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OPIOIDS AND COVID-19: PERFECT STORM, OR PERFECT OPPORTUNITY?

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ABSTRACT The opioid epidemic in the United States has been made worse by the COVID-19 pandemic, due to increased stress and isolation, reduced access to addiction treatment services, and a disruption in the supply chain for conventional opioids, resulting in more dangerous and potent drugs entering the market. This has led to a spike in overdose deaths, particularly from fentanyl and other synthetic opioids. The availability of Naloxone, the opioid overdose reversal medication, has also been affected by the pandemic, with shortages in some areas due to supply chain disruptions. Access to buprenorphine and methadone, drugs used in opioid use disorder (OUD) therapy, has also been limited due to social distancing guidelines, however government policy has gradually adapted to loosen regulations surrounding their access.

KEY WORDS COVID-19, vaccination, hesitancy, acceptance, predictors, vaccination policy

INTRODUCTION

In the United States, the opioid crisis has long been a serious matter of public health. However, the already difficult issue of opiate addiction and overdose has been worse by the COVID-19 epidemic. Increased stress and isolation brought on by the pandemic during the lengthy confinement might lead to the onset of opioid addiction and restrict access to facilities for addiction treatment.

An upsurge in overdose deaths has been one of the COVID-19 pandemic's most important effects on the opioid epidemic. This is probably caused by a number of things, such as lack of access to addiction treatment facilities, financial worries, anxiety about one's health and the state of society, and physical isolation brought on by the epidemic. Additionally, the epidemic has caused a breakdown in the supply chain for traditional opioids, which has allowed for the entry of more harmful and strong substances on the market. As a result, overdose deaths have increased, particularly those caused by fentanyl and other synthetic opioids, making it a top cause of death in the country[1].

The pandemic has also had an impact on the availability of Narcan, the opioid overdose reversal medication.

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While the distribution of Narcan has been increased across the United States, there have been shortages in some areas due to supply chain disruptions. This has made it more difficult for first responders and others to access the medication, which can be critical in reversing an overdose[2].

Public health authorities are striving to make the opioid overdose reversal drug naloxone, better known as Narcan, more widely available in order to combat this issue. Naloxone has been demonstrated to be a useful tool in lowering overdose mortality and can swiftly reverse the symptoms of an opioid overdose. The availability of Narcan has risen across the country, and in the majority of the states, it is now widely available at pharmacies without a prescription. A lot of municipalities have also put in place programs that teach people how to use naloxone and give it to people who are at risk of overdosing.

To stop the opioid crisis, however, more Narcan has to be distributed. Access to services for addiction treatment is also essential, but the epidemic has reduced access to these treatments. Due to the epidemic, many addiction treatment facilities have been forced to cut their capacity or close their doors, leaving people who need in-person monitoring and treatment alternatives short. Additionally, because of increasing financial difficulty and transportation issues, the epidemic has made it more challenging for individuals in need of treatment to reach it.

To explore this exacerbation of the opioid epidemic post-COVID, it is imperative to disambiguate the biological, psychological, and sociological factors that existed throughout the history of the opioid crisis, particularly during the pandemic.

LITERATURE REVIEW

History of Opioid Epidemic

Despite recent attitudes in the clinical setting that led to the overprescription of opioids, during the early 20th century, opioids were feared for their addictive potential. Cautious clinicians discouraged opioid use outside of treatment of cancer pain, and even then, cancer patients were only encouraged to use opioids toward the end of their lives[3]. This state of “opiophobia” lasted until attitudes began shifting in the late 20th century, when the medical field began believing that the responsible prescription of opioids would rarely lead to addiction. Certain physicians were increasing their criticism of the opiophobia status quo, as those suffering from severe pain were not being prescribed high enough levels of opioid analgesics due to false fears of addiction[4]. Two publications from this time, a letter to the editor published in the *New England Journal of Medicine* and a retrospective review of thirty-eight chronic pain patients, each of which lacked the scientific rigor and method of proper studies, lent support to the idea that addiction rates from opioid use was very low[5-6]. In addition, overeager cancer pain specialists, whose field was developing quickly in the late 1980s and 1990s, felt the need to expand opioid use to non-cancer pain applications. Thus, opioids became widely used to treat chronic pain[7].

