

Data-Informed Jails

Challenges and Opportunities

Joe Russo, Michael J. D. Vermeer, Dulani Woods, Brian A. Jackson

EXECUTIVE SUMMARY

Jails are the entry point to the correctional system in the United States. They are a critical component of the criminal justice system and interface regularly with law enforcement; the courts; and the probation, prison, and parole system.

There are approximately 3,100 jails operating in the United States (American Jail Association, undated). As of the middle of 2017, these jails held more than 745,000 individuals who were either awaiting trial or serving short sentences. Moreover, that same year, because of the relatively short average length of stay (26 days), individuals were admitted to jails more than 10.5 million times (Zeng, 2019), and it is estimated that at least 4.9 million unique individuals were admitted (Bertram and Jones, 2019). Out of necessity, jails have become a crucial resource for the larger community because they often serve the medical and behavioral health care needs of large numbers of disenfranchised individuals in a jurisdiction (Lurigio, 2016). Jails, therefore, are increasingly partnering with community-based public health and service organizations in a variety of initiatives to improve inmate outcomes.

As a result of both the size of the jail population and the expanding scope of services jails are increasingly expected to provide, a vast amount of data is generated and used. Examples of such data could include

- data about inmates, such as demographics and criminal histories, to include pending charges and warrants, physical or mental health records, treatment and programming records, classification or custody level, risk and needs assessment scores, visitor records, security threat group affiliations, keep separate orders, misconduct reports, movement histories, commissary records, property records, grievances filed, and release data
- data about staff, such as post assignments; use of overtime, sick leave, and vacation; training and certification records; and performance evaluations and records
- data about facilities and operations, such as records of facility management and maintenance, trans-

PRIORITY NEEDS



SELECTED RESULTS

- Education and toolkits should be developed to help administrators understand the unrealized benefits from proactive data collection and analysis.
- Education on practices and benefits of data management should be incorporated into training for academies, leadership, and informal leadership among staff.
- Effective strategies for identifying and monitoring key indicators should be researched and promoted.
- Effective strategies (e.g., use cases, documentation of return on investment) should be developed to champion data-management objectives and to educate line staff on how data collection contributes to the mission of the jail and affects jails' day-to-day work.
- Effective strategies should be developed to assist jails—and the jurisdictions they support—in planning for the procurement and implementation of information systems that can be part of an integrated, jurisdiction-wide solution.
- Guidance documents that are targeted to jail administrators should be researched and published to identify and counter common misperceptions.
- Guidance documents on risk-management strategies (e.g., always have a memorandum of understanding, limit scope) should be developed.
- Guidance on effective strategies to improve the quality of manually input data (e.g., better training, use of predefined fields in drop boxes) should be published.
- Data definitions (e.g., national or state-level) for jails should be encouraged to enable better comparison.

portation services, mail and telephone records, food services, and other resource usage statistics

- aggregated data, such as average length of stay, average daily population, escapes or attempted escapes, assaults on staff or inmates, injuries, use of force, in-custody deaths, and recidivism rates.

Although some jails are significantly leveraging these data to inform policies and improve both operations and outcomes, many more are not, for a variety of reasons. In reality, most jails are not consistently operating in a data-informed manner.¹ Some jails operate without the benefit of an automated information management system (McKay et al., 2015). Many jails use obsolete systems built by companies that have gone out of business or that use defunct programming languages that do not conform to modern information standards (Tafoya, Grattet, and Bird, 2014). It is unsurprising, therefore, that county jail data have been described as “often fragmented, incomplete, and unreliable” (Zajac and Kowalski, 2012). Furthermore, many jails tend to use data in an ad hoc fashion, focusing on particular issues of impor-

tance as they arise rather than leveraging these data to operate based on a comprehensive strategic plan. As a result, there is much untapped potential for improved outcomes and an opportunity for jails to become more data-informed.

To examine this issue, the National Institute of Justice (NIJ), supported by the RAND Corporation in partnership with the University of Denver, hosted a two-day workshop on July 10 and 11, 2019. The workshop brought together a diverse group of jail administrators, researchers, and representatives from national organizations to discuss the challenges and opportunities related to more-effective use of data to improve decisionmaking in jails and outcomes for jail operations and inmates. Discussions resulted in the identification of 43 needs that were prioritized by the group. Five major themes emerged from the list of identified needs: leadership and organizational issues, procuring and implementing a jail management system (JMS), data collection and analysis, applying the data, and information-sharing. This report, which describes these needs, is part of an ongoing series of reports on similar workshops facilitated by the Priority Criminal Justice Needs Initiative.

the support and commitment of leadership. The participants reported that, in general, jail leaders require better education and training on the value of a data-informed management approach, including a basic level of statistical literacy and analytical skills. Leaders also need effective strategies and guidance to assist in the development of key performance indicators and other important metrics for their jails. To help track and analyze these data elements, administrators need resources for data management and analytical staff. The participants argued that administrators need education and guidance that demonstrate the value of these key staff, along with strategies to help justify their hiring. Participants also discussed the importance of developing and nurturing an organizational culture that values data. This can be accomplished, in part, by providing education and training to all staff about how accurate data collection and analysis are the foundation of a data-driven management approach, which can help achieve the jail’s objectives and improve staff’s day-to-day work experience.

Four of the high-priority needs were related to challenges associated with sharing relevant data with external entities (e.g., courts; law enforcement; probation; prisons; community-based health, treatment, and service providers). The participants acknowledged that information-sharing is

key to successful outcomes, but efforts often are hindered by misconceptions about protected data, a lack of trust in outside organizations, and a lack of confidence in the jail’s own ability to manage the risks involved (both real and perceived). Better guidance is needed in this area. The participants discussed technical hurdles and recommended the development of effective strategies to plan and build jail information systems that can easily interface with appropriate external entities within a jurisdiction.

Other high-priority needs included the identification of effective strategies for more-accurate and more-reliable data collection; research into the successful adoption of data-driven performance accountability systems (e.g., the CompStat model) in a jail setting;² and the need for common definitions of key indicators (e.g., recidivism, use of force), which would allow for better comparisons across jails and the ability to leverage larger data sets to identify patterns, trends, and positive outliers in key areas. Although issues associated with procuring and implementing a JMS were a significant theme in the discussion, none of the identified needs on the subject ultimately were ranked as high-priority.

WHAT WE FOUND

Of the 43 needs identified, 13 were ranked by workshop participants as high-priority. Almost half of the high-priority needs identified (six of 13) were

related to leadership and organizational issues. This reflected the participants’ view that the goal of a data-informed jail is impossible to achieve without

INTRODUCTION

Jails are the entry point to the correctional system in the United States and are one of the largest portals of community reentry. Jails, which are a critical component of the criminal justice system, interface regularly with law enforcement; the courts; and the probation, prison, and parole system. There are approximately 3,100 jails in the United States (American Jail Association, undated). As of the middle of 2017, these jails held more than 745,000 individuals who were either awaiting trial or serving short sentences (Zeng, 2019). Of that number, about two-thirds were awaiting court action on a criminal charge. The remainder were convicted and serving a sentence or awaiting sentencing. Jails experience high levels of inmate churn or turnover. In 2017, individuals were admitted to jails more than 10.5 million times, with an average length of stay of only 26 days. Estimates suggest that at least 4.9 million unique individuals were admitted to jails during this period (Bertram and Jones, 2019). Furthermore, jails have been forced to adopt a role as a crucial resource for the larger community because they increasingly serve the medical and behavioral health care needs of disenfranchised, justice-involved individuals in a jurisdiction (Lurigio, 2016). As a result, a segment of inmates, who often are referred to as “frequent utilizers,” tend to cycle through jails and other public service entities (e.g., housing departments, public assistance agencies, hospitals, shelters) between admissions. To achieve better outcomes for this population, jails are strengthening partnerships with community-based assistance and treatment providers through a variety of initiatives (Crayton et al., 2010).

Jails, like the other elements of the criminal justice system, are under public scrutiny. Taxpayers desire a criminal justice system that is effective, efficient, and fair. To meet these expectations, jails are beginning to position themselves as information-processing organizations to better leverage the vast amount of data they generate and access (Brennan, Wells, and Carr, 2013).

