and universal strategies is significant. As researchers and practitioners begin to innovate, it is important not to lose sight of how the pandemic has created conditions that may provide a window to new or improved prevention strategies.<sup>10,42</sup>

One consequential change in service delivery during the pandemic has been expanded use of telehealth options. Telehealth delivery of medication-assisted treatment (MAT) and therapy improves access to treatment, and patients report high satisfaction.<sup>47</sup> However, the authors argue that large-scale randomized controlled trials need to be done. Rural areas often lack access to specialty care such as behavioral health treatment for substance use disorder. In a study of emergency departments in critical access hospitals, wait times decreased from 27 minutes prior to tele-behavioral health access to 12 minutes after instituting tele-behavioral health.<sup>48</sup> A recent qualitative study included healthcare providers from various regions and settings across the US. Many providers reported that telehealth improved the quality of the patient-provider interaction, reduced wait times, and reduced the number of missed appointments.<sup>49</sup> However, other providers in this study noted that the lack of structure and accountability negatively impacted care. Additionally, challenges with utilizing technology and poor connectivity were reported. Clearly, more research is needed as additional risk factors and barriers to access for behavioral health services have changed during COVID-19.<sup>50</sup> With the rapid adoption of telehealth services, many providers simply switched to telehealth without modifying the policies and procedures that can maximize this delivery method. Studies that examine delivery and receipt of care would be valuable to better understand the safest and most effective delivery process as healthcare services will likely not return to pre-COVID-19 delivery models.<sup>51</sup>

Building on the transdisciplinary partnerships of the National Institutes of Health's HEAL Initiative (Helping End Addiction Long-term), existing models of large-scale collaboration could be leveraged for additional prevention research.<sup>52</sup> While the HEAL Initiative focuses on reducing opioid misuse and addiction, of critical importance are collaborating to enhance prevention research, translating research into practice, and building readiness for leadership in new areas. With a goal of creating conditions to ensure improved health and wellness in the next generation, researchers can develop prevention strategies to build safe and supportive physical environments, improve tertiary and clinical care, and address social and economic disparities that worsen outcomes for all.

Although there is a need to focus on preventing potential negative sequelae of COVID-19 on substance use, this is also an opportunity to focus

more heavily on health promotion and prevention measures such as universal and selective screenings to prevent sequelae from substance use in children and families. These negative sequelae will likely manifest in the next generation of young adults as substance use, suicide, depression, domestic violence, child abuse and neglect, and chronic medical conditions if they are not addressed now.<sup>10</sup> It is not enough to focus on costly, downstream tertiary prevention strategies. The most impact and the least economic and societal cost will be realized through primary prevention efforts that will reduce the demand for secondary and tertiary interventions.<sup>53</sup>

### **Innovative Actions to Address Negative Sequelae**

The COVID-19 pandemic has already exacted a staggering toll in the US with an untold number of people experiencing negative sequelae. While public health and government responses may be one part of the solution, the syndemic has created opportunities to develop and support innovative solutions to mitigate current and future negative outcomes.<sup>54,55</sup>

In this section, recovery community organizations (RCOs) are highlighted as a rapid-response, grassroots movement designed to support individuals and families experiencing substance use and misuse.<sup>56</sup> Additional community responses may include disaster and emergency preparedness that focuses on trauma-informed care principles and practices. Part of being fully prepared requires an intense focus on the fifth wave of this syndemic: increased adverse childhood experiences.<sup>10</sup> Children who are no longer receiving their education in face-to-face classroom environments or who are in prolonged contact with abusers are more likely to misuse substances and perpetuate violence as they reach adolescence and young adulthood.<sup>40, 41</sup> Increased social vulnerabilities further marginalize the most at-risk populations.<sup>57</sup>

Decades of research have identified the importance of selecting and implementing programs or interventions that are consistent with prioritized needs for specific populations. Decision support systems that help guide the selection of interventions have been widely used to promote evidence-based programming/practices across many disciplines.<sup>58,59</sup> As the implementation science literature documents specific factors related to high-quality implementation, researchers have studied how the concept of organizational readiness might be a precursor to implementation of an innovation (eg, new program, policy, practice, or process).<sup>60-63</sup> The construct of organizational readiness may be useful to local and state governments, health and education agencies, foundations, and researchers

as they consider new ways to implement, scale up, and adapt effective innovations.

