Fighting the opioid epidemic and COVID-19 pandemic

Using innovation to combat both crises

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Introduction

BEFORE THE COVID-19 PANDEMIC, health care in the United States was already grappling with another crisis: the opioid epidemic. As leaders continue to seek ways to address the many challenges the COVID-19 pandemic and the opioid epidemic bring, they must navigate a complicated web of social, economic, and financial implications and questions related to the crises.

Health care has already started to respond to the seismic shifts that patients and communities are experiencing as a result of the confluence of the COVID-19 pandemic and the opioid epidemic, implementing new technology solutions and innovative strategies to deliver care to patients, maintain continuity of operations, and mitigate the spread of COVID-19.

This report explores the challenges and opportunities COVID-19–related disruptions present for individuals, communities, and systems impacted by opioid use disorder (OUD) with a focus on innovations that have the potential to influence the future of health. *These include the proliferation of new virtual treatment options for OUD, development of data-informed health care, adoption of new technologies, and advancement of policies that enable access to these innovations.* Figure 1 illustrates the numerous impacts COVID-19 disruptions have had on public health and health care delivery— creating new obstacles as well as opportunities for innovation—and subsequent impacts for people with OUD.

As leaders continue to seek ways to address the many challenges the COVID-19 pandemic and the opioid epidemic bring, they must navigate a complicated web of social, economic, and financial implications and questions related to the crises.

FIGURE 1

COVID-19 disruptions to health care and the impact on the opioid epidemic

The intersection of COVID-19 and the opioid epidemic has implications for the health and well-being of those with OUD and other substance use disorders (SUD). In many ways, COVID-19 has exacerbated challenges for people with OUD—but disruption has also spurred new opportunities to improve treatment and care for people with OUD.
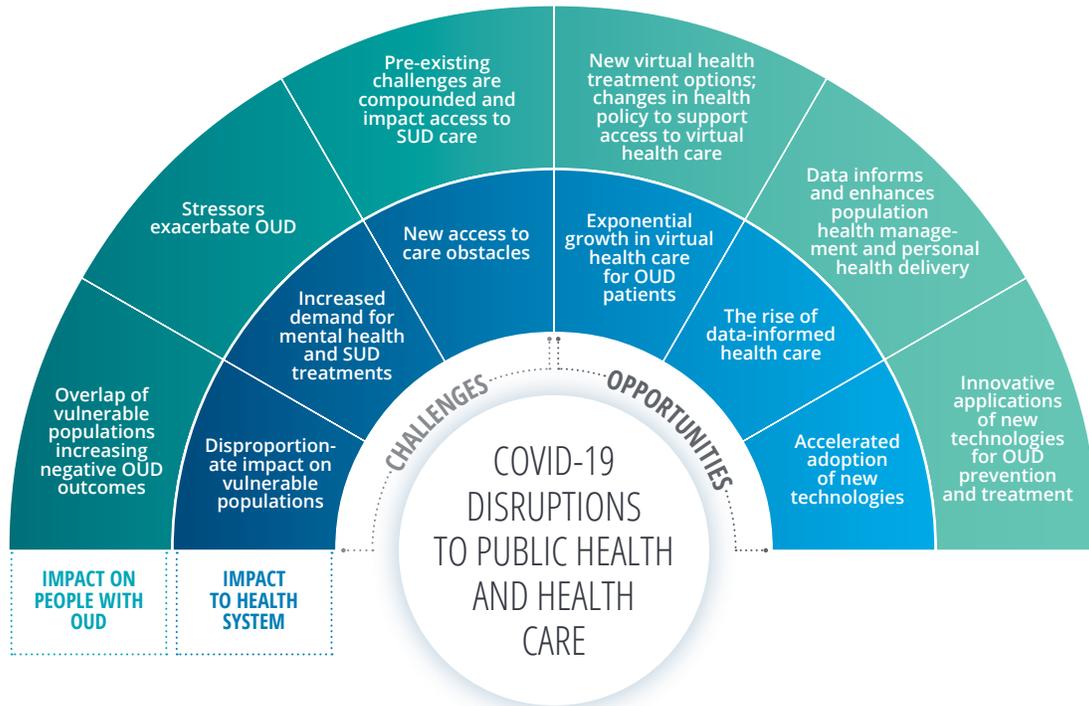
Source: Deloitte analysis.

