

Law Enforcement Efforts to Fight the Opioid Crisis

Convening Police Leaders, Multidisciplinary Partners, and Researchers to Identify Promising Practices and to Inform a Research Agenda

Sean E. Goodison, Michael J. D. Vermeer, Jeremy D. Barnum, Dulani Woods, Brian A. Jackson

EXECUTIVE SUMMARY

The current opioid epidemic is unprecedented in American history. On an average day, 130 people will die from an opioid overdose, and the rising number of opioid-related deaths is one driver of a recent decrease in average life expectancy in the United States. Such a crisis demands both a multidisciplinary, unified response and the development of guidance and tools to help serve law enforcement agencies and their partners on the front lines of the epidemic. Many agencies across the country have pursued a multitude of ideas and efforts in response to the epidemic. However, strengthening the national response to the crisis requires looking across such initiatives for more—broadly promising practices, identifying areas where more work is required to meet the national need, and promoting the adoption of strategies to save lives and reduce the impact on the country.

The National Institute of Justice (NIJ), supported by the RAND Corporation in partnership with the Police Executive Research Forum (PERF), hosted a two-day event on September 25 and 26, 2018, bringing together a diverse group of public safety and public health subject-matter experts with the goal of highlighting promising practices and leveraging expert experience to develop a prioritized research agenda for future law enforcement efforts to combat the opioid crisis. Topics discussed included the scope of the epidemic (addressed in a keynote speech given by then–Attorney General Jeff Sessions), the science of addiction and treatment, law enforcement–led efforts to combat opioids, key areas of cooperation among governmental and community stakeholders, law enforcement safety and wellness, and the role of forensic science in informing opioid policy. Following panel presentations and a discussion, the workshop participants identified and compiled potential strategies and actions for mitigating issues related to the opioid crisis and prioritized the results. Thirteen high-priority needs emerged from this exercise, along with recommended actions and additional context from participant notes and the discussion.

HIGH-PRIORITY NEEDS



- Broaden the use of MAT in the general population and increase accessibility.
- Promote nonenforcement police outreach to connect individuals to treatment.
- Explore alternative treatment models to better serve individuals with OUD (e.g., mobile MAT, tribal nation innovations).
- Use medication-assisted and other treatment models in institutional and community corrections.
- Explore the use of safe injection locations to facilitate incident response and provide treatment promotion opportunities.
- Provide same-day, low-barrier access to treatment with a medication-first model of care.
- Provide syringe services to reduce associated harms and create treatment intervention opportunities.
- Use syndromic surveillance or sentinel indicators to recognize spikes in overdoses, new opioids, or emerging drug crises.
- Create a trauma awareness early warning system for law enforcement stress exposure.
- Provide mental health interventions for officers affected by the stresses of policing during the opioid crisis.
- Develop funding models to allow labs to be agile in responding to needs for new equipment, methods, safety issues, etc.
- Increase the frequency and scope of drug screens in death investigations to identify novel opioids and effects.
- Use data from rapid analysis of seized materials to inform public health and law enforcement interventions.

WHAT WE FOUND

- Four of the high-priority needs were assessed to be sufficiently well-understood and free from barriers and are therefore ready for immediate implementation. These four needs are (1) the use of medication-assisted and other treatment modes in institutional and community corrections; (2) same-day, low-barrier access to treatment with a medication-first model of care; (3) the use of syndromic surveillance or sentinel indicators to recognize spikes in overdoses, the appearance of new opioids in the market, or emerging drug crises; and (4) the provision of mental health intervention for law enforcement officers affected by the stresses of policing during the opioid crisis.
- Broader access to and use of medication-assisted treatment (MAT) emerged as a major theme of the event. Seven of the top 13 needs were related in some way to MAT, including such strategies as removing barriers to access, finding innovative treatment models, and forming partnerships and finding opportunities to connect more individuals with opioid use disorder (OUD) to treatment.
- Throughout the participant discussion and the process of identifying needs, effective partnerships and collaborations were noted as critical to the short- and long-term success of any strategy employed to mitigate the opioid crisis. These partnerships could take the form of multidisciplinary cooperation, such as embedding social workers or mental health professionals in law enforcement organizations or finding additional means to gather and share data among analytical facilities, emergency medical services, public health professionals, community stakeholders, and law enforcement.
- Law enforcement is tasked with responding to problems associated with opioid use, resulting in direct and frequent interaction with individuals who engage in criminal behavior to obtain drugs or providing emergency response for individuals who have overdosed. Because of their role in responding to the opioid crisis, law enforcement officers experience additional physical dangers, mental trauma, and stressors. Needs related to officers' mental health were seen as pressing, and participants gave high priority to strategies such as providing mental health interventions and increasing awareness of trauma or stress exposure for officers responding to the crisis.

Because of their role in responding to the opioid crisis, law enforcement officers experience additional physical dangers, mental trauma, and stressors. Needs related to officers' mental health were seen as pressing, and participants gave high priority to strategies such as providing mental health interventions and increasing awareness of trauma or stress exposure for officers responding to the crisis.

THE OPIOID EPIDEMIC

The opioid epidemic is the deadliest illicit drug crisis in the history of the United States. In 2017 alone, the Center for Disease Control and Prevention (CDC) reported 47,600 opioid-related overdose deaths, a 12-percent increase over the previous year (Scholl et al., 2019). Overall, opioid overdose deaths represented a substantial portion of the 70,236 total drug overdose deaths that occurred in 2017 (CDC, 2018b). On an average day, 130 people die from an opioid overdose, and the rising number of opioid-related deaths has been linked to a decrease in average life expectancy in the United States (Scutti, 2018; Dowell et al., 2017). The number of deaths caused by opioids, including prescription analgesics, heroin, and synthetic opioids, has increased dramatically over the past two decades and is expected to continue to grow (Blau, 2017a). At the same time, 2.7 million people across the country self-report as living with a substance use disorder related to prescription opioids or heroin (National Institute on Drug Abuse [NIDA], 2018a). It is important to contextualize statements like this. For a significant percentage of those suffering from OUD, the disorder originally stems from legal opioid use, and the opioid epidemic in general is broader than issues with illicit use. Indeed, part of the problem is that opioids and similar drugs have legitimate therapeutic uses in pain management, despite the risk of developing dependency. As a result, there remains a challenge in ensuring that patients with legitimate palliative needs can acquire needed medication while keeping it out of the reach of everyone else.

As the crisis worsens, the nature of the opioid epidemic continues to evolve. Over the past two decades, the crisis has unfolded in three identifiable stages (CDC, 2018a). Beginning in 1999, because of a substantial increase in the volume of opioid prescribing for chronic pain conditions, overdose deaths involving prescription opioids began to steadily increase (Meldrum, 2016). A decade later, heroin became more widely available, resulting in a dramatic spike in heroin-related overdose deaths in 2010. The deadliest wave of the epidemic began in 2013, with the introduction of synthetic opioids into the illicit drug supply. Today, synthetic opioids—primarily fentanyl and its analogs—remain the primary driver of drug overdose deaths (CDC, 2019). In 2017, synthetic opioids were responsible for 60 percent of all opioid overdose deaths, a more than 45-percent increase over the previous year.

The epidemic has changed in other ways as its consequences ripple across both demographic and geographic boundaries. Although death rates were higher during the first wave

for white Americans and were localized in Appalachian and New England states, since 2010, we have witnessed a dramatic increase in overdose death rates among black and Hispanic Americans, as well as increases in mortality across states in the Midwest and Southwest (Alexander, Kiang, and Barbieri, 2019; Katz and Goodnough, 2017). According to 2017 data from CDC, synthetic opioids have driven increases in overdose deaths across all demographic groups and in many parts of the country (Scholl et al., 2019).

Given the spread of opioid overdose deaths across demographic groups and geographical areas, law enforcement officers and the communities in which they serve might need to consider an additional point. Despite the geographic and demographic spread of the crisis, opioid overdose deaths are still highly concentrated in some areas, with some localities continuing to observe overdose deaths at much higher per capita rates than elsewhere in the country. These geographic concentrations illustrate how the crisis could worsen in some areas that have only just begun to experience the effects in their communities. The observed spread of the crisis, coupled with the capacity for it to worsen, implies that communities that have just begun to experience its effects or are yet unaffected might need to assess how they will prepare to mitigate or contain it. There is yet considerable room for the crisis to expand, and communities need to plan for how they will respond.

Workshop on Fighting the Opioid Crisis

NIJ, supported by RAND in partnership with the PERF, hosted a two-day event on September 25 and 26, 2018, bringing together a diverse group of public safety and public health subject-matter experts for a series of panels and a discussion. Participants included more than 100 established researchers and leading practitioners with significant knowledge of and experience with the opioid epidemic. The meeting was held at the Office of Justice Programs headquarters in Washington, D.C. The goal of the workshop was to highlight promising practices and leverage expert experience to develop a prioritized research agenda for future law enforcement–driven efforts to combat the opioid epidemic. Topics discussed included the scope of the epidemic (addressed in a keynote speech given by then–Attorney General Jeff Sessions), the science of addiction and treatment, law enforcement–led efforts to combat opioids, key areas of cooperation among governmental and community stakeholders, law enforcement safety and wellness, and the role of forensic science in informing opioid policy.

Addressing the Problem

Sessions provided the keynote address at the beginning of the first day of the workshop, highlighting efforts at the federal level to mitigate the opioid crisis and outlining a comprehensive, three-pillar strategy based on (1) prevention, (2) enforcement, and (3) treatment. To foster prevention, the Attorney General discussed the current national awareness campaign to inform the public about the dangers of opioid use (The Crisis Next Door, 2018). The Attorney General called for “clear and fact-based messages” about the dangers of addiction, stating that, “in the long run, getting more and more people to reject use of these drugs in the first place is the best thing we can do.”

Arguing that “law enforcement helps keep drugs out of our country, reduces their availability, drives up their price, and reduces their purity and addictiveness,” the Attorney General discussed several initiatives to bolster enforcement efforts. One program, called the Opioid Fraud and Abuse Detection Unit, leverages data analytics to identify opioid-related health care fraud. Another program, called Operation Synthetic Opioid Surge (S.O.S), focuses on vigorously prosecuting individuals who are trafficking synthetic opioids in districts affected by the highest rates of overdose deaths. These efforts have been bolstered by a surge in the number of federal prosecutors and U.S. Drug Enforcement Administration (DEA) task force officers focused on this issue.

The Attorney General also spoke about new challenges that have emerged related to the opioid crisis. In particular, the dark web has facilitated access to illicit drugs, including powerful synthetic opioids, such as fentanyl, that are driving the current rise of opioid overdose deaths. As the Attorney General noted in his remarks, “with a few clicks of a button you can go online and have them shipped from overseas right to your door.” In response to this issue, the Joint Criminal Opioid Darknet Enforcement unit (J-CODE) was created, which is a new unit within the Federal Bureau of Investigation (FBI) that is dedicated to investigating online opioid sales (U.S. Department of Justice, Office of Public Affairs, 2018). Furthermore, new efforts are underway to prosecute fentanyl traffickers from China, which is the primary supplier of synthetic opioids to the United States (Pardo, 2018).

Shortly after President Donald Trump declared the opioid epidemic a public health emergency, the President’s Commission on Combating Drug Addiction and the Opioid Crisis released a report detailing a broad variety of recommendations to address opioid use, addiction, and its consequences (Whitehouse.gov, undated; Christie et al., 2017). The report acknowl-

edges that effective solutions to a crisis of this scope and scale will require significant investment of resources and meaningful collaboration throughout all levels of government, the private sector, and the community. Indeed, stakeholders have already come together in new and meaningful ways to stem the crisis. Across the country, state and local public safety and public health officials have forged new partnerships and implemented new programs that save lives, reduce harms, and connect people with treatment and other vital resources (PERF, 2016). Moving forward, the Attorney General argued that it will be necessary to expand and improve these efforts to end the crisis: He stated that “our shared work of fighting drug crime has never been more important than it is right now.” Such efforts include guidance regarding the best application for and development of research, especially evidence-based solutions that are applicable to law enforcement officers, who serve on the front lines and respond to this crisis within their communities.

The Science of an Epidemic

Understanding the science of addiction is a critical foundation for any prospective research agenda. Prior to the panels and discussions, Dr. Anika Alvanzo of Johns Hopkins School of Medicine gave a presentation on the medical science underlying the opioid crisis. The purpose of the talk was to describe the ways in which opioids affect the brain and body and the process by which individuals develop OUD. Knowledge of how opioids work and influence behavior in humans is critical in order to fully understand the current epidemic, inform effective solutions, and avoid outcomes with collateral consequences. In this section, we highlight the key points of Alvanzo’s presentation.

How Opioids Work in the Body

The term *opioids* refers to a class of substances, some of which are derived from the poppy plant, that are capable of affecting the function of the human body. These drugs can be classified as either licit (legal) or illicit (illegal), either outright or dependent on the context surrounding their use. In the United States, outright illicit drugs include such drugs as heroin, which is derived from natural sources, and many synthetic (or laboratory-produced) opioids. Licit opioids include drugs that are commonly available as prescription pain relievers, such as oxycodone, hydrocodone, codeine, and morphine, although these drugs can be diverted to illicit markets for misuse (NIDA, undated).

Opioids affect the nervous system by facilitating an excess of dopamine, a chemical commonly associated with reward

in the brain; for example, dopamine is released following the ingestion of food or by engaging in sexual activity. Under normal circumstances, the amount of dopamine in the body is naturally regulated by another chemical, gamma-aminobutyric acid (GABA). However, opioids bind to the part of the nerve that reduces GABA release, resulting in a prolonged release of dopamine. Opioids are referred to as *agonists* for the opioid receptor on those nerves, which refers to a chemical that triggers a further physiological response when it binds to and stimulates a biochemical receptor. The continued release of dopamine produces the equivalent of a sustained reward, leading to feelings of euphoria that are commonly known as a high. Additionally, this process blocks pain signals, resulting in *analgesia* (i.e., pain relief). The analgesic and rewarding effects produced by opioids make them highly addictive (NIDA, 2018b).

