

Estimated Costs to the Pennsylvania Criminal Justice System Resulting From the Opioid Crisis

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Background And Existing Research

The current opioid epidemic in the United States has forced nearly every institution within the criminal justice system (CJS) to adapt rapidly to the much-increased ranks of illicit opioid users. Opioid use disorder (OUD) costs the CJS a considerable amount of money each year, ranging from the costs of arrests of opioid distributors to the medical and carceral costs of individuals with OUD who are imprisoned for substance-related offenses. Although the literature monetizing the damages of prescription opioids has typically been sparse,¹ the OUD epidemic has motivated researchers to explore the issue in greater depth. These studies utilize a “cost of illness” approach in figuring costs, operationalizing the societal illness costs associated with OUD.

An early analysis of the economic impact of OUD² compared individuals who had been diagnosed with OUD with a non-OUD control group. The results indicated that those with OUD had a mean annual health cost that was 8 times greater than that of the controls. Birnbaum et al (2006) expanded this analysis by extending their research into areas outside of private insurers and analyzing the impact of OUD on different social services.³ Estimates were calculated by multiplying the relevant number of prescription OUD cases (on the basis of national surveys) by the estimated per-person cost, or, alternately, taking overall costs of OUD for a particular component, such as police costs, and apportioning the OUD share on the basis of the prevalence of prescription OUD relative to overall drug misuse. Data were collected from the following sources: the National Survey on Drug Use and Health; Treatment Episode Data Sets; the Drug Abuse Warning Network; a database of private insurance claims of 600,000 individuals from 1998 to 2001; the database of the Bureau of Justice Statistics (BJS) on Criminal Justice Expenditures and Employment Extracts; the Federal Bureau of Investigation’s Uniform Crime Reports (UCR); the National Forensic Laboratory Information System; the BJS’s Prison and Jail Inmates at Mid-Year report; the Office of National Drug Control Policy’s (ONDCP) Drug Enforcement Administration Budget Summary for 2001; the ONDCP’s Budget Strategy for 2003; the National Association of State Alcohol and Drug Abuse Directors’ Analysis Report of State Alcohol and

ABSTRACT

The opioid crisis has made financial impacts across all levels of the public sector. This report focuses on costs related to the criminal justice system (CJS) in Pennsylvania. Costs impacting 3 principal areas of the CJS are examined: opioid-related arrests, court costs, and incarceration. Analysis of the state-level CJS is our main focus; no local-level costs are included. Through this examination, costs of the opioid crisis for the period of 2007 to 2016 were estimated using opioid costs for 2006 as a baseline. Total costs to the Pennsylvania CJS during this period were over \$526 million, with most of that accounted for by state corrections. Opioid-related trends in arrests, court proceedings, and incarceration were not sufficiently well documented to allow for rigorous analysis in earlier periods, and this was the primary limitation to our analysis.

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For author information and disclosures, see end of text.

Drug Abuse for 1998 and 1999; and the Substance Abuse and Mental Health Services Administration's Office of Applied Studies. Many of these data sources remain central to subsequent studies analyzing economic impacts of prescription OUD, especially the Uniform Crime Reports and Criminal Justice Expenditures and Extracts.³

The limitations of available data caused Birnbaum et al (2006) to assume that the costs of prescription and nonprescription OUD were the same.³ Furthermore, they stated that many costs associated with the CJS were omitted due to lack of data, such as fraudulent prescriptions, pharmacy theft, selling of prescription drugs by patients for whom they were prescribed, private legal defense, and property crime involving OUD. The estimated CJS-specific costs amounted to \$438.4 million for policing, \$221.2 million for courts, \$201.6 million for county incarceration, \$499.2 million for state incarceration, and \$70.5 million for federal incarceration. Total costs incurred by the CJS were \$1.4 billion in 2001, which amounts to 17% of the total costs of prescription OUD in the United States.³

Birnbaum et al conducted another analysis in 2011, evaluating impacts of OUD upon various social services nationally. Prescription OUD in 2007 accounted for \$2.3 billion in correctional costs, two-thirds of which occurred at the state level. Policing costs were calculated at \$1.5 billion, court costs at \$726 million, and property damage at \$625 million. In total, \$5.1 billion was incurred by the CJS, amounting to 9.2% of total US societal costs of prescription OUD in 2007.¹ Although this analysis is an extension of a previously conducted study, data sets were used with various methodologies and definitions, making comparisons and calculations among data sets difficult.³ The study also utilized the same apportionment approach as the 2006 study, which has garnered heavy criticism.^{4,5} Birnbaum et al (2006) also noted that the conflation of heroin and prescription opioids into the same category created uncertainty in their final analysis.³