Alongside the general promotion of opioids as a clinical tool, the American Pain Society’s persuasive campaign to classify pain as a fifth vital sign in the 1990s put more emphasis on pain treatment in clinics. As a result, reporting and treating pain symptoms became highly standardized with a system imposed by The Joint Commission, an accreditation organization for U.S. health care organizations. The result of this period’s opioid-friendly culture was a massive acceleration in the prescription and use of opioids. OxyContin prescriptions increased by over nine times, from 670,000 to 6.2 million, between 1997 and 2002. General opioid consumption rose from 46,946 kg in 2000 to 165,525 in 2012, the peak level of consumption[8]. Per patient consumption rose from 40.4 morphine milligram equivalents (MMEs) to 46.6 MMEs from 2000 to 2002[9].

While at first there were no alarms surrounding increasing addiction rates, researchers began noticing that rates of oversedation began going up around the same time as the increase in the prescription of opioids, rising from 11.0 per 100,000 inpatient hospital days to 24.5 per 100,000. Fatal respiratory depression rates as a result of oversedation rose as well. As the potential dangers of opioids in the clinical setting became more widely known, the government began taking legal action against opioid manufacturers for certain offenses. In the case of Purdue Pharma, such lawsuits were laid on the basis of the company’s decisions to downplay the risks and overstate the benefits of their product, OxyContin[10]. Opioid prescription rates began decreasing in the late 2000s and early 2010s due to wider awareness of the drug’s risks. Between 2006 and 2018, the opioid dispensing rate for patients under 25 decreased from 14.28 MMEs to 6.45 MMEs. In addition, high-dosage and long-duration prescriptions, which are higher-risk methods of opioid consumption, decreased specifically for people between the ages of 15 and 24[11]. Changes in prescription practices may reflect a rising skepticism of opioids’ true efficacy and safety.

The consequences of opioid over prescription extended beyond the clinic, however. An analysis of opioid overdose deaths in combination with other substances found that, between 2002 and 2015, prescription overdose deaths rose by 2.6 times, with the most common drug taken in combination with the prescription drug being benzodiazepines. The study went further and analyzed deaths from synthetic opioids other than methadone, finding that deaths from those specific opiates rose by 5.6 times. This number reveals a key consequence of overprescription in hospitals: the spread of non-prescription opioids. In 2016, for instance, 64,000 people died from overdoses. Of those, 42,000 were from opioids. The breakdown of opioid overdose deaths is as follows: fentanyl was responsible for the highest portion of opioid deaths at approximately 20,000, heroin was next highest at 15,000, and prescription opioids were responsible for less than 15,000[12]. This is why, even as the consumption of prescription opioids peaked in 2012, deaths from all types of opioids continue to rise. People that may have started out with an OxyContin prescription have transitioned to new drugs that are cheaper and more potent.

Symptoms of Opioid Addiction

Opioid addiction, or opioid use disorder (OUD), is a chronic disorder characterized by the compulsive use of opioids despite the harm it causes to an individual's physical, psychological, and social well-being.

The symptoms of opioid addiction can be divided into physical, behavioral, and psychological categories, though most people experience a variable combination of all categories. Physical symptoms include tolerance or needing higher doses to achieve the same effect; withdrawal symptoms, such as nausea, muscle aches, and insomnia, when not using the drug; and continued use despite negative consequences. Behavioral symptoms include neglecting responsibilities, difficulty reducing or stopping use, and difficulty maintaining relationships. People with opioid addiction may also engage in risky behaviors such as sharing needles or stealing money to obtain the drug. Psychological symptoms include mood swings, anxiety, and depression[13], because opioids can affect the brain's ability to regulate emotions and stress. Opioids work by "dampening the brain's response to stress and negative emotions, which can make it difficult for an individual to cope with stress and negative emotions in circumstances without the drug"[14]. People with opioid addiction may also experience unusual cravings that can be difficult to satisfy and a loss of interest in activities they used to enjoy.

Opioid addiction occurs when a person repeatedly uses the drug and it begins to affect the brain's reward system. Opioids bind to specific receptors in the brain, which leads to an increase in the release of dopamine, a neurotransmitter associated with pleasure and reward. Over time, "the brain adapts to the presence of opioids and produces less dopamine on its own, leading to a decrease in the individual's ability to feel pleasure without the drug"[15]. This creates a cycle of dependence on the drug to feel normal, and thus the aforementioned symptoms are experienced as a result of the dependence. Additionally, withdrawal symptoms can be very uncomfortable and can be one of the reasons why people continue to use opioids despite negative consequences.