To understand the broad variety of data that jails can collect, it is necessary to consider the multitude of varied func-

tions that jails perform. Jails are comparable with small cities in terms of their scopes of operations. In addition to typical administrative functions, jails must

- ensure a safe and secure environment
- provide such services as mail delivery, telephones, laundry, food services, waste removal, legal resources, and commissary
- provide transportation for inmates, staff, and goods and supplies
- manage the supply chain to ensure continuous operations
- provide or facilitate the provision of treatment (i.e., health and behavioral health care), pharmacy operations, education, and reentry support programs and services
- facilitate interactions between and manage inmates, staff, visitors, volunteers, and contractors
- maintain the physical (e.g., water; power; fire suppression; heating, ventilation, and air conditioning [HVAC]) and information-based systems that support the jail.

Furthermore, jails must coordinate and partner with other organizations in the criminal justice system and in the larger community ecosystem to achieve their public safety objectives.

These examples offer a brief overview of the totality of jail operations. However, the salient point is that each function mentioned above generates data. For the purposes of this report, we define a *data-informed jail* as a facility that consistently collects and leverages such data in its operations to support better planning and improved decisionmaking and outcomes. Operational efficiencies can be improved, for example, by tracking staff overtime and using those data to help support requests for additional positions. Officer and inmate safety can be improved through inmate classification systems and incident report tracking, which would identify inmates with a history of violence and/or gang affiliations. Analysis of intelligence data can help identify inmates engaging in ongoing criminal conduct. Inmate outcomes, including recidivism, can be positively affected through data sharing between jails and community-based social service agencies. For example, shared information

Jails, like the other elements of the criminal justice system, are under public scrutiny. Taxpayers desire a criminal justice system that is effective, efficient, and fair.

about an individual's substance use and/or mental health disorder can bolster continuity of care during critical transitions into the jail and upon release to the community.

Judicious use of data also can support reduced reliance on jails for certain individuals. For example, the Data-Driven Justice initiative uses a community-focused approach to identify frequent utilizers of jails, hospitals, homeless shelters, and other crisis and emergency services and divert such individuals to effective, community-based treatment. Promising programs have produced better outcomes for both individuals and communities and are allowing for better use of scarce public resources. Fostering data exchange between jails and health care systems is a hallmark of this initiative (National Association of Counties, undated).

Although some jails are significantly leveraging data to inform policies and improve both operations and outcomes, many more, for a variety of reasons, are not. Most jails face significant challenges in consistently and optimally utilizing available data; indeed, they face challenges in consistently collecting, recording, and accessing available data in meaningful formats when needed. Many jails tend to use data to address particular issues of importance or respond to requirements as they emerge (e.g., Prison Rape Elimination Act [PREA], consent decrees).³ Many jails do not yet address the critical links between operational effectiveness and high-quality information and analysis or incorporate them into operating strategy based on a comprehensive strategic plan. As a result, there is much untapped potential and opportunity for jail operations to become more data-informed.

Administrators need to be able to demonstrate that any additional work required in collecting and recording information actually can reduce workloads by facilitating more-efficient operations.

General Challenges

Leadership and Organizational Issues

There are several prerequisites to becoming a data-informed jail. As with any initiative, the initial and ongoing support of internal and external stakeholders is critical to success. This often starts with the jail administrator, their leadership team, and the informal leadership of the jail. Leadership and organizational culture are key determining factors in the successful implementation of effective, evidence-based practices and programs in an organization (Fixsen et al., 2005). Unfortunately, not every leader understands and appreciates the value of a data-informed management approach, and this can be a major obstacle. Beyond commitment and active engagement, many jail administrators need to develop the skills to direct and guide organizational strategy, including developing a strategic plan that incorporates the jail's data-management objectives. This will require thinking through and specifying what information will be collected, why it will be collected, and how it will be used. Furthermore, administrators will need to periodically lead their teams through this exercise to ensure that the information collected is well aligned with current strategy and demands.

Jail administrators also face a major challenge in developing and nurturing an organizational culture that values data. Jails traditionally have not been viewed as information-processing organizations, and staff might not perceive data-related functions to be part of the core mission. To overcome this hurdle, administrators must consistently communicate the value of data-informed approaches to staff. Furthermore, administrators must help staff understand that collecting data in a way that is complete, correct, consistent, and timely is intimately tied to the jail's mission of achieving safety, security, and order, and it ultimately affects the work experience. This can be particularly challenging because employees in jails often are overworked, and the jails themselves are underresourced. Efforts to implement data-informed approaches might be hindered by perceptions that these practices unnecessarily generate additional workloads. Administrators need to be able to demonstrate that any additional work required in collecting and recording information actually can reduce workloads by facilitating more-efficient operations. Furthermore, this information often can be used to support business cases for additional resources or the reallocation of resources. It also could be used to identify and address emerging risks or threats before they escalate and require massive resources to resolve.

Many jails are operated under the authority of the county sheriff, who in most cases is an elected official. This structure

To gain support, administrators must be able to produce demonstrable evidence of the value of investments in data-informed approaches.

presents unique challenges for the jail administrator. First, it can be difficult to establish and maintain focus on the jail's priorities when a new sheriff could be one election cycle away. A new administration often comes with a different set of political realities, which can affect the jail's operations. For example, unless officials are already well established, transitions in leadership can undermine previous efforts to adopt—or sustain—data-informed approaches. Second, funding is always a challenge. As Stinchcomb, 2011, notes, there is generally more public support for the more-visible law enforcement component of county sheriffs' offices rather than for jail operations. It can be difficult, therefore, for the jail administrator to successfully lobby the sheriff for the required resources to achieve their data-management objectives. To gain support, administrators must be able to produce demonstrable evidence of the value of investments in data-informed approaches.

Procuring and Implementing a Jail Management System

An electronic system for managing jail data, typically called a *jail management system* (JMS), can serve as a foundation for creating a data-informed jail. A JMS represents a significant investment, and procuring and implementing an effective system in a carefully planned and thoughtful manner can be extremely challenging, even for well-resourced jails. As noted earlier, many jails lack a comprehensive strategic plan for their data objectives. These jails might not yet have gone through the basic process of identifying and documenting the information inputs, outputs, and needs of their various business units and processes. Furthermore, jails must anticipate emerging information needs and uses. Of particular importance might be the need to share education, program, and treatment information with community partners and providers or the need to accept and parse live feed data from the courts or law enforcement agencies. Establishing these requirements can be a challenging—but critical—step to ensure that the jail considers JMS systems that meet its operational needs.

Many jails do not have staff who are qualified to develop a strong and effective request for proposal (RFP) for a JMS.

Some jails must work with their city or county procurement departments to create a solicitation. This can create challenges in that individuals who do not fully understand the business needs of the jail will struggle to articulate these requirements in the RFP. The lack of clear, complete, and precise articulation of requirements; thoughtful selection of procurement or contract vehicle; and rigorous proposal evaluation can lead to situations in which contracts are awarded to the lowest bidder rather than to the provider of the most-effective solution.

A JMS can take a significant amount of time and effort to implement properly, and failures in the implementation process can undermine the entire initiative (Brennan, Wells, and Carr, 2013). Examples of common missteps include not engaging key external stakeholders (e.g., county budget and planning staff, information standards staff, and external end users of the system) and jail staff at all levels, failing to dedicate sufficient time and effort to ensure that data have migrated correctly from the current system to the new JMS, and having inadequate user acceptance testing and validation that the new system functions as expected.

The rollout of a new JMS introduces its own challenges, and staff training and ongoing technical support is critical. The formation of an implementation team of personnel with the right mix of operational knowledge, implementation skills, and communication abilities can be key to a successful project. However, creating and sustaining such a team over the duration of the project requires significant commitment, funding, and resources.

Data Collection and Analysis

For data to be useful, they must be consistently, accurately, and reliably collected; jails often face a multitude of challenges in this area. For example, staff might not be fully invested in the data-collection process. They might not understand the link between the data they collect and how those data support the jail's mission. They might not appreciate how the data can be used to positively affect their day-to-day work experience. As noted earlier, many jails are resource-constrained. Staff might not have the time to focus on data-collection responsibilities or

access to tools that could make the process more efficient and effective. Furthermore, policies might not be in place that guide how data should be coded or that prevent manipulation of the data-collection process. Addressing these challenges is not simply a matter of collecting more data. Although the maxim “what gets measured gets done” can be useful, collecting data without a purpose or vision can be problematic, especially when an agency focuses collection on data that are easy to measure instead of data that further its mission.⁴

Internal capacity to perform data analyses can vary greatly across jails. Most jails do not have the luxury of dedicated data analysts on staff and might have to rely on other county departments or external entities for support in this area. Data analysts might not be readily available; even if they are, they might not understand the unique business functions of the jail. Limited capability restricts the types of reports that can be generated and limits the usefulness of the data. Jails that do have dedicated analysts often are limited by data-quality issues, multiple disparate and asynchronous systems, and varying formats and platforms from which the data must be obtained and matched to derive meaningful analyses. In addition, some jails might struggle to provide staff with advanced training or the requisite computer software to perform more-complex analyses. Colleges and universities with advanced degree programs in criminology and related disciplines might be a resource for potential partnerships that could provide jails with expertise from scholars and interns who are skilled in many of the data-management issues faced by jails.