Challenges caused by the health care disruption

COVID-19 HAS CREATED challenges that in many cases have disproportionately or uniquely impacted individuals with OUD, including worsening mental and behavioral health needs, exacerbating pre-existing issues related to social determinants of health, and increasing or causing new challenges to accessing care. As health care and policies continue to evolve, it will be important to consider these challenges for all Americans, including continuing to provide the services needed for those with behavioral health needs and OUD in particular.

> **BEHAVIORAL HEALTH**
>
> **Behavioral health** is a term used to encompass a number of facets that impact a person's well-being, including but not limited to mental health, substance use disorder (SUD), adverse life events or stressors, and individual behaviors that impact mental and physical health.
>
> Source: Agency for Healthcare Research and Quality, "What is integrated behavioral health?," accessed January 2021.

Impact on vulnerable populations

COVID-19 and OUD both threaten the health and well-being of the people they affect and draw new attention to health disparities among communities. The Centers for Disease Control and Prevention (CDC) examined the impact of COVID-19 on people from racial and ethnic minority groups and identified several factors that may contribute to increased risk for COVID-19 severity and death, including discrimination within the health care system, disproportionate representation of racial and ethnic minorities in higher-risk essential work settings, wealth disparities, and housing.[1] These factors contribute to stark racial disparities in the number of cases, hospitalizations, and deaths due to COVID-19. For example, as of August 2020, Black Americans were 4.7 times more likely to need hospitalization than white, non-Hispanic Americans, and 2.1 times more likely to die.[2] These factors—such as limited access to health care and economic resources—also exacerbate negative outcomes for people with SUDs, as OUD and overdose share similar structural and social risk factors.[3] This dangerous overlap comes at a time when the demographics of the opioid epidemic were already changing to disproportionately impact people of color, particularly non-Hispanic Black Americans and Hispanic Americans. This is possibly related to an influx of synthetic opioids such as illicitly manufactured fentanyl, which have proliferated in the drug supply.[4]

Increased incidences of mental health and substance use disorder issues

Mental health and SUDs already have high rates of co-occurrence. The Substance Abuse and Mental Health Services Administration (SAMHSA)'s 2012 National Survey on Drug Use and Health identified that approximately 8.4 million American adults have comorbid mental health and SUDs.[5] The inherent threats of a pandemic to physical health

and economic security, as well as the overall uncertainty for the future, cause general stress at a population level, potentially exacerbating mental health and substance use outcomes.[6] While the COVID-19 pandemic is a source of tremendous stress itself, the strategies implemented to address it may also adversely affect both mental health and SUDs. Studies have started to examine how social distancing–related impacts on mental health could cause particular problems for people with SUDs. These consequences may already be occurring across the United States, especially in certain areas where early data shows increased incidences of opioid overdose in 2020. The economic impact of COVID-19 may also exacerbate SUD prevalence and severity.[7] Negative life events such as job loss— which some 20.6 million Americans experienced from February to May 2020[8], with about half remaining unemployed as of September 2020[9]— are linked with increased risk of SUDs as well as mental health issues such as "increased depression, anxiety, distress, and low self-esteem" that may trigger or exacerbate substance use.[10] At the same time, many front-line or essential workers who continue to be employed under hazardous conditions report feelings of burnout and increased anxiety.[11]

> "Social distance, isolation, or quarantine are essential measures to help prevent coronavirus transmission—however; these strategies, and the pandemic outbreak itself, have been associated with negative emotions, such as irritability, anxiety, fear, sadness, anger or boredom. These conditions are known to trigger relapse, even in those long-term abstainers, or intensify drug consumption."
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> Felipe Ornell et al., "The COVID-19 pandemic and its impact on substance use: Implications for prevention and treatment," *Psychiatry Research* 289 (2020).