The type of opioid used, the length and frequency of use, and the person's general health all play a role in how severe and long withdrawal symptoms last. The brain may change as a result of prolonged opioid usage, making the body dependent on the drug in order to operate normally. The brain and body must readjust when someone stops using opioids, which may result in withdrawal symptoms. The symptoms of intense opioid withdrawal, which are brought on by regular use of narcotics like heroin, fentanyl, and oxycodone, can start between 12 and 30 hours after the last use[14]. Highly potent opioids are most commonly seen in overdoses because of their greatly addictive characteristics making withdrawal symptoms unbearable for most users.

A mix of medical, psychological, and social therapies are frequently utilized to assist people in overcoming their addiction and regaining control of their life. Fortunately, opioid addiction is a curable disorder. As well as behavioral therapies like "cognitive-behavioral therapy and contingency management can be effective in addressing the underlying psychological and social factors that contribute to addiction," medications like methadone, buprenorphine, and naltrexone "can help to alleviate withdrawal symptoms and cravings" It is crucial to remember that opioid addiction is a complicated, multifaceted issue that calls for an all-encompassing and tailored strategy[13]. It is not only an individual's responsibility but also a responsibility of the society to work together to address the opioid crisis. This includes reducing the over prescription of opioid painkillers, increasing access to addiction treatment, and addressing the underlying social and economic factors that contribute to addiction.

Sociological Factors Leading to Addiction and COVID-19 Risks

Independent, relational, cooperative, and societal levels are the four points where the main risk factors for opioid abuse are present. To develop efficient and comprehensive interventions to address the opioid crisis, each of these levels must be taken into account.

Beginning with the initial causes of the opioid epidemic, the number of opioid prescriptions filled each year in the US between 2006 and 2017 was approximately 224 million, or nearly one for every citizen[16]. Opioid overprescription is influenced by a number of factors. For instance, some doctors might not have adequate training or knowledge regarding the risk of opioid misuse, which can result in unsafe prescribing. Additionally, some medical professionals might exaggerate the advantages of opioids while underestimating their risk, which could result in over-prescription of painkillers. However, due to governmental intervention guidelines, there have been some decreases in the use of opioids[17].

Pharmaceutical marketing campaigns that misrepresented opioids as non-addictive and offered doctors financial incentives also contributed to overprescription. This increased the number of prescriptions and branded physicians who refused to write opioid prescriptions as having "opiophobia." Opioid misuse is also influenced by how opioids are made. Standard opioid pills can be crushed to produce a faster effect when administered intravenously or intranasally[18].

Another significant source of opioids used inappropriately is the black market[19]. In most areas of the United States, heroin is affordable and widely available, and there is a sizable online opioid market that allows users to buy unregulated opioids from the internet. Since 2015, the number of overdose deaths has dramatically increased, in part because highly potent synthetic opioids like fentanyl and fentanyl analogues have become more widely available[20]. The misuse and overdose rates of opioids have varied significantly by geographic location. The higher rates of opioid prescriptions and overdose deaths in non-metropolitan areas may be caused by a lack of access to healthcare services. Additionally, research has shown that racial and ethnic minorities are less likely to receive treatment, are admitted to treatment later, and have less access to treatment overall[21].

The broader societal context influences the key risk factors for opioid abuse, including opioid supply and demand, governmental regulations, prevailing economic and employment trends, media coverage, social stigma, prejudice, and advertising and education campaigns. Variations in a drug's supply and demand have an impact on the market economy of opioids. Due to overprescription, theft, and redistribution of the pills to family, friends, and coworkers, the supply and availability of opioids increased. This was made worse by the extensive legal advertising strategies used by pharmaceutical companies, which can alter consumers' perceptions of the dangers of opioids and raise their awareness of the availability of prescription drugs[22]. As unregulated opioids flooded the market and heroin became less expensive, the epidemic grew worse over time. One of the most frequently cited factors for switching from prescription opioids to heroin is cost. Opioid supply can be controlled by decreasing prescribing or increasing the use of formulations that discourage misuse, but these efforts may be thwarted by unintended, immediate negative effects.

Opioid-related government policies and regulations can take many different forms, including Medicare/Medicaid rules, drug scheduling by the Drug Enforcement Agency, restrictions on how they are prescribed, including the use of prescription drug monitoring programs. Data show the potential benefits of policies like Prescription Drug Monitoring Program requirements, naloxone access laws, and Good Samaritan laws. The federal and state governments regulate accreditation and licensing requirements, as well as specifics of training and service delivery, which has implications for treatment accessibility[23].

