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# Opioids and the Criminal Justice System: New Challenges Posed by the Modern Opioid Epidemic

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## Abstract

The traditional US heroin market has transformed into a broader illegal opioid market, dominated first by prescription opioids (PO) and now also by fentanyl and other synthetic opioids (FOSO). Understanding of opioid-use disorder (OUD) has also transformed from being seen as a driver of crime to a medical condition whose sufferers deserve treatment. This creates new challenges and opportunities for the criminal justice system (CJS). Addressing inmates' OUD is a core responsibility, including preventing overdose after release. Treatment can be supported by diversion programs (e.g., drug courts, among others) and by providing medication-assisted treatment in prison, not only as a crime-control strategy but also because of ethical and legal responsibilities to provide appropriate healthcare. The CJS also has opportunities to alter supply that were not relevant in the past, including deterring pill-mill doctors and disrupting web sites used to distribute FOSO.

## INTRODUCTION

Before the cocaine/crack epidemic of the 1980s and 1990s, heroin dominated the criminal justice system's (CJS) focus on illegal drugs. When President Johnson's Crime Commission (Pres. Comm. Law Enforc. Adm. Justice. 1967) wrote its landmark 1967 report *The Challenge of Crime in a Free Society*, the chapter on drugs centered on heroin (Pardo & Reuter 2018).

Heroin had long been understood to cause crime, particularly property crime (e.g., Gandossy et al. 1980, Preble & Casey 1969). The role of the CJS was to reduce crime, ergo it had to deal with heroin. Tactics varied, including disrupting supply (e.g., the *French Connection* case of movie fame) and reducing demand [the Nixon Administration's embrace of Treatment Alternatives to Street Crime (TASC) (Inciardi & McBride 1994) and rapidly expanding methadone provision] (Musto 1999). But the focus was on reducing heroin use, in part for the public health benefit but importantly as a strategy for reducing property crime.

In the 1980s, cocaine, including crack, eclipsed heroin. Concern about the drug-crime connection shifted to disorder and violence—particularly systemic violence associated with drug distribution—and the policy response stressed border interdiction and source country control, mandatory sentences, cracking down on street markets, and other policing innovations.

Times have changed again. Cocaine receded, with a startling and still largely unexplained 50% decline in consumption between 2006 and 2010 (Caulkins et al. 2015). Whereas in 2005, cocaine had by far the largest retail sales volume, by 2015 it may have fallen to fourth, after cannabis, heroin, and methamphetamine (Midgette et al. 2019). However, recent historic increases in cocaine production in Colombia may indicate a reversal of cocaine's declining status (DEA 2019).

Today's opioid crisis differs markedly from the traditional heroin problem. The problem drawing the most attention now is not street crime but opioid overdose death and not just from heroin. Deaths are greatest where illicit fentanyl is common, and most of those dying started their opioid-using careers with prescription opioids (PO) rather than heroin (Cicero et al. 2014).

The shift is more subtle than just a multiplicity of opioids being available. For example, fentanyl deaths are increasing as fast if not faster than opioid deaths increased in past drug crises. Yet it is more a crisis of fentanyl poisonings than new drug use (Pardo et al. 2019b). Drug users are not generally asking for fentanyl, at least not initially, and it does not spread primarily by word of mouth among users. Its growth stems instead from drug dealers cutting their raw material costs by substituting cheaper synthetic opioids for heroin.

Hence, it is now appropriate to review what is known about opioids and the CJS and chart future research directions. This review is organized into two parts. The first part focuses on opioid use, including challenges, opportunities, and responsibilities for opioid users who come in contact with the CJS. The second part explores how opioid supply chains today differ from those of the past and the resulting implications for the CJS's role in constraining supply, including both limitations and new possibilities.

## CRIMINAL JUSTICE SYSTEM AND OPIOID USERS

### The Drug-Crime Connection

Criminologists have long grappled with the questions: Do drugs cause crime? If so, how much and what kinds? The correlation is strong. Drug users are more likely to be criminals, and criminals are more likely to use drugs than do otherwise similar people. The debate concerns the direction and strength of the causal arrows between drugs and crime as well as how those arrows change with the drugs' legal status.

Goldstein's (1985) tripartite framework made a key distinction between (a) psychopharmacological crime that is caused by the psychopharmacological effects of drug use or withdrawal, (b) economic-compulsive crime committed to obtain money to purchase drugs, and (c) systemic crime associated with drug production, distribution, and sale.

Up through the 1970s, opioids—specifically, heroin—were the focus because of their strong association with economic-compulsive crime (Hammersley et al. 1989, Johnson et al. 1985), so much so that the word narcotics was often used to mean all drugs. For example, heroin topped the list of concerns for the President's Crime Commission's 1967 report, which observed that heavy users were spending upward of \$14 per day on it (\$108 in 2020 dollars), whereas at the time, cocaine was “not the major drug of abuse that it once was” (Pres. Comm. Law Enforc. Adm. Justice. 1967, p. 213).

The levels of criminality reported by some heroin users were striking. Ball et al.'s (1982) classic study conducted interviews over 11 years with a random sample of 243 heroin addicts (the standard term at the time) selected from users identified or arrested by Baltimore police between 1952 and 1971. During periods of addiction, subjects had six times as many crime days per year as they did during periods of abstinence. Although many of the crimes were just thefts, the volume was startling: 248 crime days per year when addicted versus 41 per year when not addicted.

Ball et al.'s (1982) subjects were atypical. Their extraordinary rates of criminal activity are not matched by all people with addiction, some of whom are not involved in nondrug crime at all. Multiplying their very high offending rates by estimates of the total number of heroin users produced implausibly high estimates of the amounts of drug-related crime, but that implausibility did not prevent such mythical numbers from causing alarm (see, e.g., Reuter 1984).

The nature of the drug-crime problem changed in the 1970s when the heroin epidemic stalled (Agar & Schacht Reisinger 2002, Massing 2000) and 1980s when cocaine—including crack—surged. That shifted concern to violence and disorder related to dealers and markets. Goldstein et al.'s (1989) study of New York City homicides concluded that half were drug-related, with the great majority related to cocaine and, in the language of Goldstein's tripartite framework, most were systemic crimes.

Cocaine-related violence inflamed fears of the extent to which drugs drive crime, prompting efforts to tamp down exaggerated fears. For example, Nordstrom & Dackis (2011) observed that even though addiction may increase the frequency of criminal activity, it does not necessarily turn nonviolent criminals into violent criminals. Likewise, Parker et al. (1998, p. 295) argue strenuously that alcohol, not illegal drugs, is most strongly connected to violence, and that “evidence to support a link between heroin and violence is virtually nonexistent.”