In an earlier study, Hansen et al tallied direct CJS expenditures and capital outlays made in 2003.⁶ This cost was then stratified into drug law expenditures versus expenditures for all other crimes. Expenses for prescription opioids were based on the relative percentage of confiscations compared with all other drugs that had been seized that year. Using this method, the authors found that in 2006, nonmedical prescription OUD costs were \$3.4 billion for policing, \$1.7 billion for courts, and \$2.5 billion for incarceration, with a cost to victims at \$618 million.⁶ Another analysis, from Florence et al, quantified the economic effects of prescription OUD and its impact on the CJS.⁷ As with past studies, a major source of data used in figuring CJS costs was the Justice Expenditure and Employment Extracts Primary report. The methodology was based on the 2011 apportionment method of Birnbaum et al, in which total CJS expenditures on drug crimes were tallied and then multiplied by the share of cases represented by prescription opioids, as reported from National Survey on Drug Use and Health.^{1,7} Investigators did not attribute costs to specific

drugs if multiple drugs were used. The calculation summarizing the economic burden of prescription OUD on the CJS for 2013 was \$7.7 billion, with \$7.3 billion of the costs borne by agencies within local and state governments.⁷ The most recent evaluation of CJS costs associated with OUD, published in 2018, calculated an annual national cost of \$2.9 billion for policing, \$1.3 billion for courts, \$3.3 billion for corrections, and \$300 million in property losses associated with OUD—a collective \$7.8 billion in 2016.⁸ Results of an analysis by Rhyan suggest that annual costs associated with combating the opioid epidemic will have approximately doubled across all sectors, including the CJS, by 2020.⁹

The results of the study from Hansen et al point to inflation and increased opioid misuse for the increased cost found in their analysis, compared with the 2011 analysis by Birnbaum et al.^{1,6} Hansen et al found greater costs than that suggested by subsequent studies.^{6,7,9} This discrepancy may be due to the inclusion by Hansen et al of lost productivity costs from incarceration or polydrug users in their CJS costs analysis.⁶

Several analyses utilize the apportionment method to calculate percentages of each major crime due to OUD. This method received criticism from Reuter, who cited previous findings arguing that it is impossible to calculate the amount of homicides for which drugs have been responsible, as homicide detectives themselves could not determine whether drugs were a factor in one-third of the cases investigated in New York City.^{5,10} The uncertainty of nonmedical prescription OUD is further compounded by the lack of current data, as several studies must rely on data sets that go as far back as 1996.⁶ For example, the last Drug Abuse Warning Network survey conducted was in 2011 and was then discontinued. The lack of recent data is complicated further by the conflation of natural and synthetic opioids merged into the same category that is used to measure OUD.¹

Although the research mandate of literature reviewed in this article is limited to estimating costs related to the operations of state government, much of this literature examines the broader range of state and local costs (often combining them) and also extends into the estimation of broader societal costs, including some costs to individuals. Thus, the approach here is more parsimonious and may, to some extent, underestimate the full range of costs.

Conceptual Framework

Our estimate of the costs attributable to the opioid crisis uses data from 2006 (which is the earliest year for which reliable opioid-specific data were available) to establish a baseline of opioid-related costs, and to be compared with changes that occurred between 2007 to 2016. The counterfactual baseline shown in the figures below was estimated by projecting the trend and accounting for inflation. The difference between baseline projections from 2007 to 2016 and the actual observed costs for that period were interpreted to represent yearly changes in opioid-related cases and attendant

costs associated with the opioid crisis. Yearly differences were summed over the years following 2006 and multiplied by the cost-per-case estimates (adjusted for inflation) to calculate total state funds associated with the crisis.

Estimation of costs incurred in policing were based upon opioid-related drug arrests by the Pennsylvania State Police (PSP) from 2007 to 2016, against the baseline year of 2006, following the analytical approach discussed above. The expense associated with what the PSP considers a “typical” drug arrest was used as the unit of cost. It should be noted that the per-arrest unit cost supplied by PSP represents a “bare minimum” arrest cost, approximating the cost for an uncomplicated arrest by a trooper for simple possession of opioids for personal use. Costs for arrests resulting in more intensive investigation activities would undoubtedly be higher, but are at this point unknown. Thus, the arrest costs calculated are likely underestimated. Again, arrest costs incurred by local law enforcement agencies are excluded.