Health insurance coverage rates differ by state, which has an impact on who can receive OUD treatment. The availability of effective OUD medications has been significantly impacted by Medicaid expansion, with states that did so seeing a more than four-fold increase in prescriptions. Payer policies affect access to treatment for pain, mental illness, and OUD in addition to their impact on the supply of opioids[23].

A significant barrier to receiving treatment for opioid misuse is social stigma, which stems from the misconception that substance abuse is a result of moral decay and poor willpower. Similar to how cultural and social beliefs can be harmful or beneficial, they can also be communicated through media and social media. Economic uncertainty, deteriorating social cohesion, and a decline in trust in institutions have all been linked to

an increase in "deaths of despair", typically referring to overdose and suicide fatalities, between 1999 and 2017[23].

Opioid misuse and opioid use disorder (OUD) are greatly influenced by individual factors. These factors can have an impact on how likely it is that an individual will be exposed to opioids, begin abusing them, develop and maintain OUD, enter treatment, continue participating in treatment, and relapse after making an effort to stop. They include sociodemographic, physical and mental health, biological, and psychosocial elements. These elements frequently interact and can both contribute to and result from opioid misuse. Early onset of opioid abuse, gender, race, access to healthcare, pain, mental health, past substance abuse, and genetic susceptibility are all risk factors[23].

The beliefs, attitudes, and behaviors of individuals are significantly shaped by their family, friends, and coworkers, which affects the likelihood of opioid use and abuse. Both genetic and environmental factors can increase risk when there is a family history of substance use disorders. Since 70% of people who misuse opioids report getting them from family, friends, or coworkers, access to opioids from these sources is also a risk factor[24]. The likelihood of receiving treatment is also influenced by interpersonal relationships, with parental disapproval of drug use discouraging use and family support for recovery increasing likelihood. Social network emotional support can improve treatment motivation and medication adherence[25].

The community's potential impact on opioid-related risks is examined at the cooperative level. Opioid misuse can be caused by a variety of factors, including geographic conditions, accessibility to care, medication disposal services, workplace environments, prescribers' perceptions of risk, over- or under-prescription of opioids for pain, types of prescription opioid formulations that are available, community norms, and availability of both legal and illicit opioids. In addition, from over 25,000 cases associated with correctional facilities to date, the COVID-19 pandemic has brought attention to the disproportionate population of individuals with opioid use disorders (OUDs) in the US prison system. Due to pre-existing conditions, these people are more likely to contract the virus, and the outbreak in correctional facilities brings into focus the socioeconomic and health inequalities that come along with mass incarceration. People with OUD are at considerable risk from the COVID-19 pandemic, especially those who are incarcerated or have just been released. Within the first two weeks after release, the risk of dying from an opioid overdose is 40 times greater, and the availability of fentanyl and the disruption of the supply of illegal drugs caused by border restrictions, due to the pandemic, may make this risk even greater. Additionally, inadequate staffing and a shortage of personal protective equipment (PPE) have disrupted harm minimisation programs that offer sterilized drug use equipment, medication-assisted treatment, overdose education, and opioid antagonists distribution, raising the risk of HIV, HCV, and COVID-19 transmission within drug-using networks. It is crucial to take these dangers into account and offer re-entry services like overdose prevention[26].

Furthermore, African Americans and Latinos are disproportionately affected by the COVID-19 pandemic, especially drug users who live in underserved areas of these communities. Due to persistent health disparities and a lack of personal and communal resources, these populations face greater difficulties in accessing and staying in drug treatment, putting them at further risk of relapse or exposure to addiction. To ensure that everyone has equal access to care and support, new treatment regulations must take these factors into account, such as lack of access to technology, in regard to telemedicine appointments, and transportation, and address economic inequalities. If these discrepancies are not addressed, the inequality present in the opioid epidemic will only further widen[22].