Efforts to combat the myth that all crime by drug users is drug-related can go too far, losing track of the fact that use of expensive and addicting illegal drugs can substantially increase an individual's offending. For example, Parker et al.'s (1998) statement pertains primarily to psychopharmacological, not systemic, crime and requires classifying economic-compulsive robberies as a property, rather than violent, crime. Heroin users in the United States support a \$30–\$40 billion black market (Midgette et al. 2019) that generates considerable systemic violence in both the United States and Mexico (Reuter 2009). Furthermore, Goldstein's framework only encompasses drugs as proximate causes of crime; there are myriad ways in which drug distribution, use, and dependence also cause crime indirectly and over time.

For example, illegal drug dealing gives youth an incentive to acquire firearms, potentially triggering an arms race among youth that makes all disputes more lethal (Blumstein & Cork 1996). Were there no drug use or if drug markets were legally regulated and disputes resolved in court, then there would be no illegal drug dealing and no such arms race; thus, drug use and the legal

environment contribute in large part to violence, even if the person who pulls the trigger has not used drugs. Likewise, drug use can interfere with school performance, and low educational attainment can contribute to a broad array of adverse outcomes, including participation in crime (Engberg & Morral 2006).

Still, the strongest evidence for a causal connection between opioids and crime pertains to property crime. The Australian heroin drought provides one natural experiment. Australian data show a long-term positive association between heroin use and robbery (Chilvers & Weatherburn 2003), and when heroin supplies suddenly dried up in early 2001, rates of acquisitive crime changed in expected ways. They rose initially (reflecting a low short-term elasticity of demand) and then went down as use adjusted downward to the higher prices (Degenhardt et al. 2005a,b; Smithson et al. 2004). Likewise, the fact that evaluations of opioid treatment—a topic to which we turn next—routinely find that treatment reduces criminal offending is strong circumstantial evidence for a causal effect.

### **The Effectiveness of Opioid-Use Disorder Treatment Generally and for Criminal Offenders**

Providing appropriate treatment to people with a substance-use disorder who are criminally active is an effective way to reduce crime (Prendergast et al. 2002). Indeed, one of the early programs of President Nixon's Special Action Office for Drug Abuse Prevention was called TASC. Holloway et al.'s (2006, p. 623) meta-analysis of 28 (mostly American) studies concludes that “drug treatment is effective at reducing criminal behavior,” with treatment group's odds of reoffending being reduced by 29% or 36% depending on the model used.

**Medication-assisted treatment for opioid-use disorder.** The promise of treatment is even greater for opioids than for other illicit drugs because a variety of effective pharmacotherapies are available. The consistent finding is that medication for opioid-use disorder (MOUD) achieves a very favorable cost:benefit ratio, and in many evaluations reductions in criminality are a principal benefit. For example, Gerstein et al. (1994) reviewed treatment programs in California and concluded that 42% of all the benefits accruing to California residents in the year following entry into a program came from reductions in crime and criminal justice costs.

The original and perhaps still most familiar medication is methadone, which, like heroin, is a  $\mu$ -opioid receptor agonist. However, it is low potency and longer acting, so it prevents the cravings and associated harmful behaviors common in an individual with an opioid-use disorder (OUD), enabling the lives of individuals receiving methadone treatment to be more stable on a variety of levels, including employment and social functioning, despite the continued physical dependence on a narcotic.

A common view in the literature is that medication treatment, including with legal PO agonists such as methadone (and in some countries even heroin itself) or partial agonists (notably, buprenorphine) is the gold standard of care for treating OUD. There are not similarly effective or approved medication treatments for individuals with cocaine- or methamphetamine-use disorders.

Opioid antagonists, such as injectable naltrexone (Vivitrol<sup>®</sup>) have also been shown to be effective in treating OUD among individuals who are willing to use one and remain adherent, but many patients actively dislike Vivitrol<sup>®</sup> and rates of uptake are lower and rates of nonadherence commonly higher than with some other medications (Lee et al. 2018). Furthermore, injectable naltrexone does not appear to offer the same protection against overdose as do buprenorphine and methadone (Jarvis et al. 2018). The evidence supporting counseling without medication is less robust, and abstinence-oriented approaches are not clinically recommended.

Methadone maintenance treatment (MMT) has been evaluated myriad times, including with high-quality randomized controlled trials. Meta-analyses consistently find that MMT improves health and life outcomes and usually find that MMT reduces criminality (e.g., Amato et al. 2005, Marsch 1998), particularly drug and property crime. One exception is Mattick et al.'s (2009) Cochrane review, which found MMT to be superior to a placebo at treatment retention and reducing drug use but not necessarily at reducing criminality or mortality; the three studies reviewed by Mattick et al. for this purpose were all very dated. It is also important to understand that treatment rarely produces abstinence, and the beneficial effects come despite low retention, high use of other drugs during treatment, and high relapse rates post-treatment (Marsch 1998).

**Treatment of prisoners.** Although the literature on MOUD in the general population has a clear takeaway (treatment works), the literature specifically on OUD treatment for inmates is more nuanced. Mitchell et al. (2012) provided a systematic review of 74 experimental and quasi-experimental evaluations of incarceration-based treatment programs, divided into four categories: therapeutic communities, group counseling, boot camps for drug offenders, and maintenance programs (like methadone). Therapeutic communities were found to reduce both criminal recidivism and drug relapse, group counseling reduced recidivism but not relapse, maintenance programs did the opposite, and boot camps performed badly on both outcomes.

The effect sizes observed by Mitchell et al. (2012) were modest but important. The odds ratio for effects on recidivism translates into reducing recidivism rates from 35% to 29% (a 17% reduction). The corresponding effect for drug relapse was slightly smaller (a 15% reduction) and based on just 22 of the 74 studies that included drug-use outcome measures.

Hedrich et al.'s (2012) systematic review of 21 studies (six experimental) of prisoners receiving opioid maintenance therapy reached broadly similar conclusions. Although there were clear effects on drug use in prison and treatment retention post-release, effects on crime and reincarceration were described as equivocal. Four of nine studies found lower rates of reincarceration, but five did not. One of four studies assessing effects on self-reported criminality found reductions, but these did not persist past six months. Two others found effects that approached statistical significance. Stallwitz & Stöver (2007) are slightly more positive, suggesting that the mediocre effects on nondrug crime may be improved with greater dosages and treatment duration.