Applying the Data

Once the important data have been identified, collected, and analyzed, the next step is to convert those data into knowledge that can be acted upon. Jail administrators must appreciate the value of data-driven decisionmaking and trust the process. Some jails have taken steps to identify their key performance indicators and measure associated outcomes. Using this approach, jails can monitor routine data trends and detect problems before they become crises. Once a problem has been identified, leaders are better positioned to develop targeted

interventions to address the issue. Further data tracking can help quantify the impact of the interventions. To accomplish this data tracking, some jails use a performance accountability system modeled on CompStat, a data-driven approach pioneered by the New York City Police Department. For example, the New York City Department of Correction examined the model and modified it to support the management of its jail system. The approach, called the *Total Efficiency and Accountability Management System* (TEAMS), with its focus on data-supported problem-solving, has been credited with contributing to significant reductions in violence and to improvement in other key areas (O’Connell, 2011). How data are presented (e.g., using dashboards) can be critical to their usefulness.

A major aspect of problem solving is using the information from indicators to improve performance objectives. For example, knowing that inmate grievances or assaults on staff are increasing is only a first step. The next step is to use staff’s in-depth knowledge of the processes and operating conditions that contribute to the observed indicator values to identify opportunities for interventions, process improvements, and potential changes to policy or practice that could lead to improved outcomes. Jail staff must be able to apply both their insight and analytical capabilities to identify the root causes of a problem or trend so that they can develop targeted interventions to address the issue. Although there are exceptions, most jails are not yet leveraging root cause analysis techniques to address routine operational problems or learn from sentinel events (e.g., completed escapes, murders, suicides, and near misses). Most jails simply are not aware of this technique, and those that are might not be in a position to routinely apply it. For example, in one survey, 83 percent of jail leaders cited a “lack of internal knowledge and skills” as a barrier to conducting root cause analyses in their facilities (McCampbell and Earley, 2019).

Information-Sharing

Information-sharing is critical to effective jail operations. Improved data sharing within a jail can support primary objectives, such as inmate safety. For example, sharing information between treatment and security staff about an inmate’s mental

Most jails do not have the luxury of dedicated data analysts on staff and might have to rely on other county departments or external entities for support in this area.

health status can be useful in preventing a suicide attempt. Likewise, data sharing between investigative staff and corrections officers can help in contraband interdiction efforts. Data sharing with external entities (e.g., law enforcement, prisons, probation, and social service agencies) can improve public safety, system efficiencies, and individual inmate outcomes and address larger community concerns. For example, sharing information with public health departments about inmates with contagious diseases can help these agencies better prepare for any potential impacts on the community when the inmates are released. Furthermore, information-sharing can yield significant cost savings. For example, a data-sharing initiative between the Texas Department of Criminal Justice and the Texas Workforce Commission has been reported to have achieved \$90 million of cost avoidance over the past four years (Wood, 2019). The initiative was formalized to identify fraudulent claims for unemployment insurance by state inmates or their families.

Information-sharing efforts historically have been fraught with potential pitfalls, both real and perceived. There are technical, legal, cultural, and organizational barriers to data sharing. Other obstacles might include territorial issues and a lack of trust between stakeholders. These barriers are surmountable. Jail administrators and their leadership teams must work to overcome barriers to data sharing while ensuring that safeguards are in place against the misuse of protected information. The value derived through information-sharing frequently far outweighs potential risks.

The Expert Panel

To explore the challenges and opportunities in enabling more-data-informed jails, project staff assembled an expert panel of correctional administrators, researchers, and representatives from relevant national organizations. We identified a pool of candidate participants through a review of published documents and recommendations from various organizations. Project staff sought representation from diverse perspectives. To accomplish this goal, we made an effort to invite participants from large, medium, and small jails in different geographic regions and settings (i.e., urban, suburban, rural). Prior to the workshop, participants were provided with a read-ahead publication from the National Institute of Corrections entitled *Running an Intelligent Jail: A Guide to the Development and Use of a Jail Information System* (Brennan, Wells, and Carr, 2013). Ultimately, a group of 15 experts was convened. The

Jail administrators and their leadership teams must work to overcome barriers to data sharing while ensuring that safeguards are in place against the misuse of protected information.

participants and their affiliations are shown in the “Workshop Participants” box.

The participants were brought together for a two-day workshop. During the morning of the first day, the project staff outlined the goals of the workshop and the process to be followed. The project team used a structured brainstorming approach to develop a set of *needs*, a term used in our work for a specific requirement tied to either solving a problem or taking advantage of an opportunity to help better address a challenge. To organize discussions, project staff identified the following seven general categories related to the use of data in jails:

- **leadership and organizational issues** included challenges related to organizational readiness to become data-informed (e.g., cultural or leadership issues, lack of motivation or resources, resistance to change)
- **procuring and implementing a JMS** included challenges associated with developing or procuring a system (e.g., failure to understand business requirements, burdensome procurement processes)
- **data collection** included challenges related to identifying the appropriate data elements across functions, dealing with burdensome processes, and motivating staff
- **data analysis** included challenges around data analysis, reporting, and interpretation (e.g., data quality control, lack of analytic capacity)
- **applying the knowledge** included challenges related to transforming data into usable knowledge to inform deci-



PARTICIPANTS

Alphonso Albright

Nassau County Sheriff's Office, New York (formerly)

Anthony Alexander

Shelby County Division of Corrections, Tennessee

Patrick Flannery

Cook County Sheriff's Office, Illinois

Kathy Gattin

IJIS Institute, Virginia

Frances Gomez

Denver Sheriff Department, Colorado

Todd Harris

Chambers County Sheriff's Office, Texas

Carrie Hill

National Sheriffs Association, Virginia

Baron Hsu

District of Columbia Department of Corrections

Emily Kalman

Kent County Sheriff's Department, Michigan

Steven Larsen

King County Department of Adult and Juvenile Detention, Washington

Tiffany Mass

Pottawammie County Sheriff's Office, Iowa

Susan McCampbell

Center for Innovative Public Policies, Florida

Robert Olmsted

Los Angeles Sheriff's Department, California

Penny Perry-Balonier

Franklin County Sheriff's Office, Ohio

Kashif Siddiqi

Middlesex County Sheriff's Office, Massachusetts

sionmaking (e.g., cultural shift, resistance to change, lack of buy-in)

- **information-sharing** included challenges associated with sharing critical data with other entities and relevant stakeholders (e.g., lack of trust, data-exchange issues, liability concerns regarding potential privacy violations)
- the **other** category included topic areas not listed above that have a significant impact on a jail's ability to fully leverage data to improve outcomes.

Needs identified by the experts during these discussions were recorded and prioritized at various points in the workshop. More details on the technical methods used to structure the workshop and identify and prioritize needs are described in the technical appendix. In the following section, we describe the results of the prioritization exercise.

RESULTS

During the course of the workshop, participants identified a total of 43 needs. These needs were organized into five major themes that emerged: leadership and organizational issues, procuring and implementing a JMS, data collection and analysis, applying the data, and information-sharing. Note that these themes reflect the results of workshop deliberations and therefore are labeled and organized in a slightly different manner than the initial discussion topics and outline. See Figure 1 for the distribution of needs across these five themes. The full list of needs can be found in the technical appendix.

Overall, more than 30 percent of the needs fell into the leadership and organizational issues theme. This is perhaps unsurprising, considering the importance of top-level commitment to a data-driven management approach and the fact that a majority of the workshop participants were—or had been—jail administrators.

The prioritization exercise (which we describe in greater detail in the technical appendix) elicited rankings of the importance and probability of success of the identified needs from participants. These rankings were used to sort needs into three tiers (i.e., top, middle, and bottom). Ultimately, 13 of the needs fell into the top tier and are categorized as high-priority needs. We show these high-priority needs in Table 1. See Figure 2 for the breakdown of high-priority needs by theme. Nearly half of the top-tier needs fell into the leadership and organizational

issues theme. The high-priority needs are discussed in more detail in the next section.