Early Challenges with Fighting the Opioid Epidemic During the Pandemic

Progress made against the opioid epidemic was halted considerably by the COVID-19 pandemic. Treatment for opioid addiction relies on face-to-face medical care, and social distancing guidelines proved to be a major hindrance to those seeking such treatment. Initial problems for those suffering from addiction included difficulties in obtaining methadone and buprenorphine. These are long-acting opioids that reduce cravings for other, short-acting opioid drugs, such as those fueling the opioid epidemic. Methadone administration is highly regulated and cannot be taken without direct supervision due to perceived risk of abuse. As a result, it was initially difficult to administer methadone to people suffering from OUD without breaking social distancing guidelines. Buprenorphine was not subject to similarly tight restrictions and was more easily available, as month-long supplies are commonly available at pharmacies[27].

However, the issues surrounding drugs used in the fight against the opioid epidemic are only one side of the story. Physicians working on the front lines against the opioid epidemic found themselves sidelined, a lesser priority during the early, uncertain days of the pandemic. The shift to telemedicine also became a challenge for a field that relied on in-person drug administration and care. Although telemedicine, in combination with looser buprenorphine prescription guidelines, proved to be a boon for those undergoing buprenorphine-naloxone treatment virtually, not everyone suffering from OUD had access to telemedicine services. In particular, the economically disadvantaged and incarcerated people that were allowed to leave jails and prisons to reduce the spread of COVID-19 had little guidance with regard to how to receive care[28]. Additional frictions associated with the switch to telemedicine include sacrificing urine drug sampling, face-to-face patient screening, and similar contact-heavy measures in order to shift to telemedicine[29]. These, and other issues, were addressed somewhat but still contributed to a rise in the severity of the opioid epidemic.

Policy Responses to the Opioid Epidemic in the COVID-19 Era

Methadone and buprenorphine-naloxone treatments, which are crucial to treating OUD, became more difficult to access during the early stages of the COVID-19 pandemic due to social distancing guidelines. Timely policy changes meant to make it easier to access these drugs were put in place to balance social distancing guidelines and the need to continue providing care to people suffering from OUD. Medical treatments for OUD (MOUD) already suffer from low availability and stigma[22]. This is despite their significant efficacy. After an overdose, patients that undergo methadone treatment have a 59% reduction in death rates, and those that undergo buprenorphine treatment have a 38% reduction in death rates. Regulations, however, further reduce the incentive for patients to begin treatment with MOUD. Buprenorphine, for example, requires in-person visits and counseling, and daily doses of methadone cannot be taken in the absence of direct supervision, with rare exceptions. Ironically, due to methadone being a Schedule II drug and buprenorphine being a Schedule III drug, along with a slew of national and state-level regulations, these treatments are more tightly controlled than opioids prescribed for pain. As a result, under a third of people suffering from OUD are prescribed MOUD. In addition, these obstacles make it most difficult for those just beginning MOUD therapies to continue treatment. Under half of patients who are admitted for detoxification return for more care, and even fewer then receive prescriptions for MOUD.

To ensure that these poor outcomes were not exacerbated due to the pandemic, the Substance Abuse and Mental Health Services Administration (SAMHSA), the Drug Enforcement Administration (DEA), and the Centers for Disease Control (CDC) made the decision to loosen these restrictions due to COVID-19 and make it easier to conduct care with telemedicine. The CDC recommended that health systems and payers begin increasing the practice and billing of telehealth services for both the prescription and intake of medicine and counseling. Buprenorphine, for example, can now be prescribed via telemedicine, and it is now easier for patients to receive extended 14 or 28 day supplies of methadone, depending on the stability of the patient. and methadone can be taken home more easily[14]. These changes open a path to discussing a permanently looser regulation regime surrounding MOUD[22].

Regulations governing Medication-Assisted Treatment for Opioid Use Disorder (MOUD) have been loosened as a result of the COVID-19 pandemic in an attempt to enroll more people in treatment and stop the virus from spreading among this vulnerable population. Regulations are being loosened to permit methadone take-home doses, buprenorphine initiation and maintenance via telemedicine, and interstate telemedicine. By doing this, healthcare professionals and people with OUD will have more access to and practical use of MOUD. However, there are qualms regarding the possibility of prescription opioids being diverted to the black market and the potential risks associated with medication abuse. Study results have shown that MOUD can be reliable and safe when governed by more flexible regulations, as demonstrated by the introduction of buprenorphine in France in the 1990s, which resulted in a significant rise in the number of people receiving treatment and a decrease in the number of people dying from opioid overdoses[22].