Opioid overdose deaths occur because GABA is also critical for the body to regulate breathing, and the reduction of GABA can lead to respiratory depression and breathing failure. Naloxone, which is used to reverse the effects of an opioid overdose, and naltrexone are *antagonists*, or chemicals that block a receptor and therefore inhibit their response. This block occurs when the antagonist prevents the agonist (i.e., the opioid) from binding to the receptor on the nerve. When the opioid is blocked, the nerve can act as it would normally, with GABA produced at an appropriate rate to limit dopamine release and properly regulate breathing (Volkow et al., 2019).

Addiction, Opioids, and Treatment Medications

The American Society of Addiction Medicine (ASAM) defines *addiction* as the “inability to consistently abstain, impairment in behavioral control, craving, diminished recognition of significant problems with one’s behaviors and interpersonal relationships, and a dysfunctional emotional response” (ASAM, 2011, p. 1). Addiction is distinct from physical dependence, which occurs when withdrawal symptoms (e.g., cramps, diarrhea, irritability) emerge when a person abstains from opioids after long-term use. Although opioid use can result in dependence, the severity and longevity of withdrawal symptoms varies (Volkow et al., 2019).

Importantly, not everyone who uses opioids becomes addicted, although certain genetic and environmental factors might predispose or increase a person’s risk for addiction. Genetic risk factors include the presence of personality and psychiatric disorders, while examples of environmental factors include drug access and availability, cultural norms, family

dynamics, trauma and abuse, religious and spiritual values, peer dynamics, and social support. Physical dependence also could contribute to addiction by encouraging individuals to seek opioids to avoid withdrawal symptoms (Volkow et al., 2019).

Withdrawal is characterized by the appearance of such symptoms as negative emotions and physical illness after a period of time without using opioids. Repeated opioid use interferes with the brain’s reward system by impairing an individual’s ability to experience pleasure. This compounds compulsive opioid use as individuals seek to both re-achieve the rewarding effects of drug use and relieve withdrawal symptoms. The alleviation of withdrawal symptoms results in negative reinforcement, encouraging future harmful drug use. Furthermore, withdrawal symptoms grow more severe with repeated opioid use, making it more difficult to refrain from using again (U.S. Department of Health and Human Services [HHS], Office of the Surgeon General, 2016; Koob and Volkow, 2016).

Although fast-acting antagonist drugs, such as naloxone, are excellent to immediately block opioids, such medications are not as useful for long-term treatment of OUD. Naltrexone, another antagonist medication that acts more slowly, has been studied as a long-term treatment for OUD, but recent results suggest that it is not as effective as agonist alternatives (Lee et al., 2018). An antagonist will not address other factors or cravings created by OUD, which can result when the drug is not taken or is wholly blocked. Such medications as buprenorphine, in contrast, act as partial agonists, meaning that the medication will partially bind to the nerve receptor where an opioid otherwise would. GABA is reduced, but not to the extent that it would be with a full agonist, such as an opioid. The result is a limited opioid effect that can stop withdrawal in chronic

Although fast-acting antagonist drugs, such as naloxone, are excellent to immediately block opioids, such medications are not as useful for long-term treatment of OUD.

users, but that does not create enough of a reaction to produce euphoria. In essence, a partial agonist provides a stable dose of the drug that is used to overcome chemical dependency without continuing the reward cycle of compulsive use. One particular benefit of buprenorphine is that it has a higher affinity (i.e., it is more likely to bind) than other opioids, meaning that buprenorphine can both replace opioids already bound to neuroreceptors and block further opioid bindings. Three drugs—buprenorphine, methadone, and naltrexone—have been approved by the U.S. Food and Drug Administration (FDA) to treat OUD (FDA, 2019). The combination of these medications with behavioral interventions is commonly referred to as MAT—or just medication therapy (MT)—which uses proven medications, such as methadone or buprenorphine, to stabilize individuals with OUD by reducing cravings associated with addiction. MAT has been shown to be effective in promoting treatment retention and long-term reductions in drug use and overdose death (HHS, 2016; National Academies of Sciences, Engineering, and Medicine, 2018).

Panel Discussions

The workshop was structured to include panels focusing on key topics related to law enforcement–driven responses to the crisis. The topics of interest were identified based on literature review and discussions among RAND, PERF, and NIJ experts. Each panel included a set of prepared presentations on different facets of the topic, followed by moderated discussion among subject-matter experts. Given the scope of the crisis, the panel model was used to anchor and organize conversation around specific topics so that salient themes could be readily identified. Presentations were intended to highlight notable or promising practices that are currently used in the field. Following each panel was a discussion among panelists and other participants, which was moderated by Chuck Wexler, executive director of PERF. The following panels were included in the workshop:

- First Response: Law Enforcement Leadership in Combating Opioid Addiction and Overdose
- Joining Forces: The Importance of Stakeholder Partnerships to Effective Response
- Protecting the Guardians: Keeping Officers and Analysts Safe from the Effects of the Epidemic
- Science and Response: Forensic Science Impact on Detection, Interdiction, and Surveillance.

We discuss each panel in more detail in the subsequent sections.

PANEL 1: FIRST RESPONSE—LAW ENFORCEMENT LEADERSHIP IN COMBATING OPIOID ADDICTION AND OVERDOSE

Law enforcement has come to play a critical role in the response to the nation’s unprecedented opioid epidemic. As guardians of their communities, law enforcement officers in many locations around the country have taken a lead by implementing innovative programs and practices to help end the crisis (PERF, 2017). Many of these law enforcement initiatives are based on the public health model, with the goal of saving lives and mitigating the harmful consequences wrought by illicit opioid use (Saloner et al., undated). Because law enforcement officers are uniquely positioned to encounter persons in the community who use drugs, especially during times of crisis, they serve as an important conduit through which appropriate interventions can reach the individuals who need them.

One of the most widely adopted programs by law enforcement agencies in response to the opioid epidemic involves equipping officers with naloxone. Naloxone is an opioid antagonist medication that can reverse the respiratory depression caused by prescription opioids or heroin and prevent fatal

Because law enforcement officers are uniquely positioned to encounter persons in the community who use drugs, especially during times of crisis, they serve as an important conduit through which appropriate interventions can reach the individuals who need them.

overdose (Lynn and Galinkin, 2018; Chimbar and Moleta, 2018; Rando et al., 2015). At least 2,500 law enforcement agencies provide naloxone to their officers (North Carolina Harm Reduction Coalition [NCHRC], undated). As emergency first responders, law enforcement officers can rapidly administer naloxone, especially in rural jurisdictions where emergency medical services might not be as readily available (Davis et al., 2014; Davis et al., 2015). Equipping law enforcement with naloxone can be especially important in areas where known barriers to naloxone access persist. Even in areas where efforts have been taken to increase individual access to naloxone, individuals still experience challenges in obtaining the life-saving drug (Puzantian and Gasper, 2018). In these areas, there might be a need for public safety officials to carry naloxone to mitigate other access gaps.

In addition to equipping officers with naloxone, several law enforcement agencies have created programs that are designed to connect people who use drugs with treatment. For example, Angel programs—partnerships between public health and public safety organizations—are based on the principle of nonarrest and seek to facilitate early diversion of individuals away from the criminal justice system (PERF, 2016; Police Assisted Addiction and Recovery Initiative [PAARI], undated b). Under the Angel model, law enforcement agencies serve as a direct point of entry into treatment programs. People who want help can self-present at their local police stations or can be referred by officers, so that agencies can coordinate intake with a treatment provider. There are more than 400 Angel programs nationwide (PAARI, undated a).

Another program that seeks to connect people with opioid use disorder with treatment is Law Enforcement Assisted Diversion (LEAD). LEAD begins with initial contact between a police officer and someone who would typically be arrested for a low-level offense (e.g., drug possession). The officer exercises his or her discretion to determine whether the person would be a good candidate for diversion; if so, the individual is arrested but is referred to treatment or other social services, such as housing support or job training. Individuals are assigned a case manager who works with law enforcement and prosecutors to create and maintain an individual recovery plan (Beckett, 2014). Currently, there are 20 LEAD programs in operation across the nation and more than 40 sites exploring, developing, or launching a LEAD program (LEAD National Support Bureau, undated).

Initial assessments suggest that the effect of these law enforcement-led initiatives has been positive (PERF, 2016).

Studies have shown that law enforcement naloxone programs can reduce deaths (Rando et al., 2015); agencies around the country have reported hundreds of successful overdose reversals with naloxone (NCHRC, undated). Furthermore, studies have found that law enforcement officers generally support naloxone programs (Green et al., 2013), and naloxone programs also have been shown to strengthen the relationship between law enforcement and members of the community (Wagner et al., 2016). Fewer studies have examined the efficacy of law enforcement serving as an entry point to treatment. One nonrandomized controlled evaluation of a LEAD program in Seattle, Washington, found favorable outcomes with regard to recidivism (Collins, Lonczak, and Clifasefi, 2017), and a within-subjects evaluation of the same program found improvements in housing, employment, income, and benefits after referral (Clifasefi, Lonczak, and Collins, 2017). Another study of a LEAD program in Albany, New York, found that individuals who could benefit most from LEAD were less likely to be referred to the program by officers. The study also found that support for LEAD, as well as the likelihood of referral, varied considerably among individual officers (Worden and McLean, 2018). Thus, additional research is needed to understand the effects of these law enforcement-led initiatives among diverse populations, particularly over the long term.

Panel Presentations

The goal of the meeting's first panel, First Response: Law Enforcement Leadership in Combating Opioid Addiction and Overdose, was to explore the promising features of law enforcement-led responses to the opioid epidemic and identify barriers to their implementation or critical gaps in knowledge.

This panel featured the following four presentations:

- **Louisville Metro Police Department's Experience During the Opioid Crisis** by Deputy Chief Michael Sullivan, Louisville, Kentucky, Metro Police Department
- **The Martinsburg Initiative: A Model Solution to a National Problem** by Chief Maury Richards, Martinsburg, West Virginia, Police Department
- **The Police Assisted Addiction and Recovery Initiative** by Allie Hunter McDade, PAARI, and Major Brittney Garrett, Jeffersontown, Kentucky, Police Department
- **Increase the Impact: Law Enforcement Partnerships to Improve Opioid Related Public Health and Safety** by Caleb Banta-Green, Alcohol and Drug Abuse Institute, University of Washington.

Sullivan spoke about the opioid-related challenges his department has faced in Louisville, Kentucky, over the past few years. Both murders and overdoses were rising through 2015, with heroin and other opioids becoming more common in the community. Although Louisville police started widespread administration of naloxone in January 2016, overdoses continued to rise through 2017. Sullivan noted that there has been a substantial drop-off in overdoses reported to police and in naloxone administration by police in 2018, likely because of a shift toward the increased use of methamphetamines in the community and because potential overdoses are being treated before police arrive, given the increased commercial availability of naloxone.

The Martinsburg Initiative, discussed by Richards, is a comprehensive partnership among law enforcement, community organizations, researchers, and the Washington/Baltimore High Intensity Drug Trafficking Areas (HIDTA) program. The goal of the initiative is to address the basic causes of drug use, rooted in positive childhood development and family influences on decisionmaking. Richards noted that West Virginia has been hit especially hard during the opioid crisis, and this impact led the community to develop a strategy to leverage both enforcement and treatment options. The goal is to prevent future drug use, not only for individuals currently coping with a substance use disorder but also for the next generation of children who are witnessing this epidemic.

According to one participant, carrying naloxone has become even more critical with the introduction of fentanyl and its analogs into the drug supply, which have dramatically increased the lethality of street-sourced drugs.

The opioid epidemic is a national problem, so PAARI works with law enforcement across 32 states to establish non-arrest diversion programs, which generate pathways to drug treatment rather than to prison. Hunter McDade explained how PAARI's work in more than 430 departments nationally has helped law enforcement divert an estimated 18,000 people over the past three years. Garrett highlighted the successes in her agency in Jeffersontown, Kentucky, through working with PAARI. Her agency started an Angel program in August 2016 and has since referred more than 60 people for treatment and has expanded the department's local collaboration to include more than 40 public health partners, including hospitals and treatment facilities.

Banta-Green emphasized current research findings that suggest strong support for educating stakeholders on long-term overdose prevention and managing expectations. One topic for education is that successful treatment is not a binary outcome (i.e., an individual is not addicted one day and cured the next) and that relapses in the short term do not necessarily reflect a failure of treatment. Some of the best strategies incorporate naloxone up front but also rely on medications (e.g., methadone, buprenorphine) to facilitate positive long-term outcomes. Banta-Green noted that law enforcement can have an important role to play but that partnerships with public health-focused interventions are fundamental to success.

Discussion

The discussion following the first panel began with attendees acknowledging the importance of equipping officers with naloxone. Several law enforcement experts stated that naloxone is a valuable tool for officers responding to the scene of an overdose and for ensuring officer safety in the case of accidental exposure to opioids. According to one participant, carrying naloxone has become even more critical with the introduction of fentanyl and its analogs into the drug supply, which have dramatically increased the lethality of street-sourced drugs. Another participant agreed, explaining that naloxone keeps individuals with OUD alive for long enough to eventually get them into treatment. As stated by another law enforcement expert, a naloxone deployment functions as a "handshake" with individuals with OUD and helps to build trust and rapport with officers, creating an entry point for treatment or other services either in the moment or when the person is ready. Although attendees generally agreed that naloxone is an important part of the solution to the opioid epidemic, many voiced concerns about the emphasis on equipping law enforcement officers with the medication.

One public health expert questioned whether resources might be more effectively spent distributing naloxone to individuals with OUD, family members, and service providers, while another participant suggested that pharmacies could be ideal naloxone providers. According to several law enforcement experts, however, law enforcement officers must play a role in naloxone programs because they frequently encounter individuals with substance use disorder in their communities through calls for service and contact on the street. Naloxone is not universally accessible, and provision by law enforcement might be needed to cover any gaps (Puzantian and Gasper, 2018).