Researchers, such as those at the National Collaborating Centre for Methods and Tools (NCCMT) have worked toward a common definition of organizational readiness and refined measurement tools for use.<sup>64</sup> As agencies consider what strategies they may want to implement or models they may want to scale up to reduce risk, readiness may further inform their selection. Wandersman and his colleagues have proposed the readiness rubric of *Readiness = Motivation × General Capacity and Intervention-Specific Capacity* ( $R=MC^2$ ).<sup>65,66</sup>  $R=MC^2$  defines readiness as the interplay between motivation, innovation-specific capacity, and general capacity. The components are assumed to have a multiplicative relationship, where if one of the components is low or nonexistent, the organization or community is not fully ready for an innovation. Motivation is the degree to which an organization wants and is committed to the innovation taking place. Innovation-specific capacities are the conditions necessary for a specific innovation (program, policy, practice, or process) to be implemented with quality. General capacity refers to the overall ability of an organization to function successfully on a day-to-day basis. Together, the three components represent a comprehensive and actionable model for organizational readiness.<sup>65,67,68</sup> Each of the three readiness components comprises several subcomponents that can be enhanced and measured for change. The  $R=MC^2$  model has two primary readiness assessment tools: the Readiness Diagnostic Scale (RDS) and the Readiness Thinking Tool (RTT). Both are designed to assess organizational readiness using the  $R=MC^2$  framework. Usually, leadership (in collaboration with the readiness team) determines which assessment tool is best for a specific organization.

### **Bright Spot: Recovery Community Organizations**

As communities work to build capacities and infrastructure to deal with crises such as the syndemic, one model of community success is the recovery community organization. RCOs are independent, nonprofit organizations that are peer led with a focus on multiple pathways to recovery from addiction. Staff and board members are recovery allies and include those in long-term recovery. One example of an RCO is The Courage Center in Lexington, South Carolina, which continued working through the pandemic with significant increases in the demand for peer recovery support for youth, young adults, and parents/caretakers. To meet the increasing need, the organization adopted a hybrid model of peer support that includes both in-person and virtual platform options. Additional

services included mutual aid groups, telephone case monitoring, and other support services for individuals and families on their recovery journey.

### **Enhanced Disaster Response**

Although this syndemic is probably not considered a “typical” disaster, there are similarities and a potential for learning from disaster response strategies. When the COVID-19 pandemic began, the closure of schools, childcare centers, and businesses almost overnight resulted in a disaster for many individuals and families who suddenly had to balance decisions about health, childcare, and employment with safety and socioeconomic security. In 2014, SAMHSA offered a disaster response strategy focused on trauma-informed care that is particularly suited to this turbulent time.<sup>69</sup> Part of SAMHSA’s recommendations in TIP 57 was to institute universal screenings and culturally responsive practices in all healthcare settings<sup>69</sup> and in TIP 32 to specifically institute universal screening for adolescent substance use.<sup>70</sup> These are appropriate practices to adopt now and to continue as part of best practices to better understand the needs of individuals and provide the most appropriate evidence-based interventions. Advocacy for resource allocation focused on disaster-preparedness guidelines that include response and recovery is imperative.<sup>8</sup> Now is the time to carefully consider the practices, procedures, and policies that will support a safe and sustained recovery from the syndemic.

### **Increased Social Vulnerabilities: Clinical Care Pathways**

Although our current mental health system was inadequate to support the needs of our population before the pandemic,<sup>33</sup> the syndemic has highlighted the social disparities and vulnerability that lead to poor health outcomes. As discussed previously, behavioral health needs have significantly increased in 2020 at the same time when people are losing jobs and often the health insurance offered through those jobs. This is an opportunity to rethink how to address healthcare needs in the US. With healthcare often tied to employment, this creates additional burdens on the employer to pay a portion of healthcare costs, restricts the employees’ option to stay with their provider of choice, and significantly increases healthcare costs with fractured and inconsistent coverage. Improvements to healthcare coverage should include integrated care systems with behavioral health and physical health working together to provide the full spectrum of care. The “acute on chronic” nature of widening health

disparities during COVID-19 complicates access to care for marginalized populations.<sup>71</sup>

In 2019, authors publishing in the journal *Pediatrics* called for improved public health surveillance to inform clinical guidance for the care of pregnant woman with a treated or untreated opioid use disorder and their infants.<sup>72</sup> While there were downward trends for pregnant women's past-month reported use of opioids (1.4% in 2017 to 0.4% in 2019), the authors described shortcomings in the current surveillance system that only monitors prenatal opioid use, opioid use disorder at delivery, and diagnosis of neonatal abstinence syndrome. They drew a parallel to the usefulness of the CDC's collaboration with health partners to begin mother-infant linked surveillance during the Zika virus emergency. This surveillance model allowed for timely information about the impact of infection during pregnancy which was translated into action and clinical guidance.