Rural areas face a major problem with the availability of medication-assisted treatment for opioid use disorder (OUD). Few buprenorphine prescribers and a lack of methadone maintenance services are prevalent in many areas. Additionally, MOUD cannot be started in residential treatment programs or prisons prior to release, which raises the danger of overdose fatalities. By establishing a remote connection between patients and doctors, telemedicine has the potential to make MOUD accessible in these underserved regions[22].

Emergence of Telemedicine

While there are a lot of potential advantages for telemedicine in treating opioid addiction and drug overdose, there are also some drawbacks and restrictions. After the COVID pandemic, this was looked at, and for more than a year, telemedicine was the only method to access healthcare.

One worry is that telemedicine might not offer the same standard of care as in-person treatment, particularly for specific populations, such as those who are at a high risk of overdosing or those who have serious mental health conditions. A multifaceted strategy is frequently necessary for addiction therapy, one that includes monitoring the patient's physical and mental health in a safe environment in addition to medicine, counseling, and other therapeutic treatments. Telemedicine frequently can't provide the same level of continuity and coordination of care as in-person treatment, which could lead to poorer outcomes for patients.

Another issue is that complex social and psychological aspects that lead to opioid addiction and drug overdose may not be adequately addressed via telemedicine. It is common for addiction to be connected to other problems like poverty, trauma, and mental health conditions. Due to its limited capacity to conduct physical exams and diagnostic testing, as well as privacy and security issues with communicating sensitive medical information online, telemedicine may not be able to effectively address these underlying conditions, which could increase the chance of relapse. Furthermore, telemedicine might not be able to offer the same level of supervision and monitoring as in-person care, which could increase the risk of pharmaceutical abuse or diversion. Finally, not everyone may have access to telemedicine. Some people may not have access to the technology or internet required for telemedicine, and others may not feel comfortable using technology for healthcare.

Utilizing telemedicine for medication-assisted treatment (MAT) is one method it is being used to combat the opioid problem, particularly during the COVID epidemic. MAT is a kind of treatment that combines counseling and other therapeutic services with the use of drugs like methadone or buprenorphine. Patients can receive MAT remotely thanks to telemedicine, which can be especially helpful for people who reside in locations with a shortage of healthcare professionals who can give this type of treatment[22]. However, a study published in the Journal of the American Medical Association in 2019 found that telemedicine-delivered MAT was associated with lower rates of treatment retention and much lower rates of opioid abstinence compared to in-person MAT[30]. This shows that the pandemic has likely disrupted access to substance abuse treatment and support services because of the prolonged shut down of in person services, making it more difficult for people struggling with opioid addiction to get the help they need due to the statistically significant reduced effectiveness of telemedicine. This also stresses the importance for proper overdose education especially post epidemic as overdose rates have been at all time national high. In a study of telemedicine for overdose education and naloxone distribution (OEND) found that patients who received OEND via telemedicine post-COVID were more likely to report having administered naloxone to someone experiencing an opioid overdose, and were more likely to report having called for emergency medical services [30].

CONCLUSION

Deaths from opioid abuse have risen substantially since the beginning of the COVID-19 pandemic. Inadequately addressed social issues contributed to this rise, but certain policy decisions meant to streamline addiction treatment have shown that state and federal governments are understanding the deep dangers of the opioid epidemic. COVID-19, in some ways, has proven to be a valuable moment of policy experimentation. Deregulating access to buprenorphine and methadone will generate useful data, allowing researchers to accurately weigh the pros and cons of continuing such a policy indefinitely. The pandemic has also shown that telemedicine is useful but has its limits, especially in the realm of addiction treatment. Not every patient has easy access to high-speed internet and video-capable devices, and this is especially true of the demographic groups most at risk of opioid addiction. Exposing these holes in the patient base and the initial shock of the pandemic itself will create forward momentum among policymaker circles to continue experimentation and hopefully create a robust framework to meaningfully reduce the rate of opioid addiction.

Fighting the crisis of opioid addiction is the most important public health priority of our times. It is quieter than other crises, like obesity and COVID-19, yet similarly deadly and arguably more destabilizing to vulnerable communities. America's life expectancy declined from 2014 to 2018, largely the result of the opioid epidemic[29]. This decline has continued to 2021, due to the COVID-19 pandemic and a continued rise in opioid deaths. Developing an addiction support system that minimizes barriers to therapy, the wide distribution of naloxone,

and more public awareness of the epidemic will push America's life expectancy numbers higher, reduce strain on our healthcare system, and resolve the mistakes the pharmaceutical and healthcare sectors made forty years ago.

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