Experts also repeatedly stated the need to move the focus beyond naloxone programs and, in addition to efforts to administer and provide access to naloxone, find ways to provide individuals with OUD with treatment. Participants stressed that OUD is a treatable medical condition, and there are known, effective treatments, such as MAT. Attendees suggested that MAT should be the standard of care, and to be effectively administered, it must be easy to access and readily available. One participant explained that law enforcement agencies are uniquely positioned to serve as pathways to treatment for individuals with OUD. This expert also noted that observations of Angel programs revealed that many individuals with OUD indicated that they felt that they received better treatment from law enforcement than they had in their previous visit to the emergency room. Although participants generally commended law enforcement efforts to connect individuals with OUD with treatment programs through such initiatives as Angel and LEAD, they noted that treatment must be made more widely available through other stakeholders. For example, one expert recommended making MAT available through readily available and clinically trained community pharmacists.

Several experts discussed the need to make MAT available in jails and prisons and further suggested that treatment should continue to be accessible upon release. Experts also stressed that all individuals with OUD must have access to all available treatment options, including methadone, buprenorphine, and naltrexone, so that they can create an individualized treatment plan that will be most effective for them. Attendees argued that it is counterproductive for law enforcement to arrest individuals for possession of MAT drugs, such as buprenorphine, because individuals should not be taken off of MAT pre- or postincarceration. One expert explained that, historically, individuals with OUD have been matched with incompatible treatment options, which can lead to relapse. Attendees, however, identified several barriers to accessing MAT, such as a lack of fund-

ing, a shortage of prescribers, state and federal regulatory barriers, and stigma associated with MAT. Participants recommended finding ways to expand funding and build demand for MAT to encourage wider availability and easier access. When discussing research on alternative treatment models, several attendees noted that some tribal partners have come up with innovative strategies that might be considered.¹ Finally, one expert stressed that initiatives with a long-term focus on preventing drug use, such as the Martinsburg Initiative, are desperately needed.

PANEL 2: JOINING FORCES—THE IMPORTANCE OF STAKEHOLDER PARTNERSHIPS TO EFFECTIVE RESPONSE

Resolving a problem of the size and scope of the opioid epidemic requires effective collaboration among a variety of public and private entities at the local, state, and national levels (PERF, 2016). Relevant stakeholders could include those who work in the criminal justice system; public health; medicine; social services; and schools, businesses, churches, and faith-based organizations. Stakeholders also include members of the community. The goal of stakeholder partnerships is to leverage the knowledge, experience, and resources of a diverse group of experts and coordinate efforts to develop and implement holistic responses that address both the causes and consequences of drug use and addiction.

Stakeholder partnerships are a key component of multiple innovative responses to the opioid crisis. Partnerships are central to the development, implementation, and ongoing support of diversion programs, such as Angel and LEAD (PERF, 2016; Beckett, 2014). LEAD programs rely on a coordinated response by law enforcement, case managers, and prosecutors, who work together to identify individuals in need, create individualized recovery plans, and ensure program follow through. Similarly, Angel programs rely on community volunteers—or “Angels”—who work with law enforcement agencies to coordinate treatment intake for people referred to the program. Perhaps the most critical relationship in diversion programs is between law enforcement agencies and service providers, which work together to ensure that individuals have low-barrier, on-demand access to treatment and other resources.

Partnerships also are an important part of law enforcement naloxone programs. Often, law enforcement agencies work with

local or state partners or nonprofit organizations to implement these programs. For example, the Deaths Avoided with Naloxone (DAWN) program was developed by the Ohio Department of Health for the purpose of promoting naloxone distribution among law enforcement officers and training those officers in its use (Ohio Department of Health, 2018). The NCHRC, a statewide nonprofit organization in North Carolina, distributes naloxone to law enforcement officers, provides training, and maintains a detailed website about harm reduction strategies and naloxone adoption in law enforcement agencies across the country. At the federal level, the Bureau of Justice Assistance created the Law Enforcement Naloxone Toolkit, which provides information and resources to local and state law enforcement agencies interested in initiating their own naloxone programs (National Training and Technical Assistance Center, undated).

Another important area of collaboration involves data sharing. Because drug use and its consequences fall under the auspices of different stakeholders, key data that can define the nature and scope of drug use–related problems are typically siloed. However, in many communities, stakeholders have discovered new ways to share vital information that can facilitate efforts to surveil the influx of dangerous drugs, help identify dangerous batches when they appear in circulation, target services to at-risk populations, and inform timely responses to emerging problems. One example of an innovative data-sharing program is the RxStat Operations Group (Heller et al., 2014). Created in 2012, the RxStat Operations Group is a partnership among 25 public health, safety, and social service agencies in New York City. These agencies share data and meet regularly to discuss strategies to reduce overdose deaths (PERF, 2017). Another innovative data-sharing initiative, developed by the Washington/Baltimore HIDTA program, is the Overdose Detection Mapping application (ODMAP; HIDTA, undated). ODMAP facilitates data collaboration by providing stakeholders access to a centralized platform in which to input information about overdose incidents as they occur. This allows for real-time monitoring of overdose trends, identification of hot spots or incident spikes, and comparison of incidents with other relevant data sources (Beeson, 2018).

Panel Presentations

The purpose of the second panel, *Joining Forces: The Importance of Stakeholder Partnerships to Effective Response*, was to discuss innovative partnerships that have emerged among stakeholders in response to the opioid epidemic. The goal of this panel was to identify what makes partnerships effective,

identify promising strategies for overcoming barriers to collaboration, and determine what is needed to facilitate stakeholder coordination.

This panel featured the following five presentations:

- **Baltimore City Health Department and Law Enforcement Collaborative Efforts**, by Matthew Stefanko, Baltimore City Health Department
- **RxStat—Applying the NYPD’s Data-Driven Crime Fighting Principles of Compstat to Reduce Drug Overdoses and Save Lives**, by Chauncey Parker, New York/New Jersey HIDTA
- **Overdose Fatality Reviews**, by Mallory O’Brien, Medical College of Wisconsin, Milwaukee Homicide Review
- **Cooperating with Stakeholders to Access Data and Monitor Change in Burlington, Vermont**, by Chief Brandon del Pozo, Burlington Police Department
- **Collaboration as a Solution to Our Nation’s Opioid Crisis**, by Jac Charlier, Center for Health and Justice, TASC, Inc.

According to Stefanko, who is the Baltimore City Health Department’s special adviser on opioids, at the time the workshop was held, Baltimore was experiencing a continued increase in overdose deaths, with spikes found in localized neighborhoods in the city. The Baltimore City Health Department has emphasized a three-pillar strategy to address opioid use. The strategy focuses on saving lives with naloxone training and deployment, increasing access to treatment both in the community and detention settings, and reducing stigma associated with addiction and treatment. To date, collaboration across city agencies and community partners has trained more than 43,000 people to use naloxone, reversing more than 2,800 overdoses.

Parker highlighted a need for a guiding principle in coordinating a response to an epidemic. In the past, the New York City Police Department tackled the violence epidemic with the goal of measuring lives saved, guided by the principle that what gets measured gets done. Facing the current opioid crisis requires the same focus to create a unified front among partners and stakeholders. New York’s RxStat represents an example of multiagency coordination with a single guiding principle: preventing overdose deaths (Heller et al., 2014). Parker noted that communication among partners has to be direct, with all topics and information on the table for discussion. In his view, the

best response to this crisis is to have the available evidence drive strategy, as was seen during efforts to reduce violent crime.

Given the evidence-based support for homicide fatality reviews, O'Brien discussed the extension of these reviews to address overdose fatalities in Wisconsin. She pointed to the similarities between public health and criminal justice strategies. She gave examples, such as the similarities between the epidemiological triangle (which focuses on the agent causing disease, the host carrying it, and the environment that facilitates transmission) and problem-oriented policing (which includes a similar triangle of potential offenders, targets, and a lack of capable guardians who would prevent crime) to note that coordination of public health and public safety efforts can start with considerable common ground. Central to overdose fatality reviews is the belief that overdoses are preventable through comprehensive information sharing, proactive responses, and strategic focus on identifiable risk. Using a multiagency, systematic process to examine the underlying dynamics of overdose cases, it is possible to prevent future overdoses through a unified, coordinated response.

Chief del Pozo detailed his department's coordination and data sharing with partners in their response activities. Notably, one of his first steps was to hire a full-time epidemiologist in the police department to help coordinate the response. His department facilitates "CompStat," a community-level monthly meeting to discuss the opioid crisis and focus on person-centered services for treatment. Additionally, del Pozo discussed biweekly meetings with government and public health stakeholders with the goals of identifying individuals who require treatment and sharing information among partners. These initiatives rely on transparency and data sharing, both of which can be difficult when coordinating criminal justice and public health responses, but they can be made possible only by developing relationships among the stakeholders.

In discussing current efforts to address the opioid crisis, Charlier noted his organization's role to build collaborative partnerships during the nation's heroin epidemic in the early 1970s. He noted that the experience provided key lessons as to how to coordinate between and connect the criminal justice system and the public health treatment system that are directly relevant today. A central feature of this partnership between systems is the use of prearrest diversion, but that cannot be the only linkage. Charlier explained that treatment takes time and is not a short-term process, so partnerships need to account for the full scope of potential interactions. One example advanced through TASC is the "Naloxone Plus" program, which empha-

sizes a continuous integration of law enforcement and behavioral health communities to help manage expectations for long-term treatment goals.

Discussion

The group discussion following the second panel initially focused on evaluating stakeholder responses to address the opioid crisis. In other words, the attendees were concerned with such questions as "What does success look like?" and "How do you measure effectiveness?" One law enforcement expert stressed the importance of identifying a primary indicator of success (i.e., a "north star"). This expert continued by suggesting that stakeholders focus on one primary indicator and that any secondary indicators should relate to the primary indicator. With too many indicators, there is a risk that responses might become unfocused. In the context of the opioid epidemic, attendees asserted that the primary indicator of success that stakeholders should pursue is reducing overdose deaths. Although the attendees generally agreed, one participant noted that an exclusive focus on a single indicator can mask other important issues that stakeholders should address. As an example, this participant explained that naloxone could be considered successful based solely on a reduction of overdose deaths, but that the underlying issue of drug addiction might remain unresolved. Another participant suggested that a useful primary indicator for stakeholders could be whether individuals with OUD stay engaged with treatment. Attendees agreed that care must be taken in deciding what is measured and how and that stakeholders need to find ways to speak to one another using a common vernacular. One presenter highlighted the potential key role for treatment in that low-barrier (i.e., easy to acquire) buprenorphine is the most-effective population-level intervention for lowering mortality.

In terms of measuring success, one expert stressed the importance of involving researchers, particularly before new programs are created. Many programs have been implemented across the country in response to the opioid crisis, yet rigorous evaluations are difficult or impossible to carry out because of a lack of planning for research and evaluation. This limits the ability of stakeholders to gauge a program's success and limits the potential for creating knowledge that can inform future programs. In terms of mode of evaluation, several attendees discussed the value of using randomized controlled trials to understand which programs among the nascent law enforcement and public health initiatives work best. However, another expert proposed that quasiexperimental designs should have a

Collaboration was discussed as the long-term solution to this crisis and the next one.

key role in evaluating programs, because randomized controlled trials are time- and resource-intensive and often miss many of the most at-risk populations, such as homeless individuals and people leaving prison. Because of the abundance of competing initiatives, one public health expert noted that their organization is moving away from outcome evaluations and is focusing instead on process evaluations that are tied to previous research. For example, if literature suggests that a greater number of MAT initiations reduces overdose deaths, then it is more important to measure the former. Finally, some experts noted the need to pursue research that examines the long-term effects of programs.

This discussion also focused on ways to improve collaboration among stakeholders, such as finding more-efficient modes of information sharing. For example, some participants recommended that stakeholders share data that would allow for quick identification of hazardous drug batches. Stakeholders could then publicly share that information to encourage individuals with OUD to take precautions that could reduce harm and prevent overdose. However, attendees noted that information sharing can sometimes be limited by the Health Information Portability and Accountability Act (HIPAA).

Overall, experts expressed the need to start thinking about novel ways to attack the problem as a system rather than as individual organizations. This will require overcoming such challenges as identifying an appropriate leader and promoting better integration across fields, for example, through embedding clinical workers or social services with law enforcement or embedding mental health services and professionals with law enforcement. Collaboration was discussed as the long-term solution to this crisis and the next one.

PANEL 3: PROTECTING THE GUARDIANS—KEEPING OFFICERS AND ANALYSTS SAFE FROM THE EFFECTS OF THE EPIDEMIC

To better protect their communities, law enforcement agencies must protect their personnel. Because law enforcement is a dangerous and high-stress occupation, much attention has been focused on improving officers' safety, health, and wellness (Community Oriented Policing Services, undated; Bureau of Justice Assistance [BJA], undated b; PERF, 2018; International Association of Chiefs of Police, undated). Studies have shown the rate of occupational deaths in law enforcement to be nearly three times higher than that of the average worker in the United States (Maguire et al., 2002). On any given day, officers face the possibility of injury, or even death, while carrying out routine police duties. In 2017 alone, the FBI reported that 60,211 officers were assaulted in the line of duty, which is likely a conservative measure, based on agencies' reporting of such information (FBI, 2017). Over the past decade, the Officer Down Memorial Page counted an average of 170 line-of-duty deaths per year, primarily because of gunfire or automobile accidents (Officer Down Memorial Page, undated). Officers face a variety of acute and chronic, co-occurring risks to their health and wellness, such as stress, fatigue, poor nutrition, lack of exercise, and social isolation, which are attributed to or exacerbated by the nature of police work. As a result, studies have found that law enforcement officers exhibit worse health outcomes (Franke, Collins, and Hinz, 1998; Hartley et al., 2011) and suffer a shorter life expectancy (Violanti et al., 2013) compared with those in other professions and the general population. Additionally, law enforcement officers are much more likely to die from suicide, with a rate twice as high as that of the general population (Violanti et al., 2008).

The opioid epidemic has ushered in new concerns about officers' health and safety. In addition to various other hazardous chemicals or biological substances, officers are now increasingly likely to come into contact with drugs containing fentanyl, extremely powerful synthetic opioids with a high likelihood of causing overdose (Pagane et al., 1996; Burgess, Barnhart, and Checkoway, 1996; Herbert et al., 2006;

Riediker, 2007). Although dermal transmission from brief skin contact is not likely to be a significant risk, according to the National Institute for Occupational Safety and Health (NIOSH), exposure routes of greatest concern include inhalation, mucous membrane contact, ingestion, and percutaneous (i.e., needlestick) injury (NIOSH, 2017). NIOSH has developed safe practice guidelines for law enforcement and other first responders when contact with fentanyl is possible. In addition, the White House Office of National Drug Control Policy released “Fentanyl Safety Recommendations for First Responders” (Office of National Drug Control Policy, undated); based on this document, BJA produced “Fentanyl: The Real Deal,” a companion training video (BJA, undated a). These resources are intended to educate law enforcement officers about the risks of fentanyl and equip them with evidence-based strategies to protect themselves in the field.