Perhaps there is some divergence between evidence of the beneficial outcomes of OUD treatment for the general population and expected benefits with respect to reduced offending resulting from treating incarcerated individuals. Although MOUD among incarcerated individuals can reduce subsequent offending, therapeutic communities and post-release supervision can produce even greater reductions (Holloway et al. 2006). One possible interpretation is that individuals with OUD but few other life challenges may do fine on a simple maintenance drug, but those with comorbid mental health challenges, lack of family support, and multiple other stressors may need more and/or different interventions, and those entangled with the CJS may often be in the latter situation. Nonetheless, the consensus in the literature is that MOUD has repeatedly been shown to reduce opioid use and criminal offending, and that treatment is also effective when it is provided in a criminal justice setting.

### **Ethical Concerns Related to Providing Treatment in a Criminal Justice Setting**

Focusing treatment on high-rate criminal offenders may offer taxpayers the greatest return-on-investment because of reductions in offending, but it can create ethical questions. Merely offering treatment does not ensure that an individual will engage and remain in treatment, as many people with OUD do not want treatment and others initiate but drop out. Given this, is it appropriate

for the CJS to incentivize or even coerce treatment of those under its supervision as part of, or in lieu of, a prison sentence? And, if so, for which categories of offenders?

The answer may depend on particulars. Farabee et al. (1998) described a continuum of coercion ranging from a simple recommendation to policies that involuntarily send inmates to prison treatment programs. Klag et al. (2005) emphasized that there is a difference between compulsory treatment and coerced treatment.

The ethical question is intertwined with the question of effectiveness. Doug Anglin, Mary-Lynn Brecht, and colleagues argued in several highly cited studies that treatment is equally effective for both legally coerced and voluntarily admitted participants (Anglin et al. 1989, Brecht et al. 1993). However, more recent reviews (Farabee et al. 1998, Klag et al. 2005) have noted that the findings are mixed. Uncertainty about effectiveness seems to stem in part from the lack of a clear definition of what coercion entails and how motivation of an individual can be determined for those in the control groups as well as those in a mandated treatment program. Through interviews with 415 clients in a wide range of treatment modalities, Marlowe et al. (2001) assessed the multidimensionality of the pressures and motivations that can impact an individual's decision to enter treatment and found that nearly all clients reported a combination of pressures (family and/or employers as well as courts) to do so.

Even if coerced treatment works, there is also the question of whether it is ethical. Substance-use disorders are recognized as behavioral health disorders and disabilities, and treatment is a form of medical care. The UN Convention on the Rights of People with Disabilities states that forced treatment must be abolished. However, all US states have provisions for involuntary treatment of mental health problems for individuals at risk of hurting themselves or others, and protecting the public from crime can be seen as a compelling health interest.

Some authors have addressed this ethical dilemma (e.g., D'Hotman et al. 2018). Concerns raised include whether individuals with OUD are able to provide consent, potential abuses to human rights, and the nature of the relationship between client and therapist (Werb et al. 2016). Werb et al. (2016, p. 2) argue that, "given the potential for human rights abuses within compulsory treatment settings, noncompulsory treatment modalities should be prioritized," but Ludwig & Peters (2014) counter that MOUD in correctional settings is ethically appropriate.

Others argue that it is unethical for the CJS to not provide treatment. The United Nations' Basic Principles for the Treatment of Prisoners stipulates that "prisoners shall have access to the health services available in the country without discrimination on the grounds of their legal situation" (General Assembly Resolution 45/111). Failing to provide treatment—including medication-assisted treatment—can be seen as violating this principle of equivalence; in the United States, the Eighth Amendment, given the Supreme Court's 1976 ruling in *Estelle v. Gamble* (Linden et al. 2018, Wakeman 2017), states that deliberate indifference to serious medical needs constitutes cruel and unusual punishment.

### Addressing Opioid Use/Dependence of Inmates

The Bureau of Justice Statistics estimates in surveys conducted in 2007 and 2009 that 58% of state prisoners and 63% of sentenced jail inmates met the DSM-IV criteria for drug dependence or abuse and one in six had regularly used heroin (Bronson et al. 2017). Female inmates experienced an even higher prevalence of drug-use disorder (69% in prison and 72% in jail). Therefore, addressing inmates' OUD is a core responsibility, not a special situation, and creates its own opportunities and challenges. Below, we discuss four aspects: incarceration interrupting existing treatment, provision of treatment in prison, reduction of overdoses following release from incarceration, and incorporation of treatment into post-release supervision.

**Interrupting treatment by incarceration.** Continuity of care is important for all chronic illnesses, including OUD. Given their length, prison sentences create opportunities for the CJS to provide treatment, but shorter jail stays can harm detainees by interrupting ongoing treatment—and most of those harmed have not yet been convicted, with people entering jail more than 10 million times annually in the United States (Zeng 2019).

Interrupting MOUD potentially makes medication treatment less appealing for criminally involved people with OUD. One qualitative study of incarcerated individuals with OUD who had methadone discontinued during incarceration indicated that the painful experience made them reluctant to engage in methadone treatment again after release (Maradiaga et al. 2016).

Paradoxically, interrupting ongoing use during incarceration may also reduce tolerance, thereby increasing vulnerability to overdose upon release. This possibility is illustrated in a study by Binswanger et al. (2007). Examining death records for 30,000 inmates released from Washington State prisons between 1999 and 2003, they found that in the two weeks after release the mortality rate was 12.7 times that of the general population (adjusting for age, sex, and race). Drug overdose was the leading cause of deaths among the former inmates in this period.

**Providing treatment within prison.** Treatment availability, particularly of MOUD, is limited in most US jails and prisons (Nunn et al. 2009) and, if available, is often available only to certain populations, such as pregnant women who had initiated MOUD prior to incarceration (Sufrin et al. 2020). As a result, only approximately one-quarter of incarcerated individuals reported having received drug treatment since they were incarcerated, with very few mentioning treatment with a maintenance drug (Bronson et al. 2017).

There have been some efforts to promote treatment within the US CJS. For example, the 1994 Violent Crime Control and Law Enforcement Act provided funding. However, other countries do better. Larney & Dolan (2009) find that at least 29 countries had implemented Opioid Substitution Treatment in prison as of January 2008, including most EU countries (Hedrich et al. 2012) and Australia (e.g., Hall et al. 1993).

Providing treatment can strain already stretched correctional budgets, but in an ideal world that transcended bureaucratic silos, stretched budgets should not be an impediment to treatment. Warren et al. (2006) argue that treating inmates need not be more expensive than providing methadone in a community setting (\$3,200 per inmate per year in that study).

There are also implementation challenges, e.g., the rural location of many United States prisons, which can make it harder to recruit and retain specialty staff. Distance from inmates' counties of residence can also interfere with continuity of care after release (Farabee et al. 1999). There are also concerns about diversion from the patient to other inmates.