New access to health care obstacles

Even as stressors related to the pandemic have exacerbated mental health and SUD challenges, the pandemic has disrupted health care operations, which are necessary to address those challenges. These disruptions have introduced new issues with treatment of people with SUD with devastating consequences. In certain areas, in-person recovery programs have been halted or limited to maintain social distancing.[12] For some patients, required medical appointments to refill treatment prescriptions (e.g., monthly injections of medication to support OUD recovery) were delayed. In at least one documented case, this led to withdrawal, relapse, and death as a result of overdose.[13] Some of these social distancing mandates have since been relaxed, enabling prescribers to provide additional weeks' worth of medication to avoid interruptions in care.[14] Access to other services, such as syringe services programs and other harm-reduction resources, have undergone operational disruptions as well.[15] Finally, across health care, many patients are delaying treatment—including avoiding emergency room visits for critical care needs (which could include opioid overdose)—due to fear of contracting COVID-19.[16] In addition to new obstacles generated by the pandemic, there are existing challenges for people with SUD who try to access care. For example, gaps in broadband infrastructure to support virtual medical visits, absence of transportation, and lack of health insurance are all increasingly difficult to overcome in combination with new obstacles created by the pandemic.

Opportunities for innovation

WHILE THE COVID-19 pandemic will continue to exacerbate many existing issues related to the opioid epidemic, it could also fuel progress toward improving prevention and treatment of OUD. The pandemic continues to provide opportunities to scale up existing strategies and develop completely new strategies to address OUD, which may leave a lasting impact even after COVID-19 subsides.

Exponential growth in virtual health care for OUD patients

Creative policymaking for virtual health during COVID-19 should be applied to other public health challenges, such as the opioid crisis.

Virtual health—defined as a variety of "at-a-distance" interactions that further the care, health, and well-being of health care customers in a connected, coordinated manner[17]—provides new treatment approaches and expands access to care for OUD. Health care delivery at a distance will likely continue to grow as the United States navigates COVID-19 outbreaks and works to minimize in-person interactions.

As a result of COVID-19, the federal government implemented sweeping regulatory waivers and flexibilities to enhance access to virtual health services such as telemedicine. For example, while 76% of hospitals had fully implemented telemedicine by 2017,[18] its use has increased manifold during the COVID-19 pandemic. Prior to the pandemic, about 13,000 fee-for-service (FFS) Medicare beneficiaries used telemedicine in a

week; in April 2020, this number grew to almost 1.7 million users a week.[19] This shift, facilitated by an influx of regulatory flexibilities, might have accelerated virtual health by a decade.

The pandemic's impact on virtual health has already altered the way many people being treated for OUD receive care and improved access to treatment for SUD. Medication-assisted treatment (MAT), sometimes also known as medication for opioid use disorder (MOUD), involves the combination of behavioral therapy with the use of methadone, buprenorphine, or naltrexone to address neurological components of SUD (e.g., blocking withdrawal symptoms). Prior to COVID-19, issues such as provider shortages, strict federal and state care delivery policies, transportation challenges, and stigma created challenges to MOUD/MAT access, especially in rural areas.[20]

The pandemic's impact on virtual health has already altered the way many people being treated for OUD receive care and improved access to treatment for SUD.