Although there are direct dangers in these situations, there also is a significant risk to officers’ mental health and emotional well-being during critical incident response. In particular, calls involving drug overdose repeatedly expose officers to trauma, pain, suffering, and even death. Furthermore, studies have reported on officers’ feelings of futility in their ability to help individuals with OUD break the cycle of addiction and their frustration over a lack of appropriate resources, such as treatment and other services, to resolve the crisis (Green et al., 2013). If left unchecked, stress from critical incidents could lead to chronic distress (Marmar et al., 1999), negative coping (Ménard and Arter, 2013), and even posttraumatic stress disorder (PTSD; Hartley et al., 2013; Geronazzo-Alman et al., 2017).

Panel Presentations

The objective of the third panel, *Protecting the Guardians: Keeping Officers and Analysts Safe from the Effects of the Epidemic*, was to discuss the unique risks to officer safety, health, and wellness that have emerged from the opioid epidemic and identify strategies for protecting first responders.

This panel featured the following three presentations:

- **Narcotics Investigations—Fentanyl Risk Mitigation**, by Lieutenant James MacGillis, Milwaukee, Wisconsin, Police Department
- **U.S. Opioid Crisis and First Responders**, by John Howard, NIOSH
- **Fentanyl: The Real Deal**, by Tara Kunkel, BJA.

MacGillis highlighted the need for consistent, evidence-based risk-mitigation strategies during the current opioid crisis. First responders and investigators face potential danger from narcotics exposure, especially with the increasing opioid and fentanyl trends. He noted that the danger is often thought of as occurring at the scene, but it also can extend through the chain of custody to transport, packaging, testing, storage, and eventual disposal. Standardized training, policies, equipment, and oversight practices are critical to safely handling these narcotics but, in some cases, are still lacking because of the rapid spike in opioid use since 2013. Additionally, partnerships with other criminal justice and public health agencies are important in order to share best practices and reinforce the importance of risk mitigation. Such a partnership exists in Milwaukee County, as reflected in MacGillis’s role in the police department and the North-Central HIDTA.

Howard, director of NIOSH, detailed his agency’s role in developing guidance for law enforcement in order to prevent occupational exposure to fentanyl and other synthetic opioids. This guidance has taken multiple forms, including direct recommendations and collaborations with other federal, local, and nonprofit partners. This guidance provides specific, actionable plans for ensuring the safety of law enforcement. Howard highlighted that recommendations might be different for first responders compared with evidence handlers or investigators because the risk profiles and exposure potential can differ, and a universal policy across all law enforcement would be inefficient. For example, Howard recommended that routine law enforcement first responders should not attempt to address scenes with high exposure levels (i.e., large quantities of fentanyl visible), but rather delegate the task to trained evidence collection teams.

As part of BJA’s collaborative work on the opioid crisis, Kunkel presented a training video titled “Fentanyl: The Real Deal.”² This work reflected a partnership among 24 stakeholder associations and organizations with an interest in first responder safety. As part of the panel presentation, she noted that the video’s purpose was to reduce fear and misinformation, particularly because inconsistent recommendations often had been overcautious, which in turn could contribute to further fear of exposure. Training information needs to be immediately digestible for young patrol officers directly out of the academy because they would be the ones with the lowest potential knowledge base or experience in these matters, and also among the most likely to initially respond to an overdose.

Discussion

Participants first discussed the potential for law enforcement officers to be accidentally exposed to opioids while working in the field. Despite a common perception that officers are at heightened risk of accidental exposure, attendees largely agreed that the scope of the problem is unknown. Attendees were in agreement that there is a need for research on the topic and that standardized case reporting is necessary to better track the scope of the problem. Although participants were unaware of any confirmed reports of officer fatalities from accidental opioid exposure, they acknowledged that appropriate safety and preventative measures are needed. Attendees also commended the brief, easy-to-understand, educational video that was produced by BJA to provide clear and consistent information about officers' risk of accidental exposure to opioids. The attendees recommended the dissemination of evidence-based actions that officers can take to protect themselves in the field. Participants recommended taking steps to further disseminate the video.

Participants stressed that officer safety training is paramount so that officers can readily understand and manage their risk. When officers do not properly understand their risk, it can unnecessarily inflate fears, further increase stress and anxiety, and even lead to PTSD. In fact, several experts thought that the mental health consequences of responding to the epidemic were an even bigger cause for concern than the risk of physical injury to officers. For example, several law enforcement participants brought up reports in which it was thought that an officer had been exposed to fentanyl. Despite manifestation of the typical symptoms, follow-up tests did not reveal the presence of the drug. Some experts noted that officers' anxiety and stress-

related symptoms after suspected exposure could be mistaken for exposure symptoms. In other cases, mental health issues might arise as officers repeatedly encounter overdose victims.

In response, several law enforcement participants described their experiences in implementing programs to protect officers' health and wellness. One expert discussed how their agency has hired psychologists to meet with officers. This expert explained that psychologists are utilized frequently by officers, especially younger officers and officers who have repeatedly deployed naloxone. In addition, the agency has brought in a medical doctor to explain the science of addiction so that officers can understand why they might need to deploy naloxone repeatedly to the same individual. Another expert explained that their agency has a social worker on staff that is a former law enforcement officer. When officers are deemed at risk, based on a pattern of early exposure to trauma, they are referred to the social worker to discuss their experiences and possibly receive a referral to an outside professional. Overall, participants recommended that agencies track cases of PTSD or other mental health issues arising among officers responding to incidents involving opioids.

PANEL 4: SCIENCE AND RESPONSE— FORENSIC SCIENCE'S IMPACT ON DETECTION, INTERDICTION, AND SURVEILLANCE

Forensic scientists are vital participants in the effort to end the opioid epidemic. With the constant introduction of new drugs, forensic laboratories are on the front lines in terms of assessing the shifts in drug use trends and their consequences. These substances are identified through samples submitted by law enforcement from drug seizures or through medicolegal death investigations (Morgan, 2017). There also are efforts to improve the ability of officers to conduct drug tests in the field in order to reduce demands on forensic laboratories and make information more rapidly available to guide decisions (NIJ, 2016). Rapid identification of novel drugs is important because it supports surveillance efforts and can alert policymakers, public safety professionals, and public health stakeholders to emerging trends in drug-related deaths. This is particularly important when dangerous, possibly lethal substances, such as fentanyl and its variety of analogs, appear in the drug supply (Gladden, Martinez, and Seth, 2016). Such information supports harm-reduction initiatives, including alerting the community and at-risk populations to the presence of dangerous substances so

Overall, participants recommended that agencies track cases of PTSD or other mental health issues arising among officers responding to incidents involving opioids.

that they can be avoided or other appropriate safety measures can be taken to prevent deaths (Blau, 2017b).

Forensic detection and recognition could support law enforcement investigations and efforts to disrupt the distribution of deadly substances. In particular, medicolegal death investigations can yield important information about the body's response to specific drugs and the dangers they might present (DePriest et al., 2015). This can help determine the possible risks certain drugs pose and inform safety guidelines for law enforcement and other first responders who might encounter them in the field.

Panel Presentations

The purpose of the fourth panel, Science and Response: Forensic Science's Impact on Detection, Interdiction, and Surveillance, was to examine the crucial role of forensic science in the response to the opioid epidemic and identify effective strategies to coordinate efforts between forensic laboratories and other stakeholders.

This panel featured the following four presentations:

- **The Phoenix Police Department Controlled Substances Field ID Program**, by Nancy Crump, Phoenix, Arizona, Police Department
- **Virginia Department of Forensic Science Trends Related to the Opioid Crisis**, by Linda Jackson, Virginia Department of Forensic Science
- **The State of America's Opioid Crisis: Challenges and Capabilities in Forensic Analysis**, by Barry Logan, Center for Forensic Science Research and Education
- **U.S. Customs and Border Protection Laboratory and Scientific Services: Our Fight to Combat the Opioid Crisis**, by Patricia Coleman, U.S. Customs and Border Protection.

Although having officers trained to use field identification kits has been in place in Phoenix, Arizona, since 2000, these kits did not allow for presumptive testing for opioids until after 2012, according to Crump. With support from the NIJ-funded National Forensic Science Technology Center, the Phoenix Police Department was able to conduct a validation project for a field-deployable Raman spectrometer, a device that allows for the potential identification of opioids, in addition to other narcotics and explosives. In testing the Raman device, the same guidelines for assessing chemical field tests and requirements for presumptive testing were in place: constant training

Forensic detection and recognition could support law enforcement investigations and efforts to disrupt the distribution of deadly substances.

for users; confirmatory testing by laboratories; monitoring to ensure reliable results in the field; restricting use to cases in which there were sufficient quantities of suspected narcotics to allow for confirmatory tests; and constant quality assurance checking of both data validity and officer use of the equipment. With this careful testing protocol in place, the effort provided strong support for the accuracy and viability of the Raman device for field use. As a result, field testing has steadily increased in the department over the past three years.

Jackson, director of the Virginia Department of Forensic Science, discussed her state's experience during the current opioid crisis. Although we note that cases submitted for toxicological analysis have been increasing over the past few years, the spike has not been evenly distributed. Although in 2017, prescription opioid cases represented a larger proportion of cases than those involving synthetic opioids (approximately 5,000 to 3,000 cases, respectively), the prescription cases have been in decline since 2012, whereas the synthetic opioid case submissions (which were negligible in 2012) have increased rapidly. Submissions for cocaine and methamphetamines also have increased over the past few years. Jackson noted that there are further challenges to analyzing samples, given the rise in case counts, complex samples containing multiple drugs or analogs, and increased safety and reporting requirements. These issues require laboratories to find new solutions to improve efficiency and secure funding for staffing and equipment.

Logan emphasized the challenge forensic laboratories face in keeping up with new fentanyl derivatives and analogs. Given that the role of laboratories is to both test seized drugs and provide toxicological evidence in criminal cases or medicolegal death investigations, staying up to date on drug profiles is critical. However, he noted that the rate of proliferation of new opioid types results in weekly changes to laboratory testing

scopes. New technology can aid in the process, but much of the knowledge required to remain current is acquired through outside partnerships and communication with other laboratories, content analysis of websites catering to drug users, and the peer-reviewed literature. As a result, better information sharing is required to allow laboratories to best assess which drugs are currently in communities and which permutations are causing damage that necessitates greater law enforcement or public health interventions.

The guiding focus for Coleman, director of administration for the U.S. Customs and Border Protection Laboratories and Scientific Services Directorate, is to translate scientific knowledge into actionable intelligence for law enforcement. Her directorate saw increases in seizures for heroin, fentanyl, and methamphetamine over the past few years. With respect to fentanyl, seizures at the southwest border represent the greatest amount seized by weight (i.e., low number of incidents but significant quantities) but also the lowest purity. In contrast, fentanyl seized through the mail represents the most volume (i.e., high number of incidents but for small quantities) and has far greater purity. Coleman's laboratory reports encountering new synthetic opioids each month, which adds to the challenge of determining where the drugs originated and where they are manufactured. Therefore, partnerships and communication, along with the ability to field test in mail distribution centers, are key to fighting opioid-related trafficking.

Discussion

The discussion following the last panel focused on forensic responses to the proliferation of new drugs and drug mixtures, such as fentanyl and its analogs, which are highly potent in small concentrations. Forensic experts explained that forensic labs and local law enforcement have begun to develop early warning systems to inform individuals with OUD, stakeholders, and the broader community about these dangerous substances in the drug supply. Participants gave several examples of jurisdictions that allow anyone in the community to sign up for SMS-based alerts about hazardous drugs. Experts agreed that timely and accurate analysis is critical for these initiatives to be effective, and it is important to avoid fearmongering. However, because of inadequate resourcing and funding models, forensic experts explained that many labs increasingly face analytic backlogs, although one expert noted that laboratories often will prioritize analysis when overdose clusters are suspected. Another barrier to timeliness is that laboratory testing often relies on data gathered after deaths. Furthermore, in cases

in which death does not occur, relevant data might not be captured by labs. Generally, participants pressed for defining a broadly replicable early warning system despite regional differences in funding, partnerships, and communities.

Public health experts stressed the value of this approach, commenting that there is a common misperception that individuals with OUD will seek out substances of higher potency. Panelists noted that studies tend to contradict this claim and instead show that individuals with OUD prefer to be notified about dangerous substances and will positively adjust drug use behaviors when they are given such information. Both law enforcement and public health experts stated that they are obligated to share information about dangerous drugs if it has the potential to reduce harm and save lives. Experts also suggested that early warning systems could provide additional means to disseminate information about treatment resources. Participants noted that policies governing early warning systems should be based on data suggesting that such announcements broadly help rather than on small-scale unintended consequences. Finally, one participant explained that there are practical methods of preventing unintended consequences. This participant explained that when their jurisdiction implemented an early warning system, it created hot spots that were large enough to make the identification of specific dealers possible.

PRIORITIZATION OF NEEDS

After the panel discussions, the group began a prioritization session focused on the promising practices and issues identified during the workshop and supplemented by practices reported in the published literature. Tables were set up at the back of the room, upon which cards were placed bearing the names of potential strategies and actions for mitigating issues related to the opioid crisis. The cards were grouped at tables labeled with the same topics as the panel discussions: overdose response and treatment promotion, cooperation and data sharing, officer and analyst safety, and forensics and laboratory issues. Each card also included subcategories describing specific actions needed for implementation. These solutions ranged in terms of readiness for implementation and constitute the following “action categories:”

- disseminate and promote broad application
- resolve resource and staffing shortfalls
- solve technology shortfalls

- address community and stakeholder concerns
- resolve legal or regulatory barriers
- research, replicate, and evaluate results.