However, a greater challenge may be overcoming opposition to methadone and buprenorphine on the grounds that they simply substitute one opioid with another and that drug-free treatment is superior. For example, in commenting on Stein et al.'s (2020) study of detoxification, Nunes & Shulman (2020) note that it is important to recognize that the preference for drug-free treatment may be held by not only leadership and staff of in-patient or residential programs but also other key stakeholders, including clinicians at out-patient treatment programs, family members, people in recovery from addiction, policymakers, and patients themselves.

However, systemic change is possible. In July 2016, Rhode Island became the first US state to screen every individual who entered a prison or jail for OUD and offer all three forms of MOUD (buprenorphine, methadone, and naltrexone) along with drug counseling. Early results have been positive. Comparing the first six months of 2016 to the first six months of 2017, there was a 60.5% reduction in mortality among individuals recently released from incarceration (Green et al. 2018).

**Providing naloxone upon release.** Naloxone is a short-acting opioid antagonist effective in counteracting opioid overdose-related central nervous system and respiratory depression (Boyer 2012, Sporer et al. 1996). Recent years have seen many efforts to increase access to naloxone, a nonscheduled drug that can be obtained and used by nearly anyone, including those under CJS supervision. There is a particular need to counter the spike in deaths for individuals with OUD in the weeks following their release from prison, as noted above.

Relatively few CJS-based naloxone distribution programs have been evaluated; however, McDonald & Strang (2016) completed a systematic review of studies of take-home naloxone programs. The 22 studies covered 15 locations in 4 European or North American countries and included both community and prison sites. Their review found that these programs reduced overdose mortality for program participants and the surrounding communities.

Prisoners can benefit from community-wide as well as inmate-specific policies. Scotland implemented its National Naloxone Program (NNP) in January 2011 for all at-risk individuals, in prison or not. In a pre-post study design, Bird et al. (2016) found a 20–36% reduction attributable to the naloxone program in the number of opioid-related deaths in the first month post-release from prison.

Likewise, providing naloxone to one person may save another person. In England, Parmar et al.'s (2017) randomized controlled trial of naloxone-on-release concluded earlier than planned due to the release of information related to Scotland's NNP, but initial results showed that two-thirds of the individuals who received the naloxone were not the individuals to whom it had been distributed.

**Providing treatment to individuals under criminal justice system supervision in the community.** The majority of the population under CJS supervision is in the community, not incarcerated. Kelly et al. (2013) found that treatment is as effective for those on probation or parole as it is for others. There has been interest in extended-release naltrexone for this population because an injected dose is effective for one month (Springer et al. 2015). A Cochrane review of oral naltrexone (which is typically administered in a once-a-day pill) found it was no better than a placebo with respect to the number of participants who were reincarcerated (Minozzi et al. 2011). However, two subsequent studies (Lee et al. 2018, Tanum et al. 2017) of extended-release naltrexone concluded that it was as effective as buprenorphine-naloxone with respect to maintaining abstinence in the short term.

### **Alternatives to Incarceration**

Rising rates of drug use, crime, and violence were dominant concerns in the latter part of the twentieth century, but excessive rates of incarceration eclipsed them in the twenty-first century (Mauer 2006, Travis et al. 2014). There are particularly severe consequences for racial/ethnic minorities, which have been likened to a new form of Jim Crow segregation (Alexander 2011). Incarceration of low-level drug offenders has been seen as a major culprit (e.g., Drucker 2002), with grave doubts that imprisonment reduces recidivism (Green & Winik 2010, Spohn & Holleran 2002). Although some disagree with the Jim Crow metaphor (Forman 2012) and the idea that incarceration for drug law violations in particular was a singular driver (Pfaff 2014, 2017), there is almost universal desire to reduce incarceration, even among conservatives (Dagan & Teles 2012).

Conventional probation has long been seen as insufficiently rigorous, leaving a paucity of options between probation and incarceration (Morris & Tonry 1991) and a hunger for better ways to supervise drug-involved offenders in the community. For drug-involved offenders, if the crimes were caused by drug use, then stopping drug use could rehabilitate the offender without relying on incarceration for deterrence of incapacitation.



This led to several distinct efforts aimed at diverting arrested/convicted low-level drug-involved offenders away from long-term incarceration, including drug courts, diversion policies such as California's Proposition 36, and swift, certain, and fair (SCF) approaches such as Hawaii's HOPE program.

**Drug courts.** Drug courts implement a highly personalized and coordinated strategy, including integrating alcohol or drug treatment services into sentences for drug-using offenders and rely on ongoing judicial interaction, local partnerships, and frequent monitoring of participants' drug use to avoid incarceration. Drug courts rely on highly certain, but not overly severe, punishments, designed not as retribution but rather to motivate a change in behavior.

Drug courts were a reaction to the failures of conventional monitoring, which tended to be sporadic and ineffectual. To describe those failings in caricature, probation officers might routinely test offenders under community supervision, but failed or skipped drug tests confronted the officer with the unappealing choice of ignoring the violation or seeking revocation of probation, potentially resulting in extended incarceration. There was often little ability to use graduated sanctions, or their threat, to respond to intermediate levels of noncompliance. By contrast, drug court clients' progress was monitored frequently by the judge who had the authority to immediately implement a wide range of responses to violations.

Drug courts were first established in the United States in 1989 and expanded rapidly, with more than 1,600 drug courts established in the first 20 years (King & Pasquarella 2009). They had undeniable appeal, offering less drug use, lower crime, and reduced incarceration. However, drug courts were received more skeptically in the academic literature (Anderson 2001, Belenko 2001, Goldkamp et al. 2001, Holloway et al. 2006). A 2009 review of their effectiveness at reducing incarceration, reoffending, and criminal justice costs produced mixed findings (King & Pasquarella 2009), whereas Aos et al.'s (2006) meta-analysis of 57 studies estimated that drug court participation reduced crime by 8% relative to no treatment. However, "of great concern is the contention that drug courts could be increasing the number of people arrested for drug crimes, instead of decreasing in the long-term the number of people processed in the criminal justice system. Research has not yet focused on determining whether drug court participants would have ended up in the criminal justice system if not for the drug court" (King & Pasquarella 2009, p. 19).

Another criticism is that relatively few of those currently incarcerated (whether in jail or prison) would have been eligible to participate (Pollack et al. 2011). Each drug court has its own eligibility requirements, often set by the presiding judge, but many require that the offender have no history of violent crime, no prior felony conviction, no arrest for drug sale or trafficking, and no drug court failures in the previous five years. Some drug courts also have capacity constraints, e.g., from limits on the judge's time. A 2008 study determined that within an estimated population of 1,471,338 arrestees who are at risk of OUD and probably guilty, and therefore more likely to participate in such a program, only 109,921 were eligible to appear before a drug court. Of those who were eligible, only 55,365 (or 3.8% of the population that could benefit from this type of program) actually received drug court treatment (Bhati et al. 2008). Also, at least as of 2010, only about half of drug courts offered MOUD to participants with OUD (Matusow et al. 2013).