The pandemic compounded these challenges for Americans in rural and urban areas alike, leaving many physicians unable to dispense medications to patients or monitor their treatment in person. However, changes in virtual health and MOUD/MAT policies have helped overcome these obstacles. For example, the Drug Enforcement Administration (DEA), in partnership with SAMHSA, provided new flexibility to enable

providers to admit and treat new patients with OUD, and to prescribe controlled substances to patients using telemedicine without first conducting an in-person evaluation.[21]

SAMHSA has also experimented with ways to ensure access to MOUD/MAT during COVID-19, including passing guidance around contactless "doorstep" delivery and pick up of medications for OUD and increasing the number of doses permitted to patients.[22] Many states have taken advantages of these new flexibilities—for example, in Massachusetts, the Department of Public Health waived provisions for opioid treatment programs, enabling patients to take home up to 28 days of medication, as well as the administration of "curbside dosing."[23] Additionally, SAMHSA has provided resources in the form of virtual meetings and other recovery tools that can complement the medical component of MOUD/MAT.[24] Similarly, many state departments of health or mental health are also providing or facilitating access to online recovery groups. The Alabama Department of Mental Health, for example, was offering 14 different online support groups as of November 2020.[25]

As the health care system continues to enhance telemedicine capabilities and as federal and state governments extend waivers through the duration

CONSIDERATIONS FOR FEDERAL HEALTH AGENCIES AND POLICYMAKERS:

- Continue to **collaborate with state, tribal, territorial, and local (STTL) partners to develop or adjust policy flexibilities at the federal level** that STTL entities can leverage to improve access to health care and services for people with OUD

- As the COVID-19 federal response evolves and the federal government moves from response to recovery and planning for future resilience, explore lessons learned from COVID-19 that can be used to **protect the continuity of behavioral health services in the future, or even during localized public health emergencies** (e.g., natural disasters)

- Utilize an ecosystem approach—engage STTL and private sector partners and the behavioral health community—when making decisions on how to **preserve or modify policy flexibilities that were created during COVID-19**; this can lead to improved behavioral health service delivery during steady-state/nonemergency periods

CONSIDERATIONS FOR STATE AND LOCAL HEALTH DEPARTMENT POLICYMAKERS:

- **Explore options to facilitate take-home and curbside MOUD/MAT** for established opioid treatment programs (OTPs) leveraging recent regulatory flexibilities that agencies such as SAMHSA have provided during the COVID-19 pandemic

- Promote, fund, or work with community partners to conduct outreach to patients to make telehealth services more accessible (technical assistance, communication, language translation, etc.), and engage CMS and other payers to **explore long-term feasibility of expanded virtual health reimbursement for OUD and telemental health services**

CONSIDERATIONS FOR HEALTH SYSTEMS AND CARE PROVIDERS:

- Establish collaborative partnerships with nonprofit organizations and local health departments to find innovative ways to fund efforts—such as pilot programs—targeted at **expanding access to virtual support groups and other recovery tools** that complement MOUD/MAT

of the pandemic, it may be possible to retain some of the achievements of an expanded virtual health care system to address underlying access to care challenges and enhance the quality of remote care for SUD. The Centers for Medicare and Medicaid Services (CMS) has indicated that it will explore opportunities to permanently maintain expanded virtual health and reimbursement for telemedicine through Medicare.[26] If current virtual health policies are shown to be effective, permanent policies could have a monumental impact on the accessibility of MOUD/MAT—and health care more broadly—long after the pandemic is over.

The rise of data-informed health care

An explosion of data-sharing technologies, new analytical tools, and unconventional partnerships can unlock better population and personal health management.

Advancements in technology and new data continue to radically change the future of health. 5G networks are redefining sharing of health care data by enabling large sets of data to be shared through virtual health platforms in real time and transforming the ways we use health records, diagnostics, telemedicine, and more.[27] Data-sharing partnerships between public and private sector organizations have also transformed the landscape for COVID-19 situational awareness and research. For instance, Amazon Web Services recently made its data lake available to the public, allowing users to quickly access data from multiple sources to build local dashboards or projections.[28] To further facilitate information-sharing between different entities during the COVID-19 pandemic, the federal government revised certain provisions

of the Health Insurance Portability and Accountability Act (HIPAA) Privacy Rule to allow health care workers and first responders to more easily share critical health information.[29]

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These advancements and partnerships will undoubtedly change health and health care beyond COVID-19 and could have implications for substance use in the longer term. Also playing a critical role, alongside the proliferation of new data sets and data-sharing mechanisms, is artificial intelligence (AI). Analysis of vast, population-level data sets by AI could enable providers, policymakers, and the public to better understand patterns for any kind of epidemic. AI can help pinpoint the impact of new MOUD/MAT policies on public health or identify which specific types of social determinants of health or external barriers may be impacting a community's access to care. In addition to using AI to analyze complex data sets, investments in AI for COVID-19 activities such as contact tracing[30] could also be leveraged to improve population health data tracking for other health care needs—such as OUD—affecting large swathes of the population.