DISCUSSION

Leadership and Organizational Issues

The participants identified six high-priority needs under the theme of leadership and organizational issues. We've organized them into four subthemes and we discuss each need in the following sections.

Preparing Administrators to Lead Data-Informed Jails

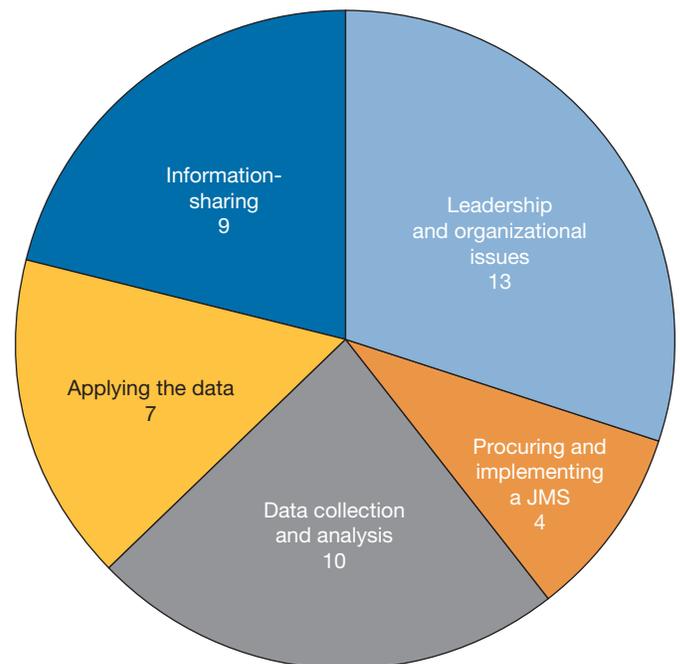
Although many jail administrators fully understand and value the power of data-driven approaches to improve outcomes, the participants acknowledged that this is not universal. To bridge this gap, the participants recommended the development of education and training programs, case studies, and toolkits geared toward administrators that demonstrate the benefits and return on investment from effective use of data. One participant noted that many jail leaders suffer from a “failure of imagination” with respect to how data can support and even transform how jails perform. Part of the underlying problem, the participants noted, is that jail leaders often lack the statistical literacy to appreciate the value of data and how analytics might be leveraged to inform decisionmaking. Although jail leaders are not expected to become statisticians, they should have a basic level of knowledge. The participants therefore recommended the creation of online, self-paced curricula designed to address this gap. This training should be accessible to administrators who might come from varied professional and educational backgrounds. Overall, the participants concurred that data literacy should be a core competency of jail leaders. Emphasizing the value of data to leadership, one participant quoted his sheriff, saying that “Vision without data is a hallucination.”

Creating a Culture That Values Data

Although leadership buy-in is critical, it is only part of the solution. According to the participants, leaders must be able to create a culture that values data and supports data-informed practices within the jail. They recommended that staff at all levels receive education on the importance of collecting and utilizing quality-assured information as part of basic training and onboarding. Furthermore, these values should be rein-

forced through in-service training and regular interactions between staff and supervisors. The quality of the data collected is the responsibility of all staff, regardless of role or rank. Line staff, for example, should be clear about the purpose of collecting data (i.e., why they are tasked with data-collection responsibilities) and how those data will be used to support the decisionmaking process. The participants suggested that research be conducted to explore effective strategies for educating staff on the importance of data and that use cases be developed to

Figure 1. Total Number of Needs, by Theme



Although many jail administrators fully understand and value the power of data-driven approaches to improve outcomes, the participants acknowledged that this is not universal.

Table 1. The 13 High-Priority Needs, by Category

Problem or Opportunity	Associated Need
Leadership and organizational issues	
There are unrealized benefits from proactive data collection and analysis if there is not already a culture in place that values data.	<ul style="list-style-type: none"> • Develop education and toolkits that help administrators understand the unrealized benefits from proactive data collection and analysis.
There is a need to create an organizational culture that values data.	<ul style="list-style-type: none"> • Incorporate education on practices and benefits of data management into training for academics, leadership, and informal leadership among staff.
Leadership would benefit from improved statistical literacy to better understand the purpose and implications of analysis.	<ul style="list-style-type: none"> • Create online, self-paced curricula that can be understood by leaders of varying professional backgrounds.
It can be challenging for administrators to determine what metrics are most appropriate, how to define them, and how to track them.	<ul style="list-style-type: none"> • Research and promote effective strategies for identifying and monitoring key indicators.
Data might not be captured and managed well when staff do not understand the importance and purpose of them.	<ul style="list-style-type: none"> • Develop effective strategies (e.g., use cases, documentation of return on investment) to champion data-management objectives and to educate line staff on how data collection contributes to the mission of the jail and affects their day-to-day work.
Developing tech-savvy staff (e.g., data analysts) has not been an investment priority for administrators.	<ul style="list-style-type: none"> • Develop effective strategies (e.g., use cases, documentation of return on investment) to educate administrators on the urgency of maintaining data management staff.
Information-sharing	
Many JMS cannot easily interface or integrate with other partners' information systems (e.g., criminal justice system and other stakeholders' systems).	<ul style="list-style-type: none"> • Develop effective strategies to assist jails—and the jurisdictions they support—in planning for the procurement and implementation of information systems that can be part of an integrated, jurisdiction-wide solution.
Misperceptions about legal issues associated with data sharing (e.g., Health Insurance Portability and Accountability Act [HIPAA]) prevent agencies from even attempting to share information.	<ul style="list-style-type: none"> • Research and publish guidance documents targeted to jail administrators that identify and counter common misperceptions. • Develop effective strategies to help diverse stakeholders build trust by identifying and reinforcing value congruence and work through any misperceptions or perceived conflicts.
There is often organizational resistance to sharing one's own data, even where legal, technical, and security issues with data sharing have been or can be resolved.	<ul style="list-style-type: none"> • Develop guidance documents on risk-management strategies (e.g., always have a memorandum of understanding [MOU], limit scope).
Data collection and analysis	
The general quality (e.g., accuracy, reliability) of data needs improvement.	<ul style="list-style-type: none"> • Publish guidance on effective strategies to improve the quality of manually input data (e.g., better training, use of predefined fields in drop boxes).
Applying the data	
There are elements of law enforcement data-informed accountability management models (e.g., CompStat) that can be transferred to jails.	<ul style="list-style-type: none"> • Conduct research to identify jails that are effectively applying these models to disseminate successful strategies.
It is very difficult to compare data and metrics between different jails.	<ul style="list-style-type: none"> • Encourage data definitions (e.g., national or state level) for jails to enable better comparison.

demonstrate the relevance of data in staff members’ daily work life (e.g., communicate how data analyses on assaults on staff can lead to interventions and improved safety). Participants posited that staff members would be more likely to invest in the data-collection process if they could see how it can positively affect their jobs.

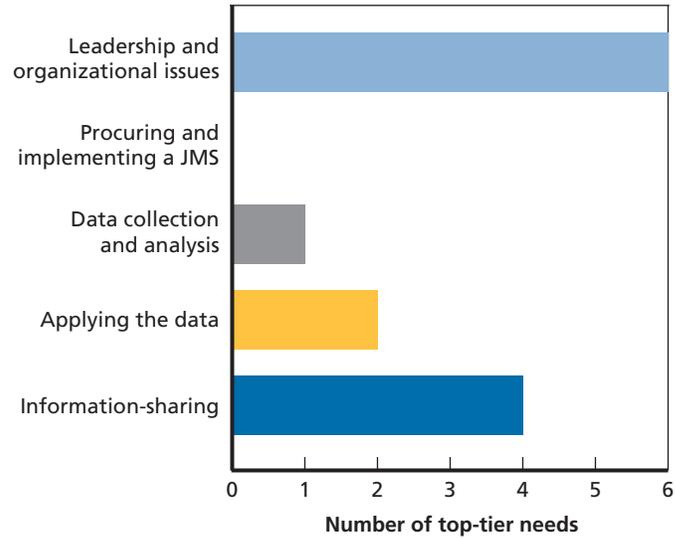
Developing a Strategic Plan for Data

The participants noted that a key point of failure for many jails is the lack of an overarching strategic plan with respect to purpose (i.e., what information should be collected and what can be accomplished with the information). Some data elements might be required by consent decrees or laws (e.g., PREA), some might be required by jurisdictional needs (e.g., balancing regional jail capacity), and others will be determined internally by the jail’s leadership (e.g., optimizing energy or water usage). According to the participants, identifying and planning for a jail’s information needs can be challenging. For example, some jails represented at the workshop had not yet established key performance indicators, so measuring progress toward objectives is virtually impossible. To employ a data-informed approach, it is imperative that jails and their stakeholders identify the data needs, performance objectives, and outcomes that should be monitored over the short and long terms. The participants recommended the development of resources that highlight best practices to help jails create a strategic plan around their data needs. Furthermore, training and technical assistance is needed to help jails create an initial plan and evaluate and modify that plan based on emerging needs.