Participants were given a set of coins with which to vote on their highest-priority strategies and actions at the tables. They were instructed to go to each table and participate in discussions moderated by RAND and PERF staff before voting. When they identified approaches that were not yet captured by the cards on the table, they were presented with blank cards on which to write the strategy by hand. These handwritten cards were added to the strategies already under consideration. They also were given the opportunity to write more-detailed notes on the cards as they talked in order to capture their reasoning on or reservations about a strategy or action category from the discussions. Participants were encouraged to move freely among the tables and, ultimately, to vote by placing their coins on whichever strategies they thought appropriate, split among the action categories in whatever manner they saw fit. The final contents of each card were defined as a “need,” and each need is composed of both the title describing a strategy for mitigating the opioid crisis and the specific actions that were prioritized by participants.³ For a representation of the voting cards, see Figure A.2 in the appendix to this report.

RESULTS

Although participants at first gravitated toward tables reflecting their particular topics of interest or expertise, most were active discussion participants at multiple tables. Participants and moderators captured the insights and highlights of the discussions in notes added to individual cards. Across the four tables, three strategies were added by the participants to the initial set. At the end of the exercise, participants voted on actions on the cards, creating an aggregate prioritization of needs. These results were tallied and sorted for analysis based on (1) total

votes placed on individual needs and (2) on distributions of votes on the action categories described on those cards. Clustering of the needs into top, middle, and lower tiers was based on the total number of votes on a need (because those needs received a greater percentage of respondents’ available votes), regardless of how votes were distributed across the action categories on that card. A description of the clustering algorithm used and the full results of the analysis are included in the appendix to this report. Clustering also was performed for needs at each table individually to assign them to a tier within each topical category. Finally, the distribution of votes among the different action categories on each card was tallied for further analysis, such as identifying priorities for implementation, priorities for further research or barrier resolution, and high-priority strategies where there was considerable disagreement among participants on appropriate ways forward.

Tiered Needs

Fifty-three needs were ultimately identified across the four tables (see Table 1). Overdose response and treatment promotion received the highest priority overall, both in terms of the total number of needs identified and the average number of total votes per need. This table had nearly twice the average number of votes per need as the next-highest-ranking table, cooperation and data sharing, and more total votes than the other three tables combined.

In past exercises in which we have asked participants to rank order their priorities, we typically do not attribute much significance to small differences in the actual prioritization scores. Instead, we use a clustering algorithm to identify natural groupings of high, medium, and low priorities among the items being prioritized. For this event, when we clustered all of the needs into three groups or tiers based on the total number of votes they received, we find eight top-tier needs, 15 middle-tier needs, and 30 lower-tier needs. Of the eight top-tier needs, one was in the cooperation and data sharing category, and the remaining seven were in the overdose response and treat-

Table 1. Breakdown of Needs, by Category and Vote Proportions

Category	Number of Needs	Percentage of Total Votes	Average Number of Votes per Need
Overdose response and treatment promotion	21	61%	41
Forensics and laboratory issues	15	15%	14
Cooperation and data sharing	10	15%	21
Officer and analyst safety	7	9%	19
Total	53	100%	27

ment promotion category. Specifically, of the seven in the latter category, two were related to harm-reduction approaches, such as creating safe injection locations, and four were related to providing MAT.⁴

To mitigate the potential for bias toward one category of needs from a nonrepresentative group during the prioritization, we also clustered the needs separately for each high-level topic (i.e., we analyzed the results separately for each table). By clustering in this way, we identified higher-, medium-, and lower-priority needs within each high-level topic (even if the total vote count was not high enough to warrant identification as a top-tier need overall). Thirteen top-tier needs, 17 middle-tier needs, and 23 lower-tier needs were identified using this approach. The primary difference using this approach was the movement of some needs to higher tiers in the three categories other than overdose response and treatment promotion and the movement of some needs to lower tiers in that category. Two needs were newly identified as top-tier in the officer and analyst safety category, and three needs were newly identified as top-tier in the forensics and laboratory issues category. Notably, all of the top-tier needs from the overall clustering remained after reclustering by group.

We further analyzed the results for the 13 within-group top-tier needs according to how coins were placed on each need. Specifically, we looked at how participants voted on the action categories for these top-tier needs. Of the 13 top-tier needs, four were identified that had more than half of their total coins placed in the disseminate and promote broad application action category. Because these needs are both high-priority and perceived as effective and well-understood, we categorize them as priorities for immediate implementation. Of the 13 needs, eight had the majority of their votes on a combination of the three action categories denoting barriers that must be resolved. These are high-priority needs that are perceived to have barriers related to inadequate resourcing, inadequate technology, potential community and stakeholder concerns, or legal and regulatory issues. These are important strategies that should be priorities for additional research and funding to resolve barriers to their effectiveness. Finally, three of the 13 top-tier needs had more than 20 percent of their votes on the research, replicate, and evaluate results action category. We consider these high-priority needs to be potentially promising strategies, but there is substantial expert disagreement on the best means to implement them. Those seeking to implement these strategies might need to proceed with caution. Notably, one of the needs identified as a priority for implementation

received one-third of its votes on the research, replicate, and evaluate results action category.

Finally, because of the number of needs in the overdose response and treatment promotion category, we sought to more closely examine the issues involved in the category. Needs in this category also fell within a few subcategories, including harm reduction, MAT, law enforcement and criminal justice connection to treatment, and needs related to naloxone. Harm-reduction and MAT needs were ranked the highest among these subcategories, with all of their associated needs falling in the top tier overall and within groups. Naloxone-related needs uniformly fell into the lower-tier needs within this group, with only two associated needs classified as middle-tier overall. Needs relating to law enforcement and criminal justice connections to treatment varied considerably, containing needs classified as top, middle, and lower tier.

TOP-TIER NEEDS

The methodology for prioritization allowed participants to provide additional information and context during the final session. Allowing participants to vote on which action—immediate application, resolution of barriers, or further research—was appropriate for each need enabled further characterization of readiness and identification of the best solutions for the identified needs. In this section, we discuss the needs that were ranked in the top tier in more detail after briefly discussing a potential source of bias in the results that affected our final ranking methodology. The 13 high-priority needs identified by the workshop participants are sorted by category and displayed in Table 2. In Figure 1, we show the high-priority needs with the distribution of votes they received in three of the action categories.

Overall Ranking

Of the eight needs that were ranked in the top tier from the overall group clustering, seven were related to overdose response and treatment promotion. The only overall need that did not relate to harm-reduction techniques or treatment in some way instead related to using syndromic surveillance or sentinel indicators to recognize emerging drug crises.⁵

Although participation and group composition remained largely constant during the panels and subsequent discussions, many participants departed from the workshop before the final prioritization session. The workshop had approximately

Table 2. The 13 High-Priority Needs, by Category

Category	Related High-Priority Need
Overdose response and treatment promotion	<ul style="list-style-type: none"> • Broaden the use of MAT in the general population and increase accessibility. • Promote nonenforcement police outreach to connect individuals to treatment. • Explore alternative treatment models to better serve individuals with OUD (e.g., mobile MAT, tribal nation innovations). • Use medication-assisted and other treatment models in institutional and community corrections. • Explore the use of safe injection locations to facilitate incident response and provide treatment promotion opportunities. • Provide same-day, low-barrier access to treatment with a medication-first model of care. • Provide syringe services to reduce associated harms and create treatment intervention opportunities.
Cooperation and data sharing	<ul style="list-style-type: none"> • Use syndromic surveillance or sentinel indicators to recognize spikes in overdoses, new opioids, or emerging drug crises.
Officer and analyst safety	<ul style="list-style-type: none"> • Create a trauma awareness early warning system for law enforcement stress exposure. • Provide mental health interventions for officers affected by the stresses of policing during the opioid crisis.
Forensics and laboratory issues	<ul style="list-style-type: none"> • Develop funding models to allow labs to be agile in responding to needs for new equipment, methods, safety issues, etc. • Increase the frequency and scope of drug screens in death investigations to identify novel opioids and effects. • Use data from rapid analysis of seized materials to inform public health and law enforcement interventions.

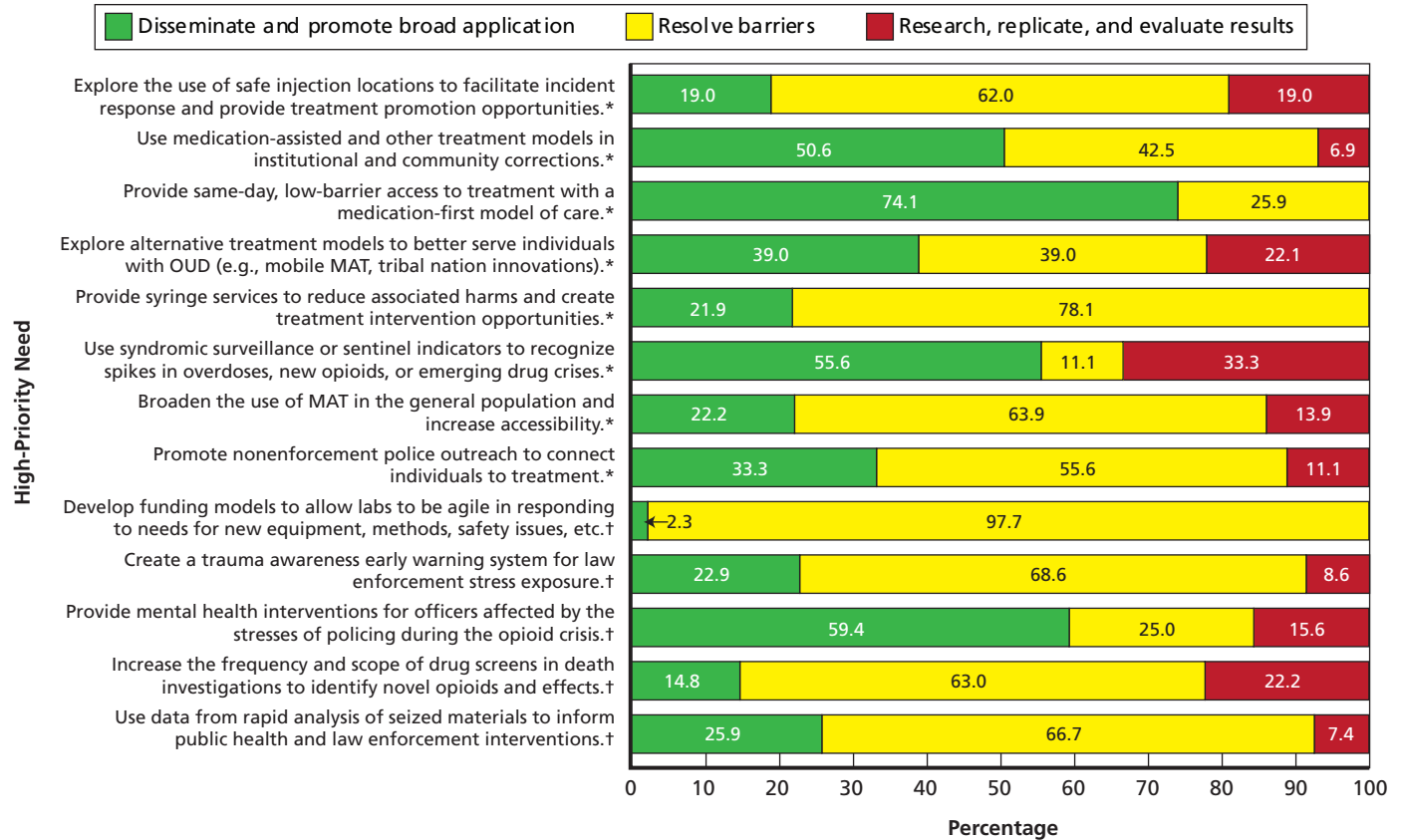
100 participants who attended, starting with the plenary sessions on the first day, but ultimately only 28 participants remained at the end for the final prioritization. Although the original group makeup was a reasonably representative mix of expertise and professions, with representation from law enforcement officers, public health professionals, first responders, and community leaders, it is possible that the final group participating in the prioritization session was more heavily weighted toward one set of perspectives or expertise compared with the original group. Because participants were free to exit the workshop space as they wished, no real time attendance was collected, so it is not possible to definitively describe the makeup of the group participating in the prioritization session. As a result, we cannot discount the potential for the overall prioritization to have been biased toward one set of needs over another. It is for this reason that we present results from two different methodologies for clustering the needs into tiers. We consider the clustering of needs within their categories to be more likely to be free of potential bias because of the composition of the remaining group of participants, however, and thus opted to provide more-detailed discussion of this larger set of top-tier needs.

Priorities for Immediate Implementation

Four of the top-tier needs from the in-group clustering were identified for which more than half of their votes had been placed in the disseminate and promote broad application action category. These needs are classified as priorities for immediate implementation. Although participants primarily voted that these needs are ready for immediate implementation, they also provided additional context in terms of remaining barriers to overcome and other comments. Such comments will be discussed here, along with notes from participants that provide additional context.

Use medication-assisted and other treatment modes in institutional and community corrections. This need originally was derived from reports by PERF (2017) and the President's Commission on the opioid crisis (Christie et al., 2017). During the prioritization session, participants gave additional context, suggesting such courses of action as piloting programs for administering injectable buprenorphine in jails and creating better support systems for people transitioning across the criminal justice system and back into the community. They also stressed that there should be a focus on life skills and mental health in these settings. Participants expressed concern that

Figure 1. High-Priority Needs and Prioritization of Strategy



NOTE: All of these needs were in the first tier within their groups. Totals might not add to 100% due to rounding.

*These needs were in Tier 1 overall.

†These needs were in Tier 2 overall.

funding might be an issue and suggested working out issues with receiving funding from Medicaid. On legal and regulatory barriers, participants noted that federal regulations still limit the use of MAT and that these limitations should be removed. Lastly, they noted that there is yet a need for more research on treatment methods.

Provide same-day, low-barrier access to treatment with a medication-first model of care. Participants noted the need for budgets to support MAT and corresponding wraparound services. They further noted that associated stigma of MAT is a person-level barrier, while determination of who is responsible for administration and referral mechanisms represents a community barrier. Other barriers include the need to receive law enforcement buy-in in communities and variation in the ability to teleprescribe MAT medications. This need was written in by participants during the prioritization session.