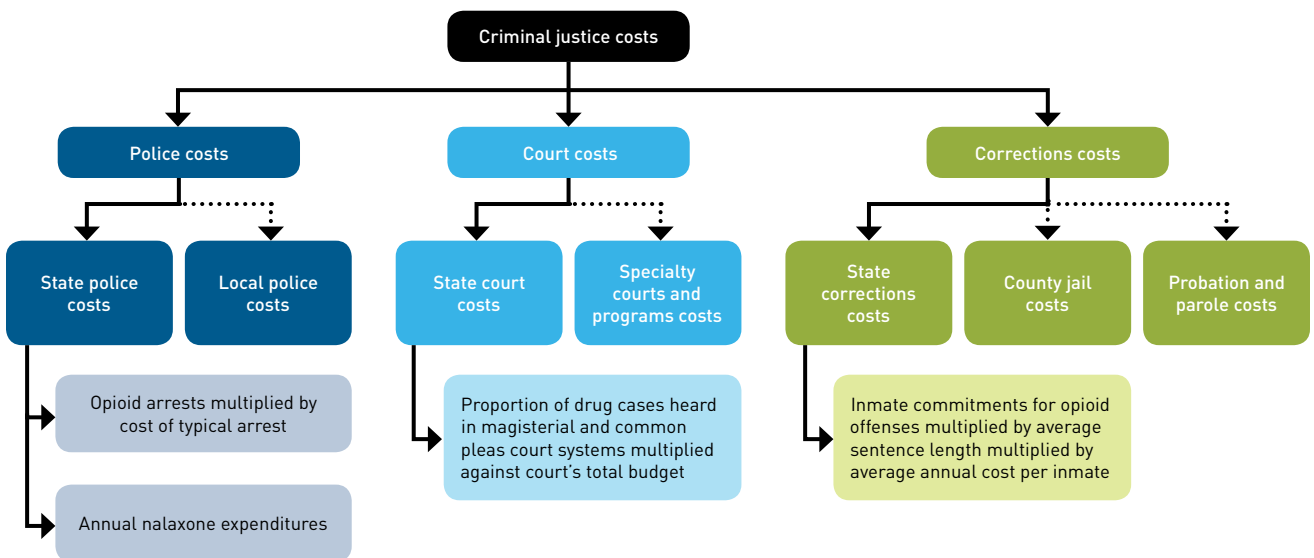
Estimation of increased costs incurred by the courts is based upon court hearings and proceedings related to OUD at the Court of Common Pleas and Magisterial District Court levels from 2007 to 2016, against baseline. These courts were selected for analysis because they are the primary adjudicators of cases relating to OUD and are state-funded. Total convictions relating to OUD are compared with the total convictions, drug-related and not drug-related, adjudicated by the courts for the period being examined to estimate the proportion of all convictions, and thus of the total state court budgets, associated specifically with OUD. Conviction and

court costs, along with related information, were collected from the Pennsylvania Commission on Sentencing and the Administrative Office of Pennsylvania Courts. Future analyses may be able to rely on a per-case unit cost derived from fees assessed to those convicted of drug crimes, which in theory represent the cost of such a case, but these fees are complex and beyond the scope of the current project.

Estimation of increased costs incurred by state corrections is based upon the estimated number of inmate commitments related to opioid-related drug convictions and the average length of stay of such inmates from 2007 to 2016, against the baseline year of 2006. The unit of cost used was the average annual prison expenditure per inmate (which includes costs related to treatment programs) multiplied by the average length of stay for the opioid-related crimes. This information was collected from the Pennsylvania Department of Corrections (PADOC).

We tallied and summed the difference in the projected baseline and actual costs for 2007 to 2016 from each of these sectors to create a final preliminary estimation of state costs incurred by the CJS in combating costs attributable to the opioid crisis during this period. All amounts have been inflation-adjusted to reflect costs in 2017 dollars. Our analysis differs from the reviewed literature in several respects (Figure 1). First, we analyzed costs across a 10-year period. Second, the ambit of our analysis were state-specific costs rather than municipal, county, or federal costs. Third, only data collected directly from Pennsylvania state CJS agencies themselves were included; we did not use the national surveys utilized in the prior studies.