Operational Implications

The participants also noted that some jail administrators fail to prioritize the need for information technology or analytic staff, which can significantly limit efforts to become more data-informed. Dedicating adequate resources to support this function can be challenging, particularly in jails that suffer from chronic understaffing in correctional officer positions. Given the option, administrators often will choose to add more

Figure 2. Breakdown of Top-Tier Needs



correctional officers instead, and labor unions certainly play an influential role in these decisions. Although security needs are critical to jail operations, the participants emphasized that developing data management staff is also important. Education is needed to help administrators understand the value of these staff, and case studies and cost-benefit analyses can help demonstrate the benefits in qualitative and quantitative terms.

Data Collection and Analysis

To leverage the power of the raw data collected, jail staff must first be able to collect and analyze these data. Only then can data begin to reliably inform the decisionmaking process. Poor or inconsistent data quality is an impediment to data-driven decisionmaking, according to the participants. Quality was defined in terms of accuracy, reliability, and timeliness of entry and availability. As noted earlier, a culture that values data can positively affect the quality of data collection, but participants identified a more-specific need: the development of guidance documents that highlight effective strategies to improve data

To employ a data-informed approach, it is imperative that jails and their stakeholders identify the data needs, performance objectives, and outcomes that should be monitored over the short and long terms.

quality (e.g., better training and improved software structure, including predefined fields in drop boxes).

Applying the Data

To maximize the value of data, a performance management system of some sort might be needed. Participants discussed CompStat, the law enforcement model that strives for data-driven identification of problem areas, development of targeted interventions, and assessment of the impact of these interventions. Some jails have adapted this process for their own purposes (Jorgensen, 2015). The participants argued that the field would benefit from research that identifies jail systems that are successfully applying this model and that documents best practices and strategies that are producing desired outcomes. The participants stressed that jails should emphasize the positive aspects of accountability and that models should be implemented with a focus on process improvement and interactive problem-solving rather than a “gotcha” mentality designed to embarrass managers who are not meeting objectives.

The lack of common terminology and definitions across jails was identified as a major impediment to fully leveraging jail data on a macro level. For example, there is variation in how key terms, such as recidivism and use of force, are defined. The participants suggested that standards provide the foundation for comparisons between jails, whether they are in the same state or across the country. The ability to analyze these data can produce benchmarks, enable officials to track performance metrics over time, and help identify outliers that can be studied. Therefore, the participants suggested that a national entity take the lead on establishing national standards that govern how jails collect key data.

The participants in this workshop called for research to identify and dispel common misconceptions that might deter jails from sharing information.

Information-Sharing

The value of timely information-sharing, both within the criminal justice system and with relevant social service and public health entities cannot be overstated. When an individual becomes justice-involved, important data are collected not only in jails but also in law enforcement agencies and the courts. Depending on the outcome of the case and/or the individual’s previous criminal history, probation, parole, and prison systems also could collect important data. Beyond the criminal justice system, social service and public health departments also collect vital data that can help provide situational awareness to improve public safety, community objectives, and individual offender outcomes. Furthermore, significant cost savings can be realized. Despite the obvious benefits, the participants noted several impediments to successful information-sharing. Similar to the experience in other sectors, some challenges are technical in nature, while the more-difficult obstacles often are related to policy or cultural issues within jails.

Information exchange within and across entities can be challenging because patient privacy regulations (e.g., HIPAA) often are misinterpreted, according to the group. This exact issue was raised in a previous NIJ-sponsored workshop on managing the seriously mentally ill in corrections (Shaffer et al., 2019). Each set of workshop participants independently noted that correctional facilities tend to take a conservative stance with respect to protected information and, as a result, can be resistant to sharing mental and behavioral health care records with others with a genuine need to know. The participants in this workshop called for research to identify and dispel common misconceptions that might deter jails from sharing information. It should be noted that several efforts have produced webinars and documents that provide guidance on justice and health system information-sharing (Petrila, 2007; Petrila and Fader-Towe, 2010; Abernathy, 2014);⁵ however, these products might not be reaching jail leadership. Therefore, it could be important to develop a resource that is specifically targeted to jail administrators and is disseminated more effectively.

Establishing trust between organizations is a major hurdle to information-sharing, according to the participants. Each organization must be confident that the data it is providing will be used in accordance with its values and objectives. Effective strategies are needed to help diverse stakeholders build trust by identifying and reinforcing value congruence and by working through any misperceptions or perceived conflicts.

Some of the challenges associated with information-sharing are technical in nature. For example, informational silos and

Although there are positive outliers across the country, the participants observed that, in general, jail administrators have not yet sufficiently emphasized data-informed management approaches that would be beneficial.

firewalls can be a major obstacle (Brennan, Wells, and Carr, 2013). The participants suggested that jurisdiction-based—rather than agency- or department-based—information systems that are built on a common platform would address many of these challenges. Such a model would allow key stakeholders easier access to the data they require, which would be controlled by role-based privileges. The participants recommended research to explore the feasibility of building a jurisdiction-based information system and to identify effective planning and implementation strategies.

Ultimately, for some jails, the culture still prevents effective information-sharing, even when legal and technical hurdles have been cleared. The participants noted that, in many cases, effective information-sharing comes down to the leadership qualities of the jail administrator and their comfort level with transparency. Administrators tend to be risk-averse, and many have been groomed in a culture that supports keeping things in-house. One participant noted that many jail staff have been “ingrained in a culture of silence.” One way to begin to break these barriers, according to the participants, is to provide better guidance on effective risk-management strategies. Administrators would benefit from such resources as examples of effective MOUs between agencies and lessons learned from other jails.

CONCLUSION

To explore the challenges to jails attempting to operate in a more–data-informed manner, project staff assembled an expert workshop of jail administrators, researchers, and representatives from relevant national organizations. Project staff led workshop participants in a structured brainstorming exercise that was designed to identify key challenges and the needs that—if addressed—would help jails meet these challenges. The list of needs was prioritized by the participants based on rankings of the needs’ importance and probability of success, and two major themes clearly emerged: the importance of leadership in

creating a data-informed organization and the untapped value of information-sharing.

There was a consensus among the participants that the goal of a data-driven jail is virtually impossible without the support and commitment of leadership, most notably the jail administrator. This is reflected in the fact that almost half of the high-priority needs identified (six of 13) were related to leadership and organizational issues. Although there are positive outliers across the country, the participants observed that, in general, jail administrators have not yet sufficiently emphasized data-informed management approaches that would be beneficial. Leaders require better education on the value of these approaches and how they can improve outcomes. Part of this education should include training geared toward jail administrators that would provide a basic level of statistical literacy and training to understand and critically evaluate data. Leaders also need to develop and nurture an organizational culture that values data and must establish and sustain practices that use data to inform decisions. They need effective strategies and guidance to assist in the identification of key performance indicators and other metrics for their jails. As jails begin to track these data and measure their performance, it is critical that education and training is provided to all staff to achieve their buy-in. Staff should understand *and experience* not only how accurate data collection and analyses can further the jail’s mission but also how this data collection can positively affect their own day-to-day work experience. Finally, effective strategies are needed to help administrators justify the hiring of staff to support data-management objectives.

According to the participants, information-sharing is crucial to successful outcomes, but efforts often are hindered by misconceptions about protected data, a lack of trust in outside organizations, and a lack of confidence in the jail’s ability to manage the risks involved (both real and perceived). These organizational and cultural barriers must be overcome, and positive outliers exist that can serve as models. Finally, research is needed to address technical hurdles. Effective strategies to

plan and build jail information systems that can easily interface with appropriate external entities are needed.

Other high-priority needs included the identification of effective strategies for more-accurate data collection; research into successful data-driven performance-accountability systems (e.g., CompStat or similar processes) and how they can be implemented as standard practice in a jail setting; and the need for common definitions of key indicators that would allow for better comparisons across the nation's many jails.