Today, many people feel empowered to collect and analyze their own health data: Deloitte's 2020 global health care consumer survey found that 42% of US consumers used technologies including websites, smartphones, fitness trackers, or other personal medical devices to measure data about

their health and fitness. In 2020, about half of those consumers shared their health data with their doctor. New population-level data and better personal health data can better equip providers and improve patient experiences during behavioral health and SUDs visits, whether virtual or in person. These new insights, combined with blended data and machine learning/AI, can be used to enhance care for individuals—streamlining intake processes and reducing provider time spent on paperwork, assisting with the identification and selection of the best strategies for intervention, and supporting case management and care coordination between multiple providers, for example. Data-driven personalization of care has particularly salient implications for SUD treatment, which can be complicated by co-occurring mental and physical health issues as well as by social stigma. Data-informed treatment that uses new data-sharing flexibilities or large

data sets from novel sources could help create customized treatment plans and intervention strategies for individuals with any health need, including OUD. As public sector health and human services and private health care continue to move toward advanced data interoperability between different systems, automated data exchange between clinicians, consumers, and other data sets can help fill in the gaps for better public health decision-making at the population or community level.

As personal health data tools and applications become more accessible and interoperable, including when new data is available, and as COVID-19 continues to change the health data landscape, providers likely will be better equipped to provide holistic care for OUD and other complex health care needs that take into account the "whole person."

CONSIDERATIONS FOR FEDERAL HEALTH AGENCIES AND POLICYMAKERS:

- Explore partnerships—including **public-private partnerships**—that maximize access to data, and identify opportunities to **adapt and apply current COVID-19 data-sharing solutions for OUD and other population health issues**

- Develop or **support policies that empower consumers to control and securely share data** that can shape "whole person" health care

CONSIDERATIONS FOR STATE HEALTH AGENCIES AND POLICYMAKERS:

- Explore partnerships—including **public-private partnerships**—that maximize access to data, and work with other states to scale these partnerships across multistate regions

- Investigate **opportunities to leverage AI** to solve complicated public health problems

CONSIDERATIONS FOR HEALTH SYSTEMS AND CARE PROVIDERS:

- Identify opportunities to securely exchange shareable data with public sector platforms to better inform public health decision-making

- Leverage **patient-driven health care platforms** that empower consumers to control and securely share data, and leverage that data towards improved "whole person" health care

- Explore using **feedback-informed treatment** methods and analysis, where data points are used to complement or supplement provider insights and observations

Accelerated adoption of new technologies

COVID-19 accelerated development of tools that allow for health care delivery to occur through a smartphone, a wearable device, or a virtual reality (VR) headset. Sustaining this momentum and adopting such practices for OUD could be critical in combatting the opioid epidemic.

COVID-19 has accelerated the use of virtual health services and personal health devices for individuals and providers alike. In addition to an increase in use of telemedicine for SUD and MOUD/MAT, novel technologies such as personal devices or wearable device-enabled applications, VR, the Internet of Things (IoT), and AI can improve outcomes and will likely continue to be used for those with OUD during the pandemic.

Devices such as smartphones and smartwatches are being used to support medication adherence. For example, a Vermont program provided buprenorphine or methadone to patients in a locked pill wheel that would open once a day, and patients used a smartphone application to record themselves taking the medication.[31] It's not difficult to imagine combining that capability with other smartphone or personal device-assisted virtual health tools—building on proliferating applications for talk therapy,[32] for example—to expand the reach of MOUD/MAT.