FIGURE 1. Summary of Approach to Opioid-Related CJS Costs



The dotted lines indicate possible avenues of future research that address local-level costs. CJS indicates criminal justice system.

Gross Cost Estimates

The following section presents the findings on state-related CJS costs resulting from the opioid crisis in Pennsylvania. We present the results in the usual order in which an offender would proceed through the CJS, from arrest to trial to incarceration. We focus on these 3 domains of costs because they represent the major cost sectors of the CJS. There may well be other special and ad hoc costs that arise from a challenge such as the opioid crisis, including special programs or investigative efforts implemented by the state to deal with it, but those costs would need to be addressed in future research.

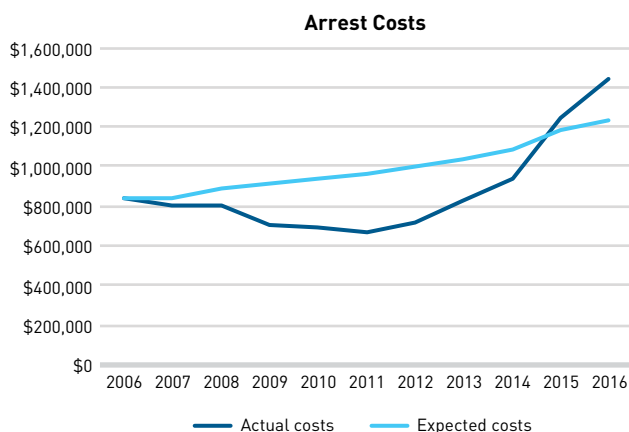
Arrest-Related Costs

Our analysis of the impact of the opioid crisis on the operations of the PSP over the period 2007 to 2016 revealed a cumulative net cost (actual over baseline) of -\$1,230,396. These costs are represented graphically in **Figure 2**.

Costs were lower than what was expected, even with the opioid crisis. As explained earlier, PSP was able to provide only a minimal cost estimate based on the expenses incurred from a simple possession arrest. Arrests related to complex drug trafficking cases were found to be considerably higher in cost but are not calculable at this point. The arrest data, provided by PSP, included both possession and sales offenses. Thus, the negative figure reported would almost certainly become positive if the costs for the more complex sales cases could be figured. As will be seen, these “savings” are easily washed out by the net costs to the courts and corrections sectors.

The other factor worth noting is that relatively few of these arrests occur at the state level. The yearly opioid-related arrests by PSP crested at approximately 2000 during this period, suggesting that most opioid-related law enforcement activity is occurring within local police departments, which is beyond the scope of the current report.

FIGURE 2. Pennsylvania Arrest-Related Costs Due to the Opioid Crisis: 2007-2016



Court-Related Costs

Our analysis of the impact of the opioid crisis on the operations of the state courts in Pennsylvania reveals a cumulative net cost (actual over baseline) of \$73,959,475, or approximately \$7.4 million per year over the study period. These costs are represented in **Figure 3**.

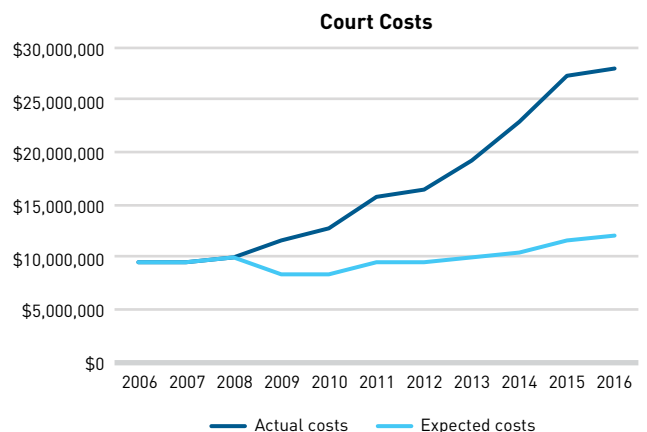
This is based on an assumption of parity in case-processing costs among different types of cases. Of course, it is likely that, for example, a capital murder case would typically consume more court resources than a simple drug possession case, but no practical way exists of sorting that out. However, other than in the 2 largest counties, Philadelphia and Allegheny, capital cases are rare, and simple drug cases vastly outnumber cases like capital murders that would more commonly require an extended jury or bench trial. Approximately 90% of adjudications result from a plea, rather than a trial, so it seems a reasonable supposition to treat most cases as being similar in terms of costs. Moreover, a typical day on a court docket will witness proceedings for many cases being processed in succession, and even in parallel, thus further complicating efforts to discretely cost out a specific case. One potential avenue for future research is the examination of court costs and fees that are levied against defendants as part of criminal convictions as a measure of individual case-processing costs. However, these fees can be complex and are beyond the scope of the present study.