Use syndromic surveillance or sentinel indicators to recognize spikes in overdoses, new opioids, or emerging drug crises. This need was originally derived from an article by Morrow and colleagues (2018), but a participant modified it to include sentinel indicators of subsequent drug crises. Addi-

tional context provided for this need concerned relationships and communication among stakeholders and useful methods for carrying out syndromic surveillance. Participants noted the need to establish relationships and communicate with diverse groups. Parties could use social media to provide information to the community and establish relationships with emergency medical services for a real-time understanding of the problem, but should take note to frame the surveillance activity carefully in the communication so as to ensure buy-in from all parties. In addition to establishing a relationship with emergency medical services, participants suggested finding a way to use calls for service and test emergency room populations as part of the effort. Finally, one of the participants who voted for additional research, replication, and evaluation of results suggested that robust modeling would be needed.

Provide mental health interventions for officers affected by the stresses of policing during the opioid crisis. This need was derived from PERF reports on the opioid crisis (PERF, 2017). Participants noted that additional resources would have to be found for any self-care options or other measures to be implemented to achieve this need. Any measure would

start with an initiative to promote awareness among officers about stress and trauma from the crisis. Participants also were concerned that officers who might take advantage of these interventions could experience stigma by other officers or even be penalized by reduced job duties as a result. Thus, actions need to be taken to encourage officers to access these resources, including by requiring that everyone participate in such interventions to some degree or by leadership actively encouraging their use.⁶

High-Priority Needs Requiring Barrier Resolution

Eight of the top-tier needs from the in-group clustering had more than half of their total votes on a combination of the four action categories related to barrier resolution. For these needs, the total vote counts suggest that participants consider them to be high-priority solutions, but further assess that implementers need to overcome some hurdles before they are ready for broader application. Participant comments and suggestions on these needs are discussed in this section.

Explore the use of safe injection locations to facilitate incident response and provide treatment promotion opportunities. This need was identified from PERF reports on the opioid crisis (PERF, 2016; PERF, 2017). The primary concern regarding this need was the presence of barriers to implementation because of federal regulations, particularly “crack house statutes.” Beyond this, participants suggested that efforts would be needed to obtain community buy-in and address concerns about neighborhood crime and other effects. Participants suggested that there is already quality research on the topic and educating communities about such research could help, along with establishing clear guidelines for implementation to partners and communities. Some participants also suggested pursuing further research on the topic, such as research comparing safe consumption facilities with walk-in low-threshold care; allowing NIDA to fund research on safe consumption sites; and broadly removing federal regulations hampering research.

Provide syringe services to reduce associated harms and create treatment intervention opportunities. This need was derived from PERF reports on the opioid crisis (PERF, 2016; PERF, 2017). Participants primarily prioritized resolving legal or regulatory barriers to this strategy. They stressed the need for federal regulations and for the FDA to approve point-of-care fentanyl test strips and remove syringes and tips from drug paraphernalia laws (because participants saw these as public health tools). Although addressing community and stakeholder

concerns received no votes, participants nevertheless made multiple suggestions about means to address community and stakeholder concerns. Participants particularly suggested addressing community attitudes that would seek to keep facilities from being located in community members’ backyards. They noted that law enforcement support for the strategy would be critical, because police presence might otherwise counteract the harm-reduction approach. They suggested that more education is needed around the harm-reduction approach generally and that additional research is needed on related law enforcement training.

Broaden the use of MAT in the general population and increase accessibility. This need was derived from the President’s Commission report on the opioid crisis (Christie et al., 2017). Participants primarily voted for resolution of legal or regulatory barriers. They noted federal limitations on the use of MAT, limited insurance coverage of MAT, barriers to prescribing medication for MAT, and zoning rules that make it difficult to open facilities that would provide MAT. In addition to these regulatory barriers, lack of funding and stigma associated with MAT also hinder expansion of MAT access.

Promote nonenforcement police outreach to connect individuals to treatment. This need was derived from PERF reports (PERF, 2016; PERF, 2017) and from work by Reichert (2017). Participants primarily prioritized resource and staffing shortfalls for this need, noting that treatment programs have limited capacity and require sustainable staff funding. Others were unsure about who law enforcement should connect with; suggestions included recovery coaches, clinicians, health outreach workers, and social workers. Finally, some participants noted the cultural change that would be needed: Police would need to be viewed by individuals with OUD as allies and could have difficulties where there are problematic relationships with communities, especially with minority communities.

Develop funding models to allow labs to be agile in responding to needs for new equipment, methods, safety issues, etc. This need was derived from the discussion following the fourth panel presentation. Votes on this need were almost exclusively allocated to resolving resource and staffing shortfalls. Generally, participants suggested that laboratories are already understaffed, underfunded, and dealing with large backlogs, and that additional resources are needed to meet a critical analytical need for public safety. Occupational Safety and Health regulations for laboratory safety create requirements that are expensive to meet for smaller or underfunded laboratories when they begin to analyze high-potency opioids. Some

participants suggested that standardizing death investigations might help reduce the analytical burden and allocating funds to laboratories for studying, research, and communication could be helpful.

Create a trauma awareness early warning system for law enforcement stress exposure. This need was derived from the discussion following the panel on officer safety. Participants primarily voted for resolving resourcing and staffing shortfalls but commented most on how such an early warning system could be implemented. They noted that being associated with occupational stress or trauma from policing the opioid crisis could carry stigma and result in workplace consequences. Therefore, participation in the system would need to be mandated and part of training. Officer privacy issues would need to be considered, and there would need to be additional research on warning signs and physiological changes to be tracked, who would be most appropriate to maintain the system, and how to give officers access to embedded clinicians.

Increase the frequency and scope of drug screens in death investigations to identify novel opioids and effects. This need was derived from Morrow and colleagues (2018) and the President's Commission report on opioids (Christie et al., 2017). Participants primarily prioritized the need to solve technology shortfalls for this strategy, noting that the identification of completely novel drugs is a specialized and expensive process, but it could potentially benefit from centralization. Another participant noted that the National Institute of Standards and Technology's scientific area subcommittee on crime scene/death investigation is developing a standard for medicolegal death investigations that could be useful for creating consistency and best practices. While some suggested additional field testing of recovered drugs, others noted that field-testing options are currently too limited. Finally, some suggested that every death, regardless of cause, should have comprehensive toxicology, while others noted that there already is a need to address staffing and data-reporting shortfalls in medical examiners' offices.

Use data from rapid analysis of seized materials to inform public health and law enforcement interventions. This need was derived from Morrow and colleagues (2018) and the President's Commission report on opioids (Christie et al., 2017). Participants suggested educating partners on how to implement and use such tools as ODMAP and otherwise better share analysis data with the forensic community. Others noted that staffing constraints limit the capacity of laboratories to respond and create backlogs at the facilities performing rapid

analysis. They suggested the need to educate partners on how resource shortfalls will affect laboratory performance.

Priorities for Further Research

Three of the 13 top-tier needs had a significant proportion of their overall votes in the research, replicate, and evaluate results action category. Although these needs still received enough total votes to place them in the top tier, they stand out because of this apparent suggestion from many participants that they might not be ready for implementation and barrier resolution until further research is carried out.

Explore alternative treatment models to better serve individuals with OUD (e.g., mobile MAT, tribal nation innovations). This need was derived from the discussion following the first two panels. This was the only top-tier need not mentioned in the previous two sections, because approximately 40 percent of votes were in the disseminate and promote broad application category, 40 percent were in the resolve legal or regulatory barriers category, and 20 percent were in the research, replicate, and evaluate results category. Participants noted the need to collect longitudinal data on treatment recipients and develop novel interventions and cultural adaptations for known, promising practices. Many other comments focused on removing barriers to MAT in various situations, including funding its use in corrections, removing federal regulations barring MAT usage, removing federal regulations of safe consumption sites, finding better solutions for rural communities, allowing pharmacists to be MAT providers, and approving models for mobile MAT provision. Proponents of alternative treatment models also noted that law enforcement at the local level can be a major obstacle to implementation and suggested building the evidence base to support new models.

Two other previously discussed needs had a high percentage of their total votes in the research, replicate, and evaluate results action category. These needs are to

- use syndromic surveillance or sentinel indicators to recognize spikes in overdoses, new opioids, or emerging drug crises
- increase the frequency and scope of drug screens in death investigations to identify novel opioids and effects.

The first of these two needs had more than half of its total votes in the disseminate and promote broad application category, marking it as a priority for immediate implementation, but also had roughly one-third of its votes in the research, replicate, and evaluate results category. Participants stressed the need to continue examining sentinel indicators of future drug

crises while using syndromic surveillance of the current crisis. This suggests the need to research how actions taken now to deal with the opioid crisis can be adapted to prevent or mitigate further problems. The need for further research on these strategies could introduce a note of caution to those seeking to implement such strategies, but it should primarily emphasize the continued need for research and evidence-based practices associated with strategies to solve the opioid crisis.

Summary

The high-priority needs reflect a common assessment by the group that one primary solution to the opioid crisis will be a focus on connecting individuals with OUD to the medications that can treat the disorder. A strong body of evidence suggests that MAT is an effective means to treat OUD and reduce harm from opioid abuse as a long-term solution, and this is reflected by the high priority and perceived readiness of solutions that reduce barriers to MAT use, expand access and funding for it, and foster collaborations that can more-effectively direct individuals with OUD to MAT options.

The next common theme among the high-priority needs and throughout the workshop discussion was the need for diverse, lasting partnerships. Effective collaborations are key to the success of many of the identified high-priority needs. Connecting individuals with OUD to treatment will require effective collaborations among law enforcement officers, social workers, treatment facilities, recovery coaches, clinicians, and other stakeholders. Creating effective syndromic surveillance to monitor spikes in various indicators, increasing the utility of drug screens in death investigations, and better utilizing data from analyses of seized materials will require collaboration among law enforcement, emergency medical services, hospitals and emergency rooms, analytical facilities, medical examiners, and community groups. Finally, in addition to removing legal barriers, community and other stakeholder concerns will need to be addressed before high-priority harm-reduction approaches, such as safe injection sites or syringe exchanges, can be implemented. Building lasting partnerships will be critical to achieve community buy-in, enable information sharing, and effectively tackle challenges related to the opioid crisis.

Law enforcement must play a central role in many of these partnerships, and often might take on a leadership role, because it is the body that will continue to most frequently and most directly interact with those affected by the opioid crisis. As a result of this interaction, care and effort must be directed toward protecting the officers on the front lines of the crisis

Effective collaborations are key to the success of many of the identified high-priority needs.

from the physical dangers, mental stress, and trauma they face. Protecting the mental health of officers in particular was seen as a high priority, and law enforcement organizations will need to find ways to increase awareness and effectively implement mental health and occupational stress and trauma interventions for officers.

TECHNICAL APPENDIX

In this appendix, we present additional detail on the panel process, needs identification, and prioritization carried out to develop the research agenda discussed in the main report.

Pre-Workshop Activities

RAND, PERF, and RTI International recruited the workshop members by extending invitations to knowledgeable individuals identified through existing professional and social networking platforms (e.g., LinkedIn) and by reviewing literature published on the topic. At the time of the invitations, panelists were provided with a brief description of the workshop's focus areas.

Prioritization of Needs

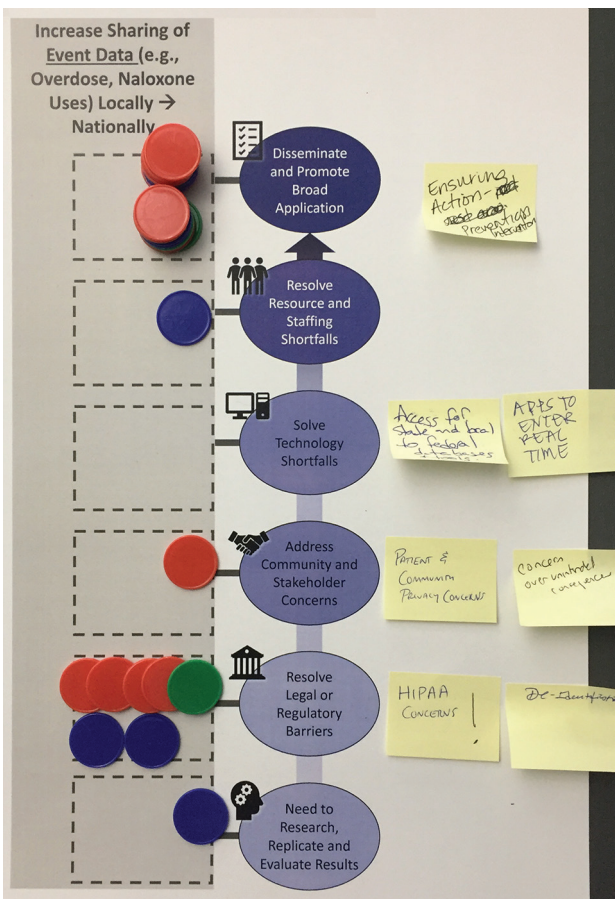
As we described in the main body of the report, to prioritize the needs provided in the workshop, participants used coins to vote for needs. Figure A.1 shows photos of the voting process and Figure A.2 is a mockup of one of the voting sheets.

At the end of the voting, the number of coins was tallied for each category and clustered overall and within each topic, as described in the main body of the report. We used a hierarchical clustering algorithm that implements Ward's method to minimize the sum of the variances within clusters. We called the algorithm using the "hclust" function from the R stats package (R Core Team, 2018). Each time we clustered a set of votes, we arranged the votes into three tiers (top, middle, and lower) to remain consistent with prior work.

Figure A.1. Voting in Progress



Figure A.2. Mockup of a Voting Sheet



Endnotes

¹ Specific examples of such innovative strategies were not mentioned. See the National Congress of American Indians Opioid Initiative (National Congress of American Indians, undated) or testimony from Christopher M. Jones to the Committee on Indian Affairs (Jones, 2018) for some examples.

² The full video can be viewed at U.S. Customs and Border Protection (2018).

³ Many of the participants who were engaged in the panel presentations and discussions did not remain for the prioritization exercise. In the section on overall ranking of top-tier needs, we discuss the approach we took to eliminate potential bias resulting from unknown representation in the group that performed the prioritization. We acknowledge, nevertheless, that there remains a potential for bias in the final prioritization of the needs.