Virtual health via smartphones and wearable devices may help individuals stay in treatment even when they do not have in-person access. For example, Pear Therapeutics, a company that creates prescription digital therapeutics, has developed a smartphone application called "reSET" that uses gamification and health coaching to promote retention in OUD treatment programs, which the FDA authorized for patient use.[33] Additionally, new wearables such as Bridge, which transmits electric pulses to

inconspicuous electrodes around the ear and has been shown to decrease withdrawal symptoms by 97% after five days of use,[34] are entering the market as well. The FDA has recently granted De Novo classification[35] to the Bridge device as the first evidence-based, drug-free device designed to alleviate opioid withdrawal. In addition to providing authorization and regulatory oversight for these novel applications and devices, the FDA has held "innovation challenges" that incentivize product developers to create new tools for SUD treatment, providing access to assistance from FDA and expediting premarket review of products.[36]

VR—which creates a digital environment that replaces the user's real-world environment—is another area where emerging technologies may have applications for preventing or mitigating OUD. Such technologies have become increasingly relevant for health care during COVID-19. VR is currently being used in the fight against COVID-19 to enable physicians to view scans and images in three dimensions and serve as a realistic training environment for health care providers when limited personal protective equipment (PPE) is available.

While the opioid epidemic has illustrated the consequences of overprescribing medications for pain, it is important to treat pain and underlying health issues causing chronic pain.

Many Americans have to manage acute or chronic pain at some point in their lives. While the opioid epidemic has illustrated the consequences of overprescribing medications for pain, it is important to treat pain and underlying health issues causing chronic pain. A number of studies indicate the possibility that VR may "decrease pain

levels, anxiety and time thinking about pain"[37]— even during painful medical procedures. Studies examining the use of VR for longer-term, chronic pain found encouraging evidence for the use of VR for pain management.

The use of personal technologies such as VR, wearables, and smartphones during COVID-19 may accelerate health care providers' willingness to embrace and adopt similar technology to help reduce the incidence of OUD well into the future.

CONSIDERATIONS FOR FEDERAL HEALTH AGENCIES AND POLICYMAKERS:

- Continue to **incentivize development of new technologies for OUD treatment through creative efforts that engage stakeholders across industry**

- As regulators, **assess the quality and effectiveness** of new treatments and medical devices created by industry partners, as well as potential for future reimbursement

- **Convene stakeholders across the health care ecosystem** to explore the viability of new alternative treatment options, such as VR

CONSIDERATIONS FOR STATE HEALTH AGENCIES AND POLICYMAKERS:

- Look for opportunities to **pilot these technologies through state or community programs** for people with OUD

CONSIDERATIONS FOR HEALTH SYSTEMS AND CARE PROVIDERS:

- Identify opportunities to **provide services and support to patients through wearable devices** and smartphone applications, which can complement in-person or virtual visits

- **Communicate the value** of new technologies to patients and partners to support uptake/mitigate stigma, and monitor the status and availability of **new alternative treatment options**, such as VR

Conclusion

Helping leaders and communities navigate an unpredictable future of health

COVID-19 HAS CREATED immense challenges for the health care system and has fundamentally changed the way care is often approached and delivered. For people living with OUD and other chronic conditions, the pandemic has created new and exacerbated existing challenges. At the same time, pioneers across government, health care, technology, and public health have responded to COVID-19 with innovations designed to address those challenges and improve the health and well-being of Americans. **As we stand at the intersection of the opioid epidemic and COVID-19, both likely will continue to shape our world in unexpected ways. Along with the disruption**

of COVID-19, many other underlying environmental, social, and economic factors make the opioid epidemic an especially complex and "wicked problem"[38] for Americans today—and one that will not vanish anytime soon. Looking to innovative solutions that emerge in times of such disruption could be a critical step to addressing the issues patients and communities are facing during these two health care crises.

It will be important to draw on lessons learned from *both crises* to create new solutions that can improve the future of health as a whole.

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Acknowledgments

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