Incarceration-Related Costs

Our analysis of the impact of the opioid crisis on the operations of the state prison system in Pennsylvania revealed a cumulative net cost (actual over baseline) of \$453,577,239, or approximately \$45 million per year over the study period. These costs are represented graphically in **Figure 4**.

Prison-related costs are, unsurprisingly, higher than those for the courts. Providing care, custody, and control of a state prison

FIGURE 3. Pennsylvania Court-Related Costs Due to the Opioid Crisis: 2007-2016

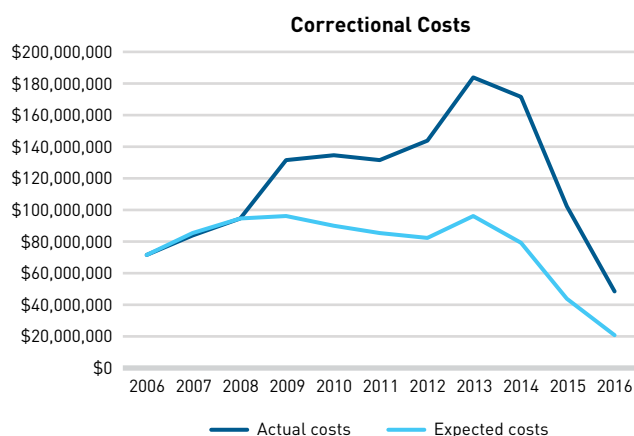


inmate is among the most expensive propositions in the entire CJS. The current annual per-inmate cost in Pennsylvania approaches \$50,000. The involvement of an individual offender with the courts is a much less intensive and less expensive activity. And, as with the court cost estimates, the prison cost estimates are based on an average cost per inmate, as calculated routinely by the PADO. The costs may likely vary among inmates (although not necessarily driven by offense type, but more by factors such as inmate health and age), but these differences are not readily calculable.

In addition to the opioid-related corrections operating costs projections discussed above, the opioid crisis is having more discrete impacts on PADO. During the calendar year 2017, PADO experienced 180 overdoses leading to 18 fatalities in their Community Corrections Centers. Newly committed inmates, who indicated opioids as being a drug of choice for them, doubled from 6% of all new admissions in 2010 to 12% in 2015. The crisis has greatly driven PADO's use of medication-assisted treatment (MAT) over the past several years. The use of MAT in general correctional settings and within PADO was traditionally a nonstarter. These MAT products were traditionally seen as risky within a correctional setting and were often seen as a "crutch" by many corrections drug counselors.

The opioid crisis has served as a watershed, leading to a shift in culture and to the more widespread use of MAT in the PADO. The PADO now employs a dedicated MAT coordinator to oversee the efforts. During 2017, PADO administered 307 doses of naloxone and 468 doses of vivitrol, and employed 13 MAT social worker positions, for a combined expenditure of \$1.1 million. Moreover, PADO, during fiscal year 2016-2017, awarded grants of \$1.5 million of state funds to 11 county jails to assist them with their own nascent MAT efforts. The PADO has also established 6 new therapeutic communities in the state correctional institutions that will be dedicated specifically to the treatment of OUD.

FIGURE 4. Pennsylvania Prison-Related Costs Due to the Opioid Crisis: 2007-2016



Limitations And Future Directions

We conclude that the total costs to the state CJS in Pennsylvania attributable to the opioid crisis for the period 2007 to 2016 are \$526,306,318, or approximately \$53 million per year, adjusted to 2017 dollars. This covers the primary domains of state arrests, courts, and corrections. The cost estimates related to the opioid crisis that are reported here reflect direct effects, or offenses that are clearly coded in the criminal justice system data as being drug-related.