⁴ We wish to reiterate that participants were given freedom to add and vote on new needs as they deemed appropriate. As a result, several top-tier needs were identified that were not explicitly mentioned in the panel presentations, but which were brought up in the subsequent discussion sessions.

⁵ Although some of the identified needs might conceptually be more-appropriately placed in other categories than those shown in Table 2, the categorization shown was used for the prioritization exercise and we elected not to try to recategorize needs *ex post facto*.

⁶ For additional information on practical strategies for managing law enforcement mental health issues, see National Alliance on Mental Illness, undated.

References

- Alexander, Monica J., Mathew V. Kiang, and Magali Barbieri, “Trends in Black and White Opioid Mortality in the United States, 1979–2015,” *Epidemiology*, Vol. 30, No. 2, March 2019, pp. 707–715.
- American Society of Addiction Medicine, *Public Policy Statement: Definition of Addiction*, Chevy Chase, Md., April 12, 2011. As of July 23, 2019: <https://www.asam.org/resources/definition-of-addiction>
- ASAM—See American Society of Addiction Medicine.
- Beckett, Katherine, *Seattle’s Law Enforcement Assisted Diversion Program: Lessons Learned from the First Two Years*, Seattle, Wash.: University of Washington, 2014. As of July 23, 2019: <https://soc.washington.edu/research/reports/seattles-law-enforcement-assisted-diversion-program-lessons-learned-first-two-years>
- Beeson, Jeff, “ODMAP: A Digital Tool to Track and Analyze Overdoses,” webpage, May 15, 2018. As of July 23, 2019: <https://nij.gov/publications/Pages/notes-from-the-field-opioid-epidemic-beeson.aspx>
- BJA—See Bureau of Justice Assistance.
- Blau, Max, “STAT Forecast: Opioids Could Kill Nearly 500,000 Americans in the Next Decade,” *STAT News*, June 27, 2017a. As of July 23, 2019: <https://www.statnews.com/2017/06/27/opioid-deaths-forecast>
- Blau, Max, “Crime Labs Race to ID New Lethal Opioids,” *Scientific American*, July 5, 2017b. As of July 23, 2019: <https://www.scientificamerican.com/article/crime-labs-race-to-id-new-lethal-opioids>
- Bureau of Justice Assistance, “Fentanyl: The Real Deal,” webpage, undated a. As of July 23, 2019: <https://www.bja.gov/Events/fentanyl-the-real-deal.html>
- Bureau of Justice Assistance, “Valor Initiative: Officer Robert Wilson III Preventing Violence Against Law Enforcement Officers and Ensuring Officer Resilience and Survivability,” webpage, undated b. As of July 23, 2019: <https://www.bja.gov/programs/valor.html>
- Burgess, Jefferey L., Scott Barnhart, and Harvey Checkoway, “Investigating Clandestine Drug Laboratories: Adverse Medical Effects in Law Enforcement Personnel,” *American Journal of Industrial Medicine*, Vol. 30, No. 4, 1996, pp. 488–494.
- CDC—See Centers for Disease Control and Prevention.
- Centers for Disease Control and Prevention, “Drug Overdose Deaths,” webpage, updated December 19, 2018a. As of July 23, 2019: <https://www.cdc.gov/drugoverdose/data/statedeaths.html>
- Centers for Disease Control and Prevention, “Understanding the Epidemic,” webpage, updated December 19, 2018b. As of July 23, 2019: <https://www.cdc.gov/drugoverdose/epidemic/index.html>
- Centers for Disease Control and Prevention, “Synthetic Opioid Overdose Data,” webpage, updated April 2, 2019. As of July 23, 2019: <https://www.cdc.gov/drugoverdose/data/fentanyl.html>
- Chimbar, Lisa, and Yvette Moleta, “Naloxone Effectiveness: A Systematic Review,” *Journal of Addictions Nursing*, Vol. 29, No. 3, 2018, pp. 167–171.
- Christie, Chris, Charlie Baker, Roy Cooper, Patrick J. Kennedy, Bertha Madras, and Pam Bondi, *The President’s Commission on Combating Drug Addiction and the Opioid Crisis*, Washington, D.C.: President’s Commission on Combating Drug Addiction and the Opioid Crisis, 2017. As of July 23, 2019: https://www.whitehouse.gov/sites/whitehouse.gov/files/images/Final_Report_Draft_11-1-2017.pdf
- Clifasefi, Seema L., Heather S. Lonczak, and Susan E. Collins, “Seattle’s Law Enforcement Assisted Diversion (LEAD) Program: Within-Subjects Changes on Housing, Employment, and Income/ Benefits Outcomes and Associations with Recidivism,” *Crime & Delinquency*, Vol. 63, No. 4, 2017, pp. 429–445.
- Collins, Susan E., Heather S. Lonczak, and Seema L. Clifasefi, “Seattle’s Law Enforcement Assisted Diversion (LEAD): Program Effects on Recidivism Outcomes,” *Evaluation and Program Planning*, Vol. 64, 2017, pp. 49–56.
- Community Oriented Policing Services, “Officer Safety and Wellness,” webpage, undated. As of July 23, 2019: <https://cops.usdoj.gov/officersafetyandwellness>
- The Crisis Next Door, homepage, 2018. As of July 23, 2019: <https://www.crisisnextdoor.gov>
- Davis, Corey S., Derek Carr, Jessica K. Southwell, and Leo Beletsky, “Engaging Law Enforcement in Overdose Reversal Initiatives: Authorization and Liability for Naloxone Administration,” *American Journal of Public Health*, Vol. 105, No. 8, 2015, pp. 1530–1537.
- Davis, Corey S., Sarah Ruiz, Patrick Glynn, Gerald Picariello, and Alexander Y. Walley, “Expanded Access to Naloxone Among Firefighters, Police Officers, and Emergency Medical Technicians in Massachusetts,” *American Journal of Public Health*, Vol. 104, No. 8, 2014, pp. e7–e9.
- DePriest, Anne Z., Brandi L. Puet, Ashley Christine Holt, Ali Roberts, and Edward J. Cone, “Metabolism and Disposition of Prescription Opioids: A Review,” *Forensic Science Review*, Vol. 27, No. 2, 2015, pp. 143–145.

Dowell, Deborah, Elizabeth Arias, Kenneth Kochanek, Robert Anderson, Gery P. Guy, Jan L. Losby, and Grant Baldwin, "Contribution of Opioid-Involved Poisoning to the Change in Life Expectancy in the United States, 2000–2015," *JAMA*, Vol. 318, No. 11, 2017, pp. 1065–1067.

FBI—See Federal Bureau of Investigation.

FDA—See U.S. Food and Drug Administration.

Federal Bureau of Investigation, "About Law Enforcement Officers Killed and Assaulted, 2017," webpage, 2017. As of July 23, 2019: <https://ucr.fbi.gov/leoka/2017>

Franke, Warren D., Shannon A. Collins, and Paul N. Hinz, "Cardiovascular Disease Morbidity in an Iowa Law Enforcement Cohort, Compared with the General Iowa Population," *Journal of Occupational and Environmental Medicine*, Vol. 40, No. 5, 1998, pp. 441–444.

Geronazzo-Alman, Lupo, Ruth Eissenberg, Sa Shen, Cristiane S. Duarte, George J. Musa, Judith Wicks, Bin Fan, Thao Doan, Guia Guffanti, Michaeline Bresnahan, and Christina W. Hoven, "Cumulative Exposure to Work-Related Traumatic Events and Current Post-Traumatic Stress Disorder in New York City's First Responders," *Comprehensive Psychiatry*, Vol. 74, 2017, pp. 134–143.

Gladden, R. Matthew, Pedro Martinez, and Puja Seth, "Fentanyl Law Enforcement Submissions and Increases in Synthetic Opioid-Involved Overdose Deaths—27 States, 2013–2014," *Morbidity and Mortality Weekly Report*, Vol. 65, No. 33, August 26, 2016, pp. 837–843.

Green, Traci C., Nickolas Zaller, Wilson R. Palacios, Sarah E. Bowman, Madeline Ray, Robert Heimer, and Patricia Case, "Law Enforcement Attitudes Toward Overdose Prevention and Response," *Drug and Alcohol Dependence*, Vol. 133, No. 2, 2013, pp. 677–684.

Hartley, Tara A., Cecil M. Burchfiel, Desta Fekedulegn, Michael E. Andrew, and John M. Violanti, "Health Disparities in Police Officers: Comparisons to the U.S. General Population," *International Journal of Emergency Mental Health*, Vol. 13, No. 4, 2011, pp. 211–220.

Hartley, Tara A., Khachatur Sarkistan, John M. Violanti, Michael E. Andrew, and Cecil M. Burchfiel, "PTSD Symptoms Among Police Officers: Associations with Frequency, Recency, and Types of Traumatic Events," *International Journal of Emergency Mental Health*, Vol. 15, No. 4, 2013, pp. 241–253.

Heller, D., D. B. O'Brien, A. Harocopos, J. Hreno, J. Lerner, E. B. McCoy, M. Nolan, L. P. Phillips, E. Tuazon, C. Parker, H. Kunins, and D. Paone, *RxStat: Technical Assistance Manual*, New York: New York City Department of Health and Mental Hygiene, 2014.

Herbert, Robin, Jacqueline Moline, Gwen Skloot, Kristina Metzger, Sherry Baron, Benjamin Luft, Steven Markowitz, Iris Udasin, Denise Harrison, Diane Stein, Andrew Todd, Paul Enright, Jeanne Mager Stellman, Philip J. Landrigan, and Stephen M. Levin, "The World Trade Center Disaster and the Health of Workers: Five-Year Assessment of a Unique Medical Screening Program," *Environmental Health Perspectives*, Vol. 114, No. 12, 2006, pp. 1853–1858.

HHS—See U.S. Department of Health and Human Services.

HIDTA—See High Intensity Drug Trafficking Areas.

High Intensity Drug Trafficking Areas, "ODMAP: An Epidemic," webpage, undated. As of July 23, 2019: <http://www.hidta.org/odmap>

International Association of Chiefs of Police, "Officer Safety and Wellness," undated. As of July 23, 2019: <https://www.theiacp.org/topics/officer-safety-wellness>

Jones, Christopher M., "Opioids in Indian Country: Beyond the Crisis to Healing the Community," testimony before the Senate Committee on Indian Affairs, Washington, D.C., March 14, 2018. As of August 1, 2019: https://www.indian.senate.gov/sites/default/files/3.14.18_Opioids_SAMHSA%20Testimony.pdf

Katz, Josh, and Abby Goodnough, "The Opioid Crisis Is Getting Worse, Particularly for Black Americans," *New York Times*, December 22, 2017. As of July 23, 2019: <https://www.nytimes.com/interactive/2017/12/22/upshot/opioid-deaths-are-spreading-rapidly-into-black-america.html>

Koob, George F., and Nora D. Volkow, "Neurobiology of Addiction: A Neurocircuitry Analysis," *Lancet Psychiatry*, Vol. 3, No. 8, 2016, pp. 760–773.

Law Enforcement Assisted Diversion National Support Bureau, homepage, undated. As of July 23, 2019: <https://www.leadbureau.org>

LEAD National Support Bureau—See Law Enforcement Assisted Diversion National Support Bureau.

Lee, Joshua D., Edward V. Nunes, Jr., Patricia Novo, Ken Bachrach, Genie L. Bailey, Snehal Bhatt, Sarah Farkas, Marc Fishman, Phoebe Gauthier, Candace C. Hodgkins, Jacquie King, Robert Lindblad, David Liu, Abigail G. Matthews, Jeanine May, K. Michelle Peavy, Stephen Ross, Dagmar Salazar, Paul Schkolnik, Dikla Shmueli-Blumberg, Don Stablein, Geetha Subramaniam, and John Rotrosen, "Comparative Effectiveness of Extended-Release Naltrexone Versus Buprenorphine-Naloxone for Opioid Relapse Prevention (X:BOT): A Multicentre, Open-Label, Randomised Controlled Trial," *The Lancet*, Vol. 391, No. 10118, 2018, pp. 309–318.

Lynn, Rachael Rzasa, and J. L. Galinkin, “Naloxone Dosage for Opioid Reversal: Current Evidence and Clinical Implications,” *Therapeutic Advances in Drug Safety*, Vol. 9, No. 1, 2018, pp. 63–88.

Maguire, Brian J., Katherine L. Hunting, Gordon S. Smith, and Nadine R. Levick, “Occupational Fatalities in Emergency Medical Services: A Hidden Crisis,” *Annals of Emergency Medicine*, Vol. 40, No. 6, 2002, pp. 625–632.

Marmar, Charles, Daniel S. Weiss, Thomas J. Metzler, Kevin L. Delucchi, Suzanne R. Best, and Kathryn A. Wentworth, “Longitudinal Course and Predictors of Continuing Distress Following Critical Incident Exposure in Emergency Services Personnel,” *Journal of Nervous & Mental Disease*, Vol. 187, No. 1, 1999, pp. 15–22.

Meldrum, Marcia L., “The Ongoing Opioid Prescription Epidemic: Historical Context,” *American Journal of Public Health*, Vol. 106, No. 8, 2016, pp. 1365–1366.

Ménard, Kim S., and Michael L. Arter, “Police Officer Alcohol Use and Trauma Symptoms: Associations with Critical Incidents, Coping, and Social Stressors,” *International Journal of Stress Management*, Vol. 20, No. 1, 2013, pp. 37–56.

Morgan, Daniel, “Opioid Drug Death Investigations,” *Academic Forensic Pathology*, Vol. 7, No. 1, 2017, pp. 50–59.

Morrow, Jayne B., Jeri D. Roper-Miller, Megan L. Catlin, Agnes D. Winokur, Amy B. Cadwallader, Jessica L. Staymates, Shannan R. Williams, Jonathan G. McGrath, Barry K. Logan, Michael M. McCormick, Kurt B. Nolte, Thomas P. Gilson, M. J. Menendez, and Bruce A. Goldberger, “The Opioid Epidemic: Moving Toward an Integrated, Holistic Analytical Response,” *Journal of Analytical Toxicology*, Vol. 43, No. 1, 2018, pp. 1–9.