TECHNICAL APPENDIX

In this appendix, we present additional details on the workshop agenda and the process for identifying and prioritizing technology and other needs specific to identifying research needs for data-informed jails. Through this process, we developed the research agenda that structured the topics presented in the main report. The descriptions in this appendix are adapted from those in previous Priority Criminal Justice Needs Initiative publications and reflect adjustments to the needs identification and prioritization process implemented at this workshop.

Pre-Workshop Activities

As we did in previous workshops conducted as part of the Priority Criminal Justice Needs Initiative, we recruited panel members by identifying knowledgeable individuals through existing professional and social networks (e.g., LinkedIn) and by reviewing literature published on the topic. We then extended invitations to those individuals and provided a brief description of the workshop's focus areas.

In advance of the workshop, panelists were provided an opportunity to identify the issues and topics that they felt would be important to discuss during the workshop. Using a comprehensive literature review and input from the workshop participants, we structured the workshop agenda and discussion as shown in Table A.1.

Identification and Prioritization of Needs

During the workshop, we asked the participants to discuss the challenges that they or the practitioners they work with face. We also asked them to identify areas where additional research and development investment could help to alleviate the challenges. During these discussions, participants suggested additional areas that potentially are worthy of research or investment. Participants also considered whether there were areas that were not included in the existing list and suggested new ones. Although the process of expert elicitation we describe was designed to gather unbiased, representative results from experts and practitioners in the field, there are several limitations that could affect the findings. The process typically elicits opinions from a relatively small group of experts. As a result, although efforts were made to make the group as representative as possible of different disciplines, perspectives, and geographic regions, the final output of the workshop likely will be significantly influenced by the specific group of experts invited to participate. It is possible that the findings from the workshop would vary were a different group of experts selected. Moreover, although the discussion moderators made every effort to act as neutral parties when eliciting opinions from the collected experts, the background and experience of the moderators had the potential to influence the questions they posed to the group

Table A.1. Workshop Agenda

Day 1

Welcome and Introductions
 Initial Discussion of Workshop Functions and Objectives
 High-Level Organizational Issues: Challenges and Solutions
 Jail Management Systems: Challenges and Solutions
 Data Collection: Challenges and Solutions
 Data Analysis: Challenges and Solutions
 Review Key Benefits and Challenges Identified During Day 1, Prioritize Discussion for Day 2

Day 2

Summary of Day 1 and Overview of Agenda for Day 2
 Applying the Knowledge: Challenges and Solutions
 Information-Sharing: Challenges and Solutions
 Other Issues
 Review and Final Brainstorming Session
 Final Needs Prioritization
 Panel Review and Next Steps

and how they phrased those questions. This also could introduce bias that might influence the findings.

To develop and prioritize a list of technology and policy issues that are likely to benefit from research and investment, we followed a process similar to one that has been used in previous Priority Criminal Justice Needs Initiative workshops (see, for example, Jackson et al., 2015; Jackson et al., 2016, and references therein). The needs were prioritized using a variation of the Delphi Method, a technique developed at RAND to elicit expert opinion about well-defined questions in a systematic and structured way (RAND Corporation, undated). Participants discussed and refined problems and identified potential solutions (or needs) that could address each problem. In addition, needs could be framed in response to opportunities to improve performance by adopting or adapting a new approach or practice (e.g., applying a new technology or tool in the sector that had not been used before).

At the end of the discussion of each topic, participants were given an opportunity to review and revise the list of problems and opportunities they had identified. The participants' combined lists for each topic were displayed one by one using Microsoft PowerPoint slides that were edited in real time to incorporate revisions and comments.

Once the panel agreed on the wording of each slide, we asked them to anonymously vote using a handheld device (specifically, the ResponseCard RF LCD from Turning Technologies). Each participant was asked to individually score each problem or opportunity and its associated need needs using a 1–9 scale for two dimensions: importance and probability of success.

For the *importance* dimension, participants were instructed that 1 was a low score and 9 was a high score. Participants were told to score a need's importance with a 1 if it would have little or no impact on the problem and with a 9 if it would reduce the impact of the problem by 20 percent or more. Anchoring the scale with percentage improvements in the need's performance is intended to help make rating values more comparable from participant to participant.

For the *probability of success* dimension, participants were instructed to treat the 1–9 scale as a percentage chance that the need could be met and broadly implemented successfully. That is, they could assign the need's chance of success between 10 percent (i.e., a rating of 1) and 90 percent (i.e., a rating of 9). This dimension was intended to include not only technical concerns (i.e., whether the need would be hard to meet) but also the effect of factors that might lead jails to not adopt the

new technology, policy, or practice even if it was developed. Such factors could include, for example, cost, staffing concerns, and societal concerns.

After the participants rated the needs displayed on a particular slide (i.e., for either importance or probability of success), we displayed a histogram-style summary of participant responses. If there was significant disagreement among the panel (the degree of disagreement was determined by the research team's visual inspection of the histogram), the participants were asked to discuss or explain their votes at one end of the spectrum or the other. If a second round of discussion occurred, participants were given an opportunity to adjust their ratings on the same question. This second-round rating was optional, and any rating submitted by a participant would replace their first-round rating. This process was repeated for each question and dimension at the end of each topic area. Figure A.1 shows an example of a slide on the importance dimension, with related issue, need, and histogram. Figure A.2 shows a slide on the probability of success dimension.

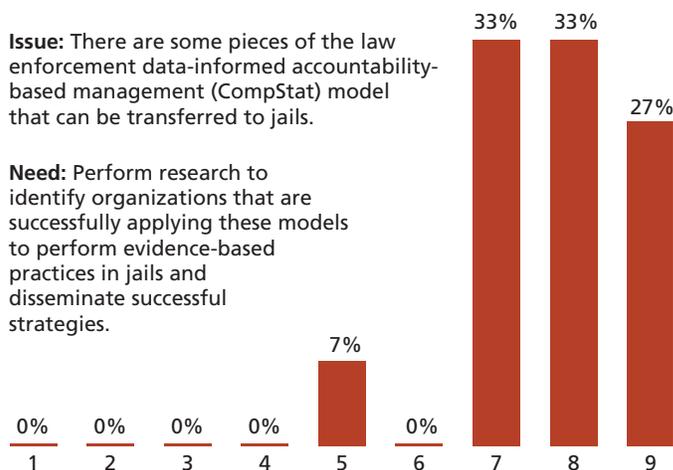
Once the participants had completed this rating process for all topic areas, we put the needs into a single prioritized list. We ordered the list by calculating an expected value using the method outlined in Jackson et al., 2016. For each need, we multiplied the final (second-round) ratings for importance and probability of success to produce an expected value. We then calculated the median of that product across all of the respondents and used that as the group's collective expected value score for the need.

Figure A.1. Example Slide for Rating the Importance of a Need

9a. How *important* is it to solve this problem?

Issue: There are some pieces of the law enforcement data-informed accountability-based management (CompStat) model that can be transferred to jails.

Need: Perform research to identify organizations that are successfully applying these models to perform evidence-based practices in jails and disseminate successful strategies.



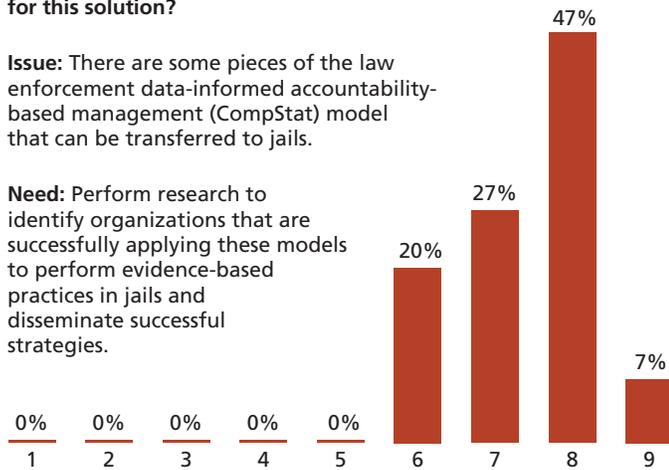
NOTE: Percentages on each question did not always sum to 100 percent due to rounding and variation in the number of participants who voted on each need.

Figure A.2. Example Slide for Rating the Probability of Success of a Need

9b. What is the *probability of success* for this solution?

Issue: There are some pieces of the law enforcement data-informed accountability-based management (CompStat) model that can be transferred to jails.

Need: Perform research to identify organizations that are successfully applying these models to perform evidence-based practices in jails and disseminate successful strategies.



NOTE: Percentages on each question did not always sum to 100 percent due to rounding and variation in the number of participants who voted on each need.