Several caveats are worth noting. First, regarding the state corrections data, many of the drug-related commitments are likely to be for drug selling (eg, possession with intent to deliver, [PWID]), not drug use. Some of those convicted of offenses such as PWID are not necessarily using drugs. The great majority of convictions for simple possession (ie, for personal use) result in a nonincarcerative sanction such as probation, which in Pennsylvania is a county-level function. Still, drug selling is part and parcel of the opioid crisis and is rightly included in our estimates. The assumption here is that the prescription opioid crisis resulted in more illegal drug dealers to meet the demand. This limitation pertains less to our arrest and court cost estimates, as all levels of drug offenders will have proceeded through those 2 phases of the criminal justice process, whereas only the more serious convictions terminate in state corrections.

Second, the growth in costs for courts and corrections are likely driven both by increased misuse of prescription opioids and by increases in (nonprescription opioid) heroin cases. The operating assumption is that over-prescription and misuse of prescription opioids directly contributed to growth in the heroin market.

Third, many convictions for offenses that are not drug-related may well be fueled in part by OUD. For example, a person with an OUD may commit burglaries to support their OUD and may sell drugs for the same reason. Dorsey and Middleton, with the Bureau of Justice Statistics, examined this connection more closely and reported that nationally in 2004, 17% of state-prison inmates indicated that they committed their current offense in order to acquire money for drugs. This rate was much higher for property offenders, at 30.3%.¹¹ Moreover, the National Crime Victimization Survey from 2007 found that 26% of victims of violent crime indicated that they believed their attackers were under the influence of substances. The 2004 BJS Survey of Inmates in State and Federal Correctional Facilities found that 32% of state inmates reported being under the influence of substances while committing their current offense, and again, this was higher for property offenders, at 39%. Substance use is also considered to be 1 of the "Central 8" risk factors for recidivism.¹²

The PADO conducted a survey of approximately 1800 newly committed inmates over a 2-month period, asking them how drugs interacted with and influenced their criminal offending, regardless of their current committing offense. Results showed that

that 22.2% of the inmates were under the influence of opioids at the time of their most recent offense, with 14.1% indicating that opioids were the only substance they were using. Moreover, 15.2% indicated that they committed their current crime to acquire funds to support their OUD.¹³ This type of study does not always break out the impact of opioids specifically on crimes not related to drugs, but they do establish that substance use plays an important role in the commission of crime writ large. Although we are not able to estimate the costs related to crime overall in the current report, future work should examine this aspect of the opioid crisis more closely and make a preliminary effort to factor in such costs.

The analysis presented here represents an initial attempt to estimate the costs of the opioid epidemic on the operations of the CJS at the state level in a single state. It remains unclear whether the specific findings reported here are representative of the states more generally, as each state's CJS operates differently. For example, the court system in Pennsylvania is operated and funded at the state level, but in other states (eg, Texas), it is more of a state/county hybrid, which would have different ramifications for cost estimation. In terms of policing, Pennsylvania is 1 of about a dozen states in which state police provide policing coverage to local units of government that do not have their own police forces. In Pennsylvania, this amounts to state police coverage of approximately two-thirds of all municipalities, and more than 90% of rural municipalities.¹⁴ In the remainder of states, coverage of municipalities without their own police departments falls upon county sheriffs. Again, the implications for the type of cost analysis conducted in this report would be considerable. Turning to corrections, although most states maintain a distinction between state prisons and county jails, a few states, such as Rhode Island, have a combined state and local corrections system, thus cost estimation would proceed under a somewhat different set of assumptions than what we used here. Conducting an opioid-related cost estimation would require an approach tailored to the public administrative structure of each state, but it is our hope that our overall approach can serve as a template for such cost estimation in the CJSs in other states.

Regarding the issue of cost estimation at the local level, the concerns we have noted in this report regarding data availability and quality at the state level are amplified when considering the local CJSs nationwide. Looking at policing, approximately 18,000 police agencies exist in the United States, most of which are small-town departments that employ fewer than 10 officers.¹⁵ Their arrest activities are of course reflected in UCR, but with the caveats noted earlier. Local corrections consist principally of county-level jails and probation departments (although some states, such

as Arkansas and Massachusetts, operate probation at the state level). The challenges of accessing data on all of their correctional caseflows would be very large.¹⁶ Because of the heavily local and fragmented nature of the criminal justice system, a considerable effort would be required to estimate opioid-related costs at the local level across the nation. ■

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