National Academies of Sciences, Engineering, and Medicine, *Medication-Assisted Treatment for Opioid Use Disorder: Proceedings of a Workshop—In Brief*, Washington, D.C.: The National Academies Press, 2018.

National Alliance on Mental Illness, “Law Enforcement Officers,” webpage, undated. As of July 23, 2019: <https://www.nami.org/find-support/law-enforcement-officers>

National Congress of American Indians, “NCAI Opioid Initiative,” webpage, undated. As of August 1, 2019: <http://www.ncai.org/initiatives/partnerships-initiatives/ncai-opioid-initiative>

National Institute on Drug Abuse, “Opioids,” webpage, undated. As of July 23, 2019: <https://www.drugabuse.gov/drugs-abuse/opioids>

National Institute on Drug Abuse, *Medications to Treat Opioid Use Disorder*, Bethesda, Md., June 2018a. As of July 23, 2019: <https://www.drugabuse.gov/publications/research-reports/medications-to-treat-opioid-addiction/overview>

National Institute on Drug Abuse, *Prescription Opioids*, Bethesda, Md., June 2018b. As of July 23, 2019: <https://www.drugabuse.gov/publications/drugfacts/prescription-opioids>

National Institute of Justice, “Improving the Reliability of Drug Tests Done by Officers,” webpage, November 20, 2016. As of July 23, 2019: <https://www.nij.gov/topics/forensics/evidence/controlled-substances/Pages/improving-reliability-of-drug-tests-by-officers.aspx>

National Institute for Occupational Safety and Health, “Fentanyl: Preventing Occupational Exposure to Emergency Responders,” webpage, August 24, 2017. As of July 23, 2019: <https://www.cdc.gov/niosh/topics/fentanyl/risk.html>

National Training and Technical Assistance Center, “Naloxone Background,” webpage, undated. As of July 23, 2019: <https://bjatta.bja.ojp.gov/tools/naloxone/Naloxone-Background>

NCHRC—See North Carolina Harm Reduction Coalition.

NIDA—See National Institute on Drug Abuse.

NIJ—See National Institute of Justice.

NIOSH—See National Institute for Occupational Safety and Health.

North Carolina Harm Reduction Coalition, homepage, undated. As of July 23, 2019: <http://www.nchrc.org/law-enforcement/us-law-enforcement-who-carry-naloxone>

Office of National Drug Control Policy, “Fentanyl Safety Recommendations for First Responders,” webpage, undated. As of July 23, 2019: <https://www.whitehouse.gov/ondcp/key-issues/fentanyl>

Officer Down Memorial Page, homepage, undated. As of July 23, 2019: <https://www.odmp.org>

Ohio Department of Health, “Project DAWN (Deaths Avoided with Naloxone),” webpage, July 24, 2018. As of July 23, 2019: <https://odh.ohio.gov/wps/portal/gov/odh/know-our-programs/violence-injury-prevention-program/projectdawn>

PAARI—See Police Assisted Addiction and Recovery Initiative.

Pagane, J., A. Chanugam, T. D. Kirsch, and G. D. Kelen, “New York City Police Officers Incidence of Transcutaneous Exposures,” *Occupational Medicine*, 1996, pp. 285–288.

Pardo, Bryce, *Evolution of the U.S. Overdose Crisis: Understanding China's Role in the Production and Supply of Synthetic Opioids*, Santa Monica, Calif: RAND Corporation, CT-497, 2018. As of July 23, 2019:

<https://www.rand.org/pubs/testimonies/CT497.html>

PERF—See Police Executive Research Forum.

Police Assisted Addiction and Recovery Initiative, “About Us,” webpage, undated a. As of July 23, 2019:

<https://paarius.org/about-us>

Police Assisted Addiction and Recovery Initiative, “Our Law Enforcement Partners,” webpage, undated b. As of July 23, 2019:

<https://paarius.org/our-partners>

Police Executive Research Forum, *Building Successful Partnerships Between Law Enforcement and Public Health Agencies to Address Opioid Use*, Washington, D.C.: Office of Community Oriented Policing Services, U.S. Department of Justice, 2016. As of July 23, 2019: <https://ric-zai-inc.com/Publications/cops-p356-pub.pdf>

Police Executive Research Forum, *The Unprecedented Opioid Epidemic: As Overdoses Become a Leading Cause of Death, Police, Sheriffs, and Health Agencies Must Step Up Their Response*, Washington, D.C., September 2017. As of July 23, 2019: <https://www.policeforum.org/assets/opioids2017.pdf>

Police Executive Research Forum, *Building and Sustaining an Officer Wellness Program: Lessons from the San Diego Police Department*, Washington, D.C.: Office of Community Oriented Policing Services, 2018.

Puzantian, Talia, and James J. Gasper, “Provision of Naloxone Without a Prescription by California Pharmacists 2 Years After Legislation Implementation,” *JAMA*, Vol. 320, No. 18, November 13, 2018, pp. 1933–1934.

R Core Team, “The R Project for Statistical Computing,” webpage, 2018. As of July 23, 2019:

<https://www.R-project.org>

Rando, Jessica, Derek Broering, James E. Olson, Catherine Marco, and Stephen B. Evans, “Intranasal Naloxone Administration by Police First Responders Is Associated with Decreased Opioid Overdose Deaths,” *American Journal of Emergency Medicine*, Vol. 33, No. 9, 2015, pp. 1201–1204.

Reichert, Jessica, “Combating the Opioid Crisis with Treatment Not Arrest: An Examination of an Emerging Police Model,” *Translational Criminology*, 2017, pp. 13–15.

Riediker, Michael, “Cardiovascular Effects of Fine Particulate Matter Components in Highway Patrol Officers,” *Inhalation Toxicology*, Vol. 19, Supp. 1, 2007, pp. 99–105.

Saloner, Brendan, Anika Alvanzo, Amanda Latimore, Joshua Sharfstein, Susan Sherman, and Daniel Webster, *Ten Standards of Care: Policing and the Opioid Crisis*, Baltimore, Md.: Johns Hopkins Bloomberg School of Public Health, undated. As of July 23, 2019: http://americanhealth.jhu.edu/sites/default/files/inline-files/PolicingOpioidCrisis_SHORT_final.pdf

Scholl, Lawrence, Puja Seth, Mbabazi Kariisa, Nana Wilson, and Grant Baldwin, “Drug and Opioid-Involved Overdose Deaths—United States, 2013–2017,” *Morbidity and Mortality Weekly Report*, January 4, 2019. As of July 23, 2019:

https://www.cdc.gov/mmwr/volumes/67/wr/mm675152e1.htm?s_cid=mm675152e1_w

Scutti, Susan, “Drug Overdoses, Suicides Cause Drop in 2017 U.S. Life Expectancy; CDC Director Calls it a ‘Wakeup Call,’” CNN, December 17, 2018: As of July 23, 2019:

<https://www.cnn.com/2018/11/29/health/life-expectancy-2017-cdc/index.html>

U.S. Customs and Border Protection, “Fentanyl: The Real Deal,” video, August 30, 2018. As of July 23, 2019:

<https://www.cbp.gov/newsroom/video-gallery/video-library/fentanyl-real-deal>

U.S. Department of Health and Human Services, Office of the Surgeon General, *Facing Addiction in America: The Surgeon General's Report on Alcohol, Drugs, and Health*, Washington, D.C., 2016. As of July 23, 2019:

<https://addiction.surgeongeneral.gov/sites/default/files/surgeon-generals-report.pdf>

U.S. Department of Justice, Office of Public Affairs, “Attorney General Sessions Announces New Tool to Fight Online Drug Trafficking,” press release, January 29, 2018. As of July 23, 2019:

<https://www.justice.gov/opa/pr/attorney-general-sessions-announces-new-tool-fight-online-drug-trafficking>

U.S. Food and Drug Administration, “Information About Medication-Assisted Treatment (MAT),” webpage, February 14, 2019. As of July 23, 2019:

<https://www.fda.gov/drugs/information-drug-class/information-about-medication-assisted-treatment-mat>

Violanti, John M., Luenda E. Charles, Tara A. Hartley, Anna Mnatsakanova, Michael E. Andrew, Desta Fekedulegn, Bryan Vila, and Cecil M. Burchfiel, "Shift-Work and Suicide Ideation Among Police Officers," *American Journal of Industrial Medicine*, Vol. 51, No. 10, 2008, pp. 758–768.

Violanti, John M., Tara A. Hartley, Ja K. Gu, Desta Fekedulegn, Michael E. Andrew, and Cecil M. Burchfiel, "Life Expectancy in Police Officers: A Comparison with the U.S. General Population," *International Journal of Emergency Mental Health*, Vol. 15, No. 4, 2013, pp. 217–228.

Volkow, Nora D., Emily B. Jones, Emily B. Einstein, and Eric M. Wargo, "Prevention and Treatment of Opioid Misuse and Addiction: A Review," *JAMA Psychiatry*, Vol. 76, No. 2, 2019, pp. 208–216.

Wagner, Karla D., L. James Bovet, Bruce Haynes, Alfred Joshua, and Peter J. Davidson, "Training Law Enforcement to Respond to Opioid Overdose with Naloxone: Impact on Knowledge, Attitudes, and Interactions with Community Members," *Drug and Alcohol Dependence*, Vol. 165, 2016, pp. 22–28.

Whitehouse.gov, "Ending America's Opioid Crisis," homepage, undated. As of July 23, 2019:
<https://www.whitehouse.gov/opioids>

Worden, Robert E., and Sarah J. McLean, "Discretion and Diversion in Albany's LEAD Program," *Criminal Justice Policy Review*, Vol. 29, No. 6–7, 2018, pp. 584–610.

Acknowledgments

The authors would like to acknowledge the participation and assistance of the attendees of the workshop, whose suggestions served as the basis for the results described in this report. We also would like to acknowledge the contributions of Steven Schuetz of the National Institute of Justice and to thank the peer reviewers of the report: Bryce Pardo of the RAND Corporation and Karleen Giannitrapani of Stanford University.

The RAND Justice Policy Program

RAND Social and Economic Well-Being is a division of the RAND Corporation that seeks to actively improve the health and social and economic well-being of populations and communities throughout the world. This research was conducted in the Justice Policy Program within RAND Social and Economic Well-Being. The program focuses on such topics as access to justice, policing, corrections, drug policy, and court system reform, as well as other policy concerns pertaining to public safety and criminal and civil justice. For more information, email justicepolicy@rand.org.

About the Authors

Sean E. Goodison is a deputy director and senior research criminologist at the Police Executive Research Forum (PERF). His work focuses on quantitative research, research methodology, program evaluation, police use of technology, and national data-collection efforts. Prior to joining PERF, Goodison was a law enforcement analyst and civilian researcher for the Washington, D.C., Metropolitan Police Department. He received his Ph.D. in criminology and criminal justice.

Michael J. D. Vermeer is a physical scientist at the RAND Corporation. His research focuses on science and technology policy, criminal justice, national security, and emerging technologies and innovation. His recent research involves the policy, procedure, and technology needs of criminal justice agencies, development planning and program evaluation in the armed services, and the national security implications of various emerging technologies. He holds a Ph.D. in chemistry.

Jeremy D. Barnum is a research associate at PERF. His research focuses on officer safety and wellness, police use of force, police technology, and police crime prevention strategies. Prior to joining PERF, he was a project manager for the Rutgers Center on Public Security in Newark, New Jersey. He received his master's degree in criminal justice.

Dulani Woods is a data science practitioner adept at data acquisition, transformation, visualization, and analysis. He has a master's degree in agricultural economics (applied economics). His master's thesis was an economic analysis of organic and conventional agriculture using the Rodale Institute's Farming Systems Trial. He began his career as a Coast Guard officer on afloat and ashore assignments in Miami, Florida; New London, Connecticut; and Baltimore, Maryland.

Brian A. Jackson is a senior physical scientist at the RAND Corporation. His research focuses on criminal justice, homeland security, and terrorism preparedness. His areas of examination have included safety management in large-scale emergency response operations, the equipment and technology needs of criminal justice agencies and emergency responders, and the design of preparedness exercises. He has a Ph.D. in bioinorganic chemistry.

About This Report

On behalf of the U.S. Department of Justice, National Institute of Justice (NIJ), the RAND Corporation, in partnership with the Police Executive Research Forum (PERF), RTI International, and the University of Denver, is carrying out a research effort to assess and prioritize technology and related needs across the criminal justice community. This initiative is a component of NIJ's National Law Enforcement and Corrections Technology Center (NLECTC) System and is intended to support innovation within the criminal justice enterprise. For more information about the NLECTC Priority Criminal Justice Technology Needs Initiative, see www.rand.org/jie/justice-policy/projects/priority-criminal-justice-needs.

This report is one product of that effort. It presents the results of a two-day event held in September 2018 to bring together practitioners and subject-matter experts to highlight promising practices and develop a prioritized research agenda for future law enforcement efforts to combat the opioid crisis. This report and the results it presents should be of interest to NIJ, other government agencies, public health professionals, and all other organizational parties that are stakeholders in solving the opioid crisis in their communities.



This publication was made possible by Award Number 2013-MU-CX-K003, awarded by the National Institute of Justice, Office of Justice Programs, U.S. Department of Justice. The opinions, findings, and conclusions or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect those of the Department of Justice.

Limited Print and Electronic Distribution Rights

This document and trademark(s) contained herein are protected by law. This representation of RAND intellectual property is provided for noncommercial use only. Unauthorized posting of this publication online is prohibited. Permission is given to duplicate this document for personal use only, as long as it is unaltered and complete. Permission is required from RAND to reproduce, or reuse in another form, any of our research documents for commercial use. For information on reprint and linking permissions, please visit www.rand.org/pubs/permissions.html. For more information on this publication, visit www.rand.org/t/rr3064.

© Copyright 2019 RAND Corporation

www.rand.org



The RAND Corporation is a research organization that develops solutions to public policy challenges to help make communities throughout the world safer and more secure, healthier and more prosperous. RAND is nonprofit, nonpartisan, and committed to the public interest.

RAND's publications do not necessarily reflect the opinions of its research clients and sponsors. RAND® is a registered trademark.