We clustered the resulting expected value scores into three tiers using a hierarchical clustering algorithm. The algorithm we used was the “ward.D” spherical algorithm from the “stats” library in the R statistical package, version 3.5. We chose this algorithm to minimize within-cluster variance when determining the breaks between tiers. The choice of three tiers is arbitrary but was done in part to remain consistent across the set of technology workshops we have conducted for NIJ. Also, the choice of three tiers represents a manageable system for policymakers. Specifically, the top-tier needs are the priorities that should be the primary policymaking focus, the second-tier needs should be examined closely, and the third-tier needs are probably not worth much attention in the short term (unless, for example, they can be addressed with existing technology or approaches that can be readily and cheaply adapted to the identified need).

Because the participants initially rated the needs by one topic area at a time, we gave them an opportunity at the end of the workshop to review and weigh in on the tiered list of all identified needs. The intention of this step was to let the panel members see the needs in the context of the other tiered needs and allow them to consider whether there were some that appeared too high or low relative to the others. To collect these assessments, we printed the entire tiered list and distributed it to the participants. This step allowed the participants to see all of the ranked needs collected across the day-and-a-half workshop, providing a top-level view that is complementary to the

rankings provided session by session. Participants were then asked to examine where each of the needs landed on the overall tiered list and whether this ordering was appropriate or needed fine-tuning. Participants had the option to indicate whether each problem and need pairing should be voted up or down on the list. An example of this form is provided in Table A.2.

We then tallied the participants’ third-round responses and applied those votes to produce a final list of prioritized and tiered needs. To adjust the expected values using the up and down votes from the third round of prioritization, we implemented a method equivalent to the one we used in previous work (Hollywood et al., 2016). Specifically, if every panel member voted “up” for a need that was at the bottom of the list, then the collective effect of those votes would be to move the need to the top. (The opposite would happen if every panelist voted “down” for a need that was at the top of the list.) To determine the point value of a single vote, we divided the full range of expected values by the number of participants voting.

To prevent the (somewhat rare) situation in which small numbers of votes have an unintended outsized impact—for example, when some or all of the needs in one tier have the same or very similar expected values—we required that at least 25 percent of the workshop participants must have voted on that need (and then rounded to the nearest full participant). In this workshop, there were 12 participants, so for any votes to have an effect, at least four participants would have had to have voted to move the need up or down.

After applying the up and down vote points to the second-round expected values, we compared the modified scores with the boundary values for the tiers to see whether the change was enough to move any needs up or down in the prioritization. (Note that there were gaps between these boundaries, so some of the modified expected values could fall in between tiers. See Figure A.3.) As with prior work, we set a higher bar for a need to move up or down two tiers (from Tier 1 to Tier 3, or vice versa) than for a need to move to the tier immediately above or below. Specifically, a need could *increase by one tier* if its modified expected value was higher than the highest expected value score in its initial tier. A need could *decrease by one tier* if its modified expected value was lower than the lowest expected value in its initial tier. However, *to increase or decrease by two tiers* (which was only possible for needs that started in Tier 1 or Tier 3), the score had to increase or decrease by an amount that fully placed the need into the range two tiers away. For example, for a Tier 3 need to jump to Tier 1, its expected value score had to fall within the boundaries of Tier 1, not just within the

Table A.2. Example of the Delphi Round 3 Voting Form

Question	Tier	Vote Up	Vote Down
Tier 1			
Issue: There is a need to create an organizational culture that values data. Need: Incorporate education on the practices and benefits of data management into training and education for academics, leadership, and informal leadership among staff.	1		
Issue: The general quality (e.g., accuracy, reliability) of data needs improvement. Need: Publish guidance on effective strategies to improve the quality of manually input data (e.g., better training, formatting using predefined fields in drop boxes).	1		
Tier 2			
Issue: Legal issues associated with data sharing agreements present a real barrier to better information-sharing. Need: Create and disseminate vetted strategies or data sharing agreement templates.	2		
Issue: Analysts might not have adequate statistical literacy and training. Need: Create standardized, widely available training and education for analysts that includes basic methodologies and definitions of terms (e.g., Jail 101).	2		
Tier 3			
Issue: The utility of JMS is diminished if end users do not have confidence in the accuracy/operation and purpose of the JMS. Need: Perform user acceptance testing for new systems.	3		
Issue: Large volumes of data make data analysis challenging. Need: Research the potential benefits of emerging technologies, such as artificial intelligence and data mining, for data triage and sorting.	3		

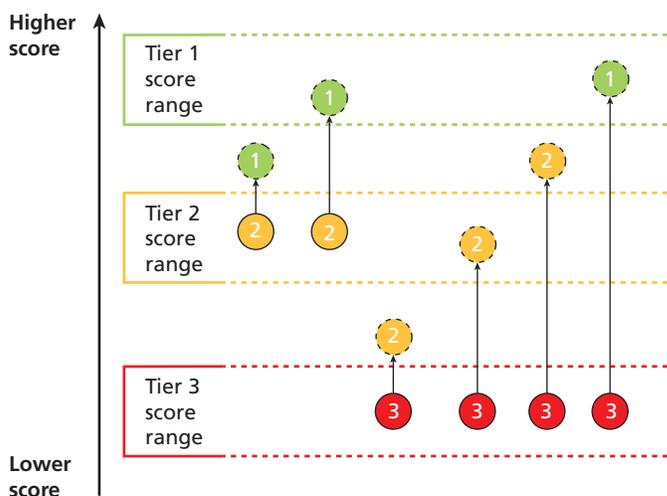
NOTE: Shaded cells indicate that up or down votes were not possible (e.g., Tier 1 is the top tier, so it was impossible to upvote items in that tier).

gap between Tier 1 and Tier 2. Figure A.3 illustrates the greater score change required for a need to move two tiers (i.e., the need on the far right of the figure) compared with one tier (all other examples shown).

Applying these decision rules to integrate the participants’ third-round inputs into the final tiering of needs resulted in numerical separations between tiers that were less clear than the separations that resulted when we used the clustering algorithm in the initial tiering. This can occur because, for example, when the final expected value score for a need that was originally in Tier 3 falls just below the boundary value for Tier 1, that need’s final score could be higher than that of some other needs in the item’s new tier (Tier 2). See Figure A.4, which shows the distribution of the needs by expected value score after the second-round rating process and after the third-round voting process.

As a result of the third round of voting, 33 needs did not change position and ten needs rose by one tier. No needs fell by one tier or moved by two tiers. The output from this process became the final ranking of the panel’s prioritized results.

Figure A.3. How a Need’s Increase in Expected Value Might Result in Its Movement Across Tier Boundaries



NOTE: Each example need’s original tier is shown by a circle with a solid border (the two needs starting in Tier 2 and the four needs starting in Tier 3). Each need’s new tier after the third-round score adjustment is shown by the connected circle with a dotted border.

Complete List of Needs

The complete list of identified needs is shown in Table A.3 and are sorted by tier and theme. Of the 43 identified needs,

- 13 were related to leadership and organizational issues
- nine were related to information-sharing
- four were related to procuring and implementing a JMS
- ten were related to data collection and analysis
- seven were related to applying the data.