**Swift, certain, and fair.** Mark Kleiman (2009) argues in his influential book *When Brute Force Fails* that consequences that are swift, certain, and fair (SCF) are the most effective in reducing drug use and associated crime. SCF is the opposite of many current probation practices, in which sanctions are delayed, unpredictable, and overly punitive.

The SCF concept is relevant to but not restricted to offenders with OUD. Perhaps its most famous implementation pertained primarily to methamphetamine-involved offenders in Judge

Alm's Project HOPE (Hawaii Opportunity Probation with Enforcement). This program does not require that participants partake in drug treatment but does require they abstain from drug use as confirmed by frequent and random testing. If a participant tests positive, they are subject to immediate and moderate sanctions, such as an overnight stay in jail. Unlike drug courts, only those participants who have violations appear in front of a judge, making the approach cheaper and easier to scale than drug courts.

Hawken & Kleiman's (2009) initial evaluation found that HOPE reduced drug use, new crimes, and incarceration both for the high-risk probationers included in the initial pilot program and a randomized controlled trial of general population probationers. Later evaluations have been less favorable. In a demonstration field experiment of the HOPE program in four US counties selected through a competitive process, among more than 1,500 probationers randomly assigned to HOPE or probation as usual (PAU), Lattimore et al. (2016) found that HOPE/SCF enrollees were no less likely to be rearrested, with the exception of drug-related arrests at one site. An evaluation of a similar Delaware program also found no effect on recidivism (O'Connell et al. 2016), but Washington State's program fared better (Hamilton et al. 2016). South Dakota's 24/7 Sobriety is another SCF-type program, originally for repeat DUI offenders but later extended to drug offenders, that has very favorable evaluation results (Kilmer et al. 2013, Nicosia et al. 2016).

Hawken (2018) argues that the conflicting outcomes suggest that SCF can work, but implementation can be challenging [Lattimore et al. (2016) note mediocre achievement of the swift part of the SCF formula] and suggested that it may not be appropriate for all offenders; e.g., the Arkansas site involved primarily low-risk offenders for whom such close scrutiny may have been unnecessary and counterproductive.

**Treatment as diversion from incarceration.** A variety of states implemented measures to divert low-level drug offenders from prison, with California's the most ambitious and most studied.

In 2000, California's Proposition 36 altered the state's sentencing law for first and second low-level drug law violations, requiring that all eligible individuals (approximately 50,000 per year) be provided the option to seek probation and treatment rather than incarceration. Like drug courts, participants remain within the CJS, but unlike drug courts they receive much less attention; furthermore, incarceration for noncompliance is prohibited. Several other states, including Arizona, Hawaii, Kansas, Maryland, and Washington, subsequently passed similar initiatives.

Proposition 36 increased the number of arrestees going to treatment and reduced the number going to prison, saving taxpayers money (Longshore et al. 2006), but treatment completion rates were low because there was little to compel continued participation. Proposition 36 did not use the threat of incarceration to increase treatment participation as much as it used referral to treatment as a backdoor way of reducing penalties. Hser et al. (2007) also raised the concern that even though Proposition 36 increased treatment among those within its mandate, it may not have increased treatment overall if it displaced voluntary clients to make room for Proposition 36 clients. Proposition 36 expanded treatment capacity in the state, although mostly in an outpatient setting.

## THE CRIMINAL JUSTICE SYSTEM AND OPIOID MARKETS

The opioid markets and problems of greatest concern in twenty-first-century North America differ fundamentally from those of the past. Heroin markets and use eclipsed morphine around the turn of the twentieth century, grew sharply in the late 1960s, and were largely stable from the mid-1970s through approximately 2000, with an aging cohort of established, dependent users supplemented by only a modest inflow of new users.

Two factors broke that stasis. One came from the medical community: vastly increased prescribing of POs, starting during the mid-1990s (Kolodny et al. 2015). The second came from

**Table 1 Supply-side interventions by target sector and price chain link affected**

Program	Targeted sector	Price affected
Eradication, alternative development, refinery destruction, precursor chemical control	Growing, production, and refining	Export
Interdiction	Smuggling	Import minus export
Investigation	High-level domestic trafficking	Wholesale minus import
Street-level enforcement	Retailing	Retail minus wholesale

Data taken from Babor et al. (2018).

China, starting around 2014: black-market fentanyl and other synthetic opioids (FOSO) that are vastly more potent than heroin (Pardo et al. 2019b). There is no consensus as to whether the first caused the second. Regardless of the causality, illegal opioid markets have been fundamentally altered in ways that require new thinking about the capabilities and limitations of supply disruption efforts.

The next three sections address this topic by (a) summarizing the conventional understanding of supply control's strengths and limitations vis a vis traditional markets, (b) distilling the essence of what has changed, and (c) describing new opportunities for law enforcement to respond to contemporary opioid supply.

### Law Enforcement's Capabilities and Limitations for Constraining Traditional Heroin Markets

All heroin consumed in the United States is produced in other countries. Since about 2005, Mexico has supplied almost all US heroin, but in previous eras the United States imported substantial quantities from Afghanistan (1980s), the Golden Triangle (1990s), and Colombia (1993–2005). Mexico is a high-cost heroin producer, but production costs are much less important than smuggling costs as a share of retail price; smuggling costs are lower for Mexico, sharing a long border and a huge daily flow of commerce and traffic with the United States, than for any other country.

There is a large literature on the consequences of efforts to suppress heroin markets. Longer sentences, higher probability of arrest for a supply offense, and more seizures do not affect measures of availability, in particular, price. However, the research is not strong, because of both data limitations and conceptual challenges (Pollack & Reuter 2014).

Enforcement against heroin should not be seen as a single intervention; rather, from production to consumption, there may be up to ten transactions (Kilmer & Reuter 2009) spread across four major links in the supply chain (production, international trafficking, wholesale distribution, and retail sale), each with a specific kind of enforcement program, as reflected in **Table 1**. Furthermore, the effect of each type of enforcement shows up in a specific part of the price chain (Caulkins & Reuter 2010, Reuter & Kleiman 1986). For example, interdiction of heroin smuggled into the United States increases the risks and costs of smugglers. That increases what smugglers charge, which is the difference between the price at which they buy heroin from the supplying country and the price at which they sell it to the wholesale dealers in the United States. That specific increase would then lead to a higher retail price.