## Policy

A comprehensive legislative response to increase community awareness, concern, and action about the heightened risk factors for substance use across the lifespan is required. This may include heightened surveillance and monitoring of drug trends, innovative public/private partnerships to address early use through evidence-based interventions, and widely disseminated community-based strategies such as mental health and drug treatment courts. People who use drugs are particularly vulnerable to infections, decreased immunity, and poor health status, each of which is exacerbated by barriers to appropriate healthcare services (including stigma). COVID-19 and public health measures to curtail infection only increases this vulnerability. The policy interest group of the International Society of Addiction Medicine recommended development of a comprehensive healthcare response to improve the detection and treatment of SUD and COVID-19.<sup>73</sup>

The newest generation is experiencing increased threats to safety and security during this pandemic. Developing evidence-based legislation focused on children and families may help mitigate some of the negative effects, including maltreatment and mental health sequelae resulting from stay-at-home orders during COVID-19.<sup>42</sup> Approaching this syndemic from a disaster-response perspective may help relieve some of the psychological burden.<sup>57</sup> Addressing rising suicide rates by implementing new policies and initiatives requires understanding risk factors that have been exacerbated by the pandemic. Organizations and communities may benefit from

collaborating with those with lived experience to embrace system changes including universal screening and delivery of evidence-based services.<sup>74</sup>

Legislation covering prescribing MAT for opioid use disorders has also undergone rapid change in 2020. For example, SAMHSA responded to the need for safe and effective treatment with methadone by removing the requirement for in-person daily dosing and removing the requirement for an in-person physical examination before initiating buprenorphine.<sup>75</sup> This legislation may help reduce virus exposure for people who use drugs as well as reduce barriers to accessing MAT during the pandemic, but only to a limited extent. Without full adoption by states and health systems, the piecemeal implementation of SAMHSA's guidance will result in continued fractured services.<sup>54</sup> Recent policies such as the expansion of reimbursable telehealth services, to include psychotherapy and behavioral health services delivered directly to the patient, are becoming more commonplace during the pandemic but are not universally adopted. The Center for Connected Health Policy has a searchable database of telehealth legislation throughout the US. to share existing models of telehealth policies.<sup>76</sup>

One question that remains to be answered is whether the new clinical care pathways that have been established during COVID-19 will remain in place or revert to pre-pandemic workflows. This is an important consideration as the temporary legislative modifications have been opportunities to test new models of care and provide increased access to care. Many of these practice transformations have resulted in more efficient workflow that allows clinicians to focus on patient interactions and supports the quadruple aim to achieve better outcomes in care for individuals, healthier populations, better clinician experience, and lower costs.<sup>77</sup> At the start of the pandemic, primary care sites accounted for less than 1% of practices that were utilizing telehealth technologies. By April 2020, more than 43% had adopted telehealth.<sup>78</sup>

## Discussion

The CDC predicts the count of drug overdose deaths from September 2019 to September 2020 to be 90,237, which is 20,000 more compared to the prior 12 months.<sup>79</sup> While deaths related to synthetic opioids, including illicitly manufactured fentanyl, were already increasing, the rapid closure of schools, businesses, and workplaces meant to protect the population from COVID-19 added additional stressors on already vulnerable populations. People using drugs or those in recovery were

suddenly separated from healthcare and other support systems, thereby increasing the risk of relapse, overdose, and death. Subpopulations, such as young adults, are of particular importance in that they are particularly vulnerable to social and psychological disruptions from COVID-19.<sup>30</sup> As our nation sees worsening outcomes related to issues such as domestic violence, suicidal ideation and suicide attempts/completions, and child maltreatment, the importance of implementing evidence-based prevention, intervention, treatment, and recovery models cannot be overstated.

Examples of opportunities across the prevention continuum include grass-roots organizations led by those with lived experience with specialization in addiction, mental health, and other conditions with etiology frequently associated with adverse childhood experiences (ACEs). These organizations, such as RCOs, fill a niche in communities for those leaving or transitioning from formal treatment settings.<sup>56</sup> While policies and evidence-based programs can mitigate the traumatic effects of the current crisis,<sup>80</sup> the pandemic has further increased the salience of related problems.<sup>81</sup> Fortunately, there are models for multitiered systems of support in schools and communities that are inclusive of trauma-informed care approaches.<sup>82</sup> Critical components to effective adoption and dissemination of all evidence-based models include adequately trained staff and attention to program fidelity.

The expansion of new technologies and the growing numbers of community-based organizations offer the opportunity to scale up across all systems to tailor to the needs of specific populations. Policy changes during the COVID-19 pandemic reduced barriers to telehealth access and promoted the use of telehealth as a way to deliver acute, chronic, primary, and specialty care.<sup>83</sup> Telehealth technologies, which allow for visualization of individuals at their location, provide access to services that may otherwise not be available. This literal window into a home environment provides an opportunity for providers to observe risky or unsafe conditions as well as conduct screenings and counseling interventions using telehealth modalities.<sup>84</sup> Chronic conditions such as cardiovascular disease, diabetes, depression, anxiety, and substance misuse are likely to continue worsening as the pandemic continues to disrupt social, economic, and personal protections. Considering existing models, such as those implemented to promote disaster preparedness and timely surveillance of emerging trends, may be useful to improve policies related to prevention and response.<sup>8,16,73</sup> This is the time to innovate in new and sustained ways to ensure healthy families, communities, and systems that can effectively respond to the pressing needs of the decade.

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