Theory suggests that tougher enforcement should raise price and reduce consumption, yet heroin prices fell steadily from 1980 to 2000, a period during which the risk of incarceration apparently rose (Caulkins & Reuter 2010). The consistently negative findings have generated many efforts to explain this failure.

Some have suggested that the labor supply curve may be very flat with respect to enforcement risk because it is easy to replace dealers at any level of the market. Retail sellers are recruited from those with weak prospects in the legitimate labor market, and dealers at any level are happy to move up the chain if there are vacancies. Incarcerating one dealer, therefore, merely creates an opening for another individual willing to take the same risks for almost the same reward (e.g., Becker et al. 2006). Tough enforcement then just creates drug-selling labor force churn without raising price. However, that only accounts for the failure of tough enforcement to increase price; it does not explain the decline.

Another possibility is that the relevant labor pool grows over time because of the steadily worsening economic prospects of those who continue to use heroin frequently. The longer the record of incarceration and treatment an individual accumulates, the harder it is to obtain legal employment. That could have driven down the reservation wage of heroin-selling labor over the decades, thus driving down prices. No current research has tested this or other potential explanations.

Mark Moore's (1973) seminal article suggested that police could reduce consumption without increasing prices by raising the search time (transaction costs) required to obtain the drug by shutting down visible street markets. Mark Kleiman (1994) further elaborated on this idea, and Rocheleau & Boyum (1994) found that it took about 50 minutes on average for a heroin user to find the drug after deciding to purchase it. Since the average number of purchases per week was 13, the purchase time (valued at minimum wage, which at the time was \$4.25 per hour) was an important contributor to the total cost of acquiring heroin, perhaps \$50 on top of roughly \$200 in cash. Yet substantially increasing search time cost seemed difficult, particularly after pagers and cell phones made it easier for sellers and customers to find each other, reducing the importance of open-air markets and the associated violence and disorder.

Occasionally, a large heroin market experiences a long-term disruption. The Australian heroin drought, discussed above, is a prominent instance. Quite suddenly, at the end of the year 2000, the price of heroin in street markets in Australia rose sharply and purity declined; price and purity did not return to the previous levels even five years later. The result was a drastic reduction in heroin consumption and a modest increase in use of other drugs, particularly methamphetamine, as discussed above. There has been considerable disagreement at what caused this disruption. Degenhardt and collaborators published several papers citing supply-side interventions as the most plausible explanation (Degenhardt et al. 2005a,b,c). A large seizure and accompanying arrests/convictions in Fiji were the most likely cause (Hawley 2002), but why the market took many years to recover has been hard to pin down and is still left unanswered. The interpretation was complicated by a simultaneous disruption in British Columbia, perhaps related to the same seizure, which lasted only briefly (Wood et al. 2006).

Later in 2001, the Taliban prohibited the growing of opium poppies, leading to substantial price increases but not a true shortage of supply except perhaps in the Baltic states (Pardo et al. 2019b) because heroin and opium stocks were substantial (Paoli et al. 2009). A second year of prohibition might have had a greater impact but the Taliban's fall following the US-led overthrow of the Taliban ended the prohibition, and it is unlikely that any other regime will be able to obtain similar compliance with a poppy production ban.

### What Makes Today's Opioid Markets Different?

John Kaplan's (1983) seminal book on heroin and public policy was aptly titled *The Hardest Drug*. Yet by the turn of the twenty-first century, the age-adjusted death rates for PO (technically, natural and semisynthetic opioids) already exceeded that of heroin (1.0 versus 0.7 per 100,000), and PO deaths tripled in the first decade of the twenty-first century, whereas heroin deaths held

steady. Heroin deaths subsequently soared starting in 2010, reaching 4.9 per 100,000 in just six years. Recently, deaths from synthetic opioids other than methadone—the category that includes fentanyl—increased tenfold in just five years, from 1.0 per 100,000 in 2013 to 9.9 per 100,000 in 2018.

All three waves—PO, heroin, and fentanyl—involve opioids and activate the same neuroreceptors (Compton et al. 2016); addiction to each is considered the same clinically, as an OUD and not as separate drug-specific addictions. There are practical and psychological barriers separating those who abuse only prescribed pharmaceuticals from those who purchase from illegal markets, but trading down from the former to the latter is not uncommon (Mars et al. 2014), and once that barrier has been crossed, people with OUD often shift their opioid-of-choice in response to changing price, availability, and market conditions.

Many of those dying of heroin and fentanyl launched their opioid-using careers with PO. Cicero et al. (2014) studied 2,797 people entering treatment for heroin dependence. For 80% of those initiating heroin use in the 1960s, heroin was their first opioid of abuse, whereas 75% of more recent heroin initiates were introduced to opioids through prescription drugs. Likewise, Muhuri et al. (2013) found that 80% of those reporting recent heroin initiation in the National Survey on Drug Use and Health (NSDUH) were prior users of nonmedical pain relievers (NMPRs). NSDUH has serious limitations for studying heroin use, but the relative risk rates are striking. Muhuri et al. (2013) estimate heroin initiation rates of only 0.02% per year for those not using NMPRs, but 0.38% per year for those using NMPRs 1–29 times in the past year and 4.1% per year for those using NMPRs 200–365 times per year.

Prescription opioid analgesics (a category that includes OxyContin, Vicodin, and Percocet) had long been used to treat, particularly, acute pain and chronic pain from cancer and terminal conditions and patients within medical facilities. The radical change in medical practice in the United States and, to a lesser extent, Canada was to greatly expand the use of powerfully addictive opioids for treating chronic (as opposed to acute) pain of a general nature (e.g., back pain as opposed to cancer pain) with minimal medical oversight (at home versus in a hospital or nursing home). Pharmaceutical companies promoted this change aggressively (Kolodny et al. 2015).

Prolonged use of opioids results in physiological dependence. The question is what proportion of long-term patients misuse compulsively or in ways that are not medically approved. The answer turned out to be much higher than boosters promised (Meier 2018). The low rates of addiction among people who took opioids briefly to treat acute pain did not translate into similarly low rates among those who took opioids for chronic conditions.

Edlund et al. (2014) estimated how treating chronic noncancer pain increased the odds of developing OUD as a function of dose (low, medium, or high) and duration (acute versus chronic). Even at high doses, treating acute pain with opioids only tripled the risk of developing OUD. But with chronic treatment, the odds ratios were 15, 29, and 122 for low, medium, and high doses, respectively.

This can create a conflict of interest between pharmaceutical companies' profit motives and the public health interest because one opioid-tolerant chronic pain patient taking six pills per day generates more sales revenue than 100 acute pain patients with seven-day prescriptions for two pills per day. Even though prescribing peaked around 2010, US-per-capita prescribing remains many times that of other developed countries (Humphreys 2017).

The shift in prescribing, and the resulting oversupply and diversion of PO, created a new population of individuals with OUD that was geographically and demographically different from those whose heroin use persisted for prior decades. PO initiation affected all ages, and, in many cases, the supply of PO favored not urban markets but rural and suburban areas, especially in states with lax prescription policies (Cicero et al. 2014, Powell et al. 2020).

PO oversupply can directly stimulate black-market supply in a way that differs from past opioid markets. Heroin users may have introduced others to heroin (contagious spread of demand) and worked as retail sellers, but they never produced additional supply. With PO, users turning to criminal activity (fraudulent diversion) are actually expanding black-market supply (contagious spread of supply). Curtailing excessive prescribing can disrupt that positive feedback loop.

The pendulum began to swing back with new guidelines for prescribers (Dowell et al. 2016); laws aimed at curbing unscrupulous pain management clinics, prescribers, and dispensers (Kuehn 2014); and federal promotion of abuse deterrents such as the reformulation of oxycodone. Some of these measures coincided with a rise in heroin deaths (Alpert et al. 2018, Cicero et al. 2012, Evans et al. 2019), with some individuals potentially trading down to cheaper and more accessible heroin as a result of those regulations, whereas others might have transitioned simply because of tolerance developed from prescription pain relievers (Mars et al. 2014).

The heroin threat was soon eclipsed by illegally manufactured FOSO. Although some modest amount of fentanyl diversion has occurred since the 1990s, after the drug was formulated to treat chronic and end-of-life pain (Poklis 1995), the vast majority of harms stemming from fentanyl are due to illegally manufactured product often concealed in the supply of other drugs. FOSO appeared in illegal markets as early as the late 1970s, but prior outbreaks were comparatively short-lived and limited in their reach (Pardo et al. 2019b).

Today's FOSO problem differs markedly from prior heroin or PO problems for several reasons. First, fentanyl sells online in wholesale quantities for approximately 1% of the price of heroin per morphine-equivalent dose (MED) (Pardo et al. 2019b). Second, FOSO are an ever-changing family of chemicals, not just one molecule, complicating detection and interdiction efforts and sowing confusion in markets. Fentanyl is approximately 30–50 times more potent than heroin, whereas carfentanil may be 10,000 more potent, so the margin of error in dosing is very narrow even in the first case and minuscule in the second. Third, these drugs are often concealed in or sold as traditional drugs of abuse. A little bit of fentanyl powder can be mixed into heroin to give it an extra kick or pressed into counterfeit prescription tablets made to look like genuine medications.

The rise of FOSO was facilitated by a shift in production and the rise of e-commerce. Although Mexican drug-trafficking organizations had briefly entered into fentanyl production in 2005, only more recently did they start to expand production in earnest (Felbab-Brown 2019). Semilegitimate and under-regulated pharmaceutical and chemical companies in China appear to have started synthesizing and distributing fentanyl and various precursor chemicals to buyers around the globe. Chinese producers faced little regulatory scrutiny and could advertise online, offering to ship the drugs by post or express consignment (O'Connor 2017). Buying FOSO online upends traditional distribution patterns. Someone without a criminal record or history of drug trafficking could use the internet to import ten grams of fentanyl, enough to be a small-time wholesaler, without ever dealing with transnational criminals.

Some ways FOSO are sold to end-buyers are also new. Recently, most pills purchased from street dealers were diverted from legal pharmaceutical supplies. Their sale was illegal, but the product was pure and quality controlled. Now, many pills that look like PO are actually counterfeits containing potent synthetic opioids that expose customers to a substantial risk of overdose.

### **Opportunities for the Criminal Justice System to Address Opioid Supply in the Modern Era**

The changes in the nature of the illegal opioid problem in the United States require changes in the strategy and goals of the CJS response. Here, we provide insights about supply disruption aimed at two distinct flows: PO and FOSO.

**Disrupting prescription opioid supply.** Reducing oversupply and diversion of PO is primarily a healthcare system responsibility. Diversion happens in myriad ways (Inciardi et al. 2007a) but commonly within the context of a doctor–patient relationship in which the patient is sincere and the doctor is at most naïve or careless but not knowingly promoting diversion. Consider opioid prescribing from surgery—a condition that patients are unlikely to fake to obtain opioids. In 2016, it produced 3.3 billion unused pills in the United States (QuintilesIMS Inst. 2017). At \$20 per pill, the potential black-market value of excess prescribing from just surgery matches or exceeds that of the entire heroin market (Midgette et al. 2019).

Important strides have been made to reduce overprescribing, and Simeone (2017) detects large declines in apparent cases of doctor shopping between 2008 and 2012 in a database of 11 billion prescriptions. Nevertheless, addressing diversion of PO is a long-standing CJS responsibility, and opioids are, or at least were, the most common subject of diversion investigations (Inciardi et al. 2007b). Efforts to address major theft and corruption from the pharmaceutical supply chain, such as hijacking delivery trucks, appear to be largely successful inasmuch as the quantities diverted at those levels seem to account for a modest share of PO misuse (Nat. Acad. Sci. Eng. Med. 2017).

Law enforcement has tread more lightly on the greyer area of corrupt physicians, e.g., those operating so-called pill mills (Rigg et al. 2010), tending to rely on professional boards and other forms of self-policing. Few physicians knowingly supply PO for misuse, but opioid prescribing is highly skewed; Kiang et al. (2020) reported that the top 1% of prescribers accounted for 49% of all opioid doses, so a few corrupt doctors can create significant population-level harm.

Florida's pill-mill crisis is the paradigmatic example. Rigg et al. (2012) interviewed 50 street dealers of prescription drugs in South Florida. The dealers' top three sources were visiting multiple pain clinics themselves with false claims about pain, sponsoring others to do so (one dealer had a 25-person crew), and buying PO from indigent patients with prescriptions. Visiting a pain clinic might cost the dealer \$100 to \$250 but net 200 pills each with a street value of \$20. Florida's system was so porous that it influenced supply throughout the southeastern United States (Rigg et al. 2010).

In 2010, Florida finally responded by implementing tighter regulation of pill mills and a prescription drug monitoring program and arresting physicians running pill mills, some of whom were prosecuted for murder (Dyer 2015). The combination dramatically reduced diversion (Surratt et al. 2014) and opioid-related overdose deaths (Gau & Brooke 2017, Surratt et al. 2014). Kennedy-Hendricks et al. (2016) credit Florida's laws against pill mills and their enforcement with averting 1,029 deaths from PO overdose over a 34-month period, although Florida's Prescription Drug Monitoring Program also contributed to the declines (Delcher et al. 2015).

Florida's experience highlights the limitations of physician self-regulation. Davis & Carr (2017) identified 43 Florida physicians who faced criminal action for illegal prescribing of opioids between 2010 and 2015. Of the 25 who were convicted or pled guilty and who had their medical license permanently revoked, only one lost the license before being convicted or pleading guilty, suggesting that without law enforcement intervention the criminal activity would have continued.

Law enforcement can also address the willingness of some pharmaceutical companies to pioneer new markets in ways that are criminal. The infamous example is PurduePharma, whose marketing efforts contributed importantly to the sharp growth in opioid prescribing that began in the 1990s (Kolodny et al. 2015). Purdue paid a \$600 million fine after pleading guilty to criminal misconduct and deceptive marketing of Oxycontin (Meier 2007). Yet that fine is small compared to Oxycontin profits, reported at \$4.7 billion just through 2006 (Armstrong 2019), so given the number of deaths involved, incarceration may be a more effective and just deterrent.

In May 2019, multiple Insys Therapeutics executives were convicted on racketeering charges for paying bribes to doctors to prescribe Subsyst—their fentanyl-containing product—and for

falsifying statements to insurers about patients' needs. Shortly afterward, the company filed for bankruptcy, and in January 2020, the company founder was sentenced to five-and-a-half years in prison. Insys's head of sales and former CEO were also sentenced to prison. The head of sales was quoted as saying that he knew that his actions were illegal and that the company was going to get fined astronomical amounts, but he thought that the worst case for him personally was that the government might go after his money. He "had no idea that criminally there would be consequences" or that he might go to jail (Kuchler et al. 2020). Even if imprisonment only weakly deters street-level heroin dealers with prior criminal records and few legal job prospects, it might deter physicians operating pill mills and the owners and executives of pharmaceutical companies who engage in criminal conduct regarding opioids.

**Disrupting supply of illegally manufactured fentanyl and other synthetic opioids.** The typical law enforcement response to drug threats is to investigate and dismantle trafficking networks to reduce availability and raise prices. As noted above, this has resulted in some meaningful supply disruptions for heroin and diverted prescription medications but little success at raising prices in the long run.

FOSO are even more challenging. Their production does not rely on illicit crops that are typically geographically constrained, as is the case of illicit opium poppies used in heroin manufacturing. All that is needed is access to inexpensive precursors and an understanding of chemical synthesis. Large and under-regulated chemical and pharmaceutical sectors in Asia are unlikely to comply in the short term and in some cases producers overseas may not be violating national laws. Production costs are very low and shipping a kilogram of fentanyl from Asia through the postal system may cost as little as \$10 (Pardo et al. 2019a). Fentanyl and many other synthetic opioids are orders of magnitude more potent than heroin, making them ideal for smuggling; as little as 10 grams of fentanyl could equate to nearly 10,000 doses. Therefore, fundamentally new ideas and strategies are needed where fentanyl has become entrenched. Instead of focusing on raising price and reducing availability, law enforcement may want to consider alternatives, like improving market transparency and reducing the toxicity of the supply.

That said, there remain markets where fentanyl is still largely absent; at least through 2018, FOSO were largely concentrated in states east of the Mississippi (Pardo et al. 2019b, Wilson et al. 2020). Markets where FOSO have not arrived may still benefit from squelching supply, especially before connections between buyers and sellers have developed. Doing so may save lives but will require that law enforcement expand efforts to monitor local markets, perhaps through expanding drug seizure analyses, partnering with social services that are in regular contact with drug users, and piloting real-time surveillance systems such as wastewater testing.

Where markets are already swamped with FOSO, focused deterrence concepts developed to respond to drug-related violence might be adapted. In essence, focused deterrence leverages a full set of resources (both public and private) against the most egregious individuals while maintaining a credible threat to the remaining actors to gain compliance (Kennedy 2009). The goal is to nudge suppliers to act in ways that are less socially destructive. For example, the CJS might send the message that it will aggressively pursue dealers that press FOSO into counterfeit tablets made to look like prescription medications or mix them with stimulants. The concept would be to investigate overdoses with the same sense of urgency as homicides, but focus punishment on deterring future behavior, not punishing past actions. There may also be more creative options, such as spoofing websites that purport to sell FOSO but never fulfill orders, sowing confusion online and frustrating would-be importers.



## Implications for Research

Almost all literature reviews conclude more research is needed. This one is no different. The justification is simple. The opioid problem of the twenty-first century differs fundamentally from the heroin problem of the twentieth century, which was arguably more harmful than the morphine and opium problem of the nineteenth century. Whether or not past research on heroin and the CJS is adequate is beside the point. Even if it were, it is a new century, with new problems.

This review identified two broad challenges for the CJS. The first is recognizing that the moral, legal, and practical responsibility of providing adequate healthcare to those in its charge includes providing treatment and overdose prevention services to those with OUD. The stakes are high. Many people with OUD encounter the CJS in any given year. That means the CJS has opportunities to intervene in ways that prevent many opioid overdose deaths. Myriad research-worthy questions spin out from that basic moral imperative.

The second is that responding to the profound changes in opioid supply requires innovation. Prospects for suppressing diversion of PO are fundamentally hopeful. The actors in that supply chain are mostly licensed professionals; altering their behavior may require greater oversight and investigation, but a little incarceration could go a long way. There are not nearly as many pharmaceutical executives as retail drug sellers, and the threat of incarceration may be a greater deterrent to them.

The prospects for suppressing fentanyl supply are fundamentally discouraging, at least with traditional approaches. Across all levels of government, criminal justice actors may need to move beyond traditional goals of reducing availability and increasing price and instead embrace alternative goals of reducing overdose risk, e.g., by targeting suppliers who conceal FOSO in other drugs or sell counterfeit tablets. Policing opioids may be better construed as being about public safety, not law and order. Nevertheless, efforts aimed at treating OUD in criminally involved populations presents a unique and life-saving opportunity to help stem the overdose risk of those who are released.

When facing emerging challenges, law enforcement has proven its ability to innovate and adapt (Weisburd & Braga 2006), but there are ample opportunities for researchers to help. The greatest need now is not necessarily for new theories but for invention and evaluation of new programs and practices. The potential reward for research is very high. Opioids killed almost 50,000 Americans in 2018—quadruple the number of murders. The number of opioid deaths among people under criminal justice supervision is not tracked but could well exceed the total number of homicides. Yet homicide attracts considerably more attention from criminal justice researchers. It may well be that the incremental benefit in terms of potential lives saved per research project completed is higher when studying new roles and opportunities for the CJS and opioids in the twenty-first century.

## DISCLOSURE STATEMENT

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