Figure A.4. Distribution of the Tiered Needs Following Rounds 2 and 3

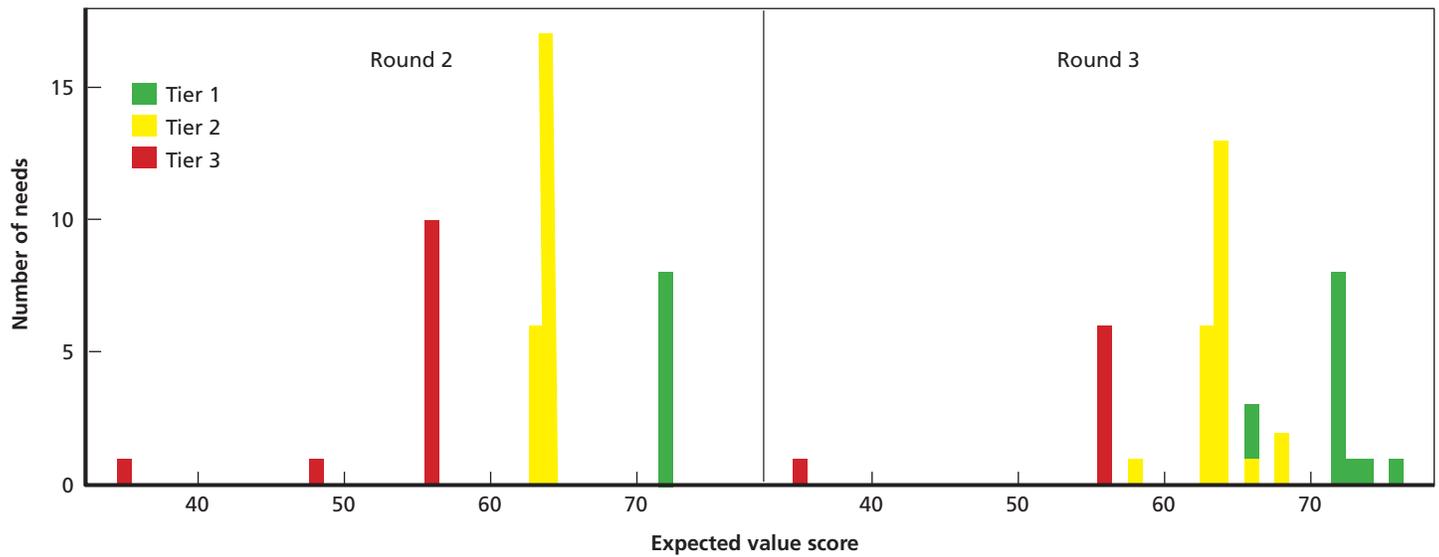


Table A.3. Complete List of Needs, by Tier

Issue	Need	Tier
Leadership and organizational issues		
There are unrealized benefits from proactive data collection and analysis if there is not already a culture that values data.	<ul style="list-style-type: none"> • Develop education and toolkits that help administrators understand the unrealized benefits from proactive data collection and analysis. 	1
There is a need to create an organizational culture that values data.	<ul style="list-style-type: none"> • Incorporate education on the practices and benefits of data management into training and education for academies, leadership, and informal leadership among staff. 	
Leadership would benefit from improved statistical literacy to better understand the purpose and implications of analysis.	<ul style="list-style-type: none"> • Create online, self-paced curricula that can be understood by leaders of varying professional backgrounds. 	
It can be challenging for administrators to determine what metrics are most appropriate, how to define them, and how to track them.	<ul style="list-style-type: none"> • Research and promote effective strategies for identifying and monitoring key indicators. 	
Data might not be captured and managed well when staff do not understand the importance and purpose of them.	<ul style="list-style-type: none"> • Develop effective strategies (e.g., use cases, document return on investment) to champion data-management objectives and educate line staff on how data collection contributes to the mission of the jail and affects their day-to-day work. 	

Table A.3—Continued

Issue	Need	Tier
Developing tech-savvy staff (e.g., data analysts) has not been an investment priority for administrators.	<ul style="list-style-type: none"> • Develop effective strategies (e.g., use cases, document return on investment) to educate administrators on the urgency of maintaining data management staff. 	
Information-sharing		
Many JMS cannot easily interface or integrate with other partners' information systems (either criminal justice systems and other stakeholders' systems).	<ul style="list-style-type: none"> • Develop effective strategies to assist jails—and the jurisdictions they support—in planning for the procurement and implementation of information systems that can be part of an integrated, jurisdiction-wide solution. 	1
Misperceptions about legal issues associated with data sharing (e.g., HIPAA) prevent agencies from even attempting to share information.	<ul style="list-style-type: none"> • Research and publish guidance documents targeted to jail administrators that identify and counter common misperceptions. • Develop effective strategies to help diverse stakeholders build trust by identifying and reinforcing value congruence and working through any misperceptions or perceived conflicts. 	
There often is organizational resistance to sharing one's own data, even where legal, technical, and security issues with data sharing have been or can be resolved.	<ul style="list-style-type: none"> • Develop guidance documents on risk-management strategies (e.g., always have an MOU, limit scope). 	
Data collection and analysis		
The general quality (e.g., accuracy, reliability) of data needs improvement.	<ul style="list-style-type: none"> • Publish guidance on effective strategies to improve the quality of manually input data (e.g., better training, formatting using predefined fields in drop boxes). 	1
Applying the data		
There are elements of law enforcement data-informed accountability-management models (e.g., CompStat) that can be transferred to jails.	<ul style="list-style-type: none"> • Conduct research to identify jails that are effectively applying these models to disseminate successful strategies. 	1
It is very difficult to compare data and metrics between different jails.	<ul style="list-style-type: none"> • Encourage data definitions (e.g., national or state level) for jails to enable better comparison. 	
Leadership and organizational issues		
There is insufficient shared understanding between the technical and business sides of the needs from the JMS.	<ul style="list-style-type: none"> • Create guidance (e.g., training, case studies) to promote shared understanding on business and technical issues. 	2
There is little focus on comprehensively examining how potential legislative, legal, fiscal, and policy changes might affect facility operations.	<ul style="list-style-type: none"> • Develop and promote awareness of tools and/or third-party partnerships to help jail administrators assess the data and present their findings. 	
Elected officials do not understand the importance of jail information management.	<ul style="list-style-type: none"> • National organizations should support jails in acquiring information and communicating benefits. • Create detailed use cases to better champion data and tell the story to justify more–data-informed jails (e.g., risk assessment tools). • Create best practices on how to develop return on investment and performance metrics on data-informed jails. 	
Information-sharing		
Legal issues associated with data-sharing agreements present a real barrier to better information-sharing.	<ul style="list-style-type: none"> • Create and disseminate vetted strategies or data-sharing agreement templates. 	2
There often is organizational resistance to sharing one's own data, even where legal, technical, and security issues with data sharing have been or can be resolved.	<ul style="list-style-type: none"> • Create a marketing strategy around information-sharing strategies that have worked well (e.g., Interstate Compact, Centers of Innovation). 	

Table A.3—Continued

Issue	Need	Tier
There is a possibility for inappropriate access and misuse of protected information in terms of intra-agency information-sharing.	<ul style="list-style-type: none"> Disseminate effective strategies on creating accountability mechanisms. 	
There is a missed opportunity to use intra-agency information on a need-to-know basis to improve outcomes and performance.	<ul style="list-style-type: none"> Identify and disseminate effective strategies and policies on intra-agency information-sharing. 	
Diversity among different technical systems prevents information-sharing.	<ul style="list-style-type: none"> Research and publish guidance for jail administrators on important considerations when assessing and acquiring common platforms with role-based privileges, (e.g., cloud-based platforms, web services). 	
Procuring and implementing a JMS		
Agencies need help assessing their business requirements, evaluating the responses, and anticipating future requirements.	<ul style="list-style-type: none"> Develop a strategy or toolkit and training and technical assistance (TTA) to help jails determine their current and future business requirements before moving ahead with procurement, which might include a list of standard business requirements that should be considered when acquiring a system. 	2
Agencies do not have sufficient in-house expertise to write the RFP to procure new JMS, including the staff and resources to do configuration and training on new JMS.	<ul style="list-style-type: none"> Develop a clearinghouse of information and TTA to help agencies create RFPs (e.g., medical and mental health, facility management systems). 	
Data collection and analysis		
The general quality (e.g., accuracy, reliability) of data needs to be improved.	<ul style="list-style-type: none"> Conduct research into tools that can effectively automate data collection. Conduct research into tools that can safeguard against lost or corrupted data. 	2
The general timeliness and efficiency of data collection needs to be improved.	<ul style="list-style-type: none"> Evaluate technical needs associated with enabling hand-held data entry for JMS (e.g., connectivity, battery life). 	
Analysts might not have adequate statistical literacy and training.	<ul style="list-style-type: none"> Create standardized, widely available training and education for analysts that includes basic methodologies and definitions of terms (e.g., Jail 101). 	
Analytical teams need surge capacity and flexibility to address urgent needs in addition to performing long-term analyses.	<ul style="list-style-type: none"> Get third-party institutions, such as think tanks and university partnerships, involved in data analysis where appropriate. 	
Several potentially beneficial tools (e.g., Geographic Information System data) remain underutilized.	<ul style="list-style-type: none"> Create an awareness campaign, webinar, or fact sheet that explains methodologies for utilizing low-cost or free tools in jails and the benefits of using them. 	
Periodic quality assurance and validation is needed on the quality of the data and the outcomes derived from them.	<ul style="list-style-type: none"> Research strategies for implementing an external governance or vetting committee for auditing and monitoring the important outcomes derived from the data (e.g., law enforcement citizen review boards, academic review). 	
Applying the data		
It is very difficult to compare data and metrics between different jails.	<ul style="list-style-type: none"> Encourage data definitions in jails to enable better comparison. 	2
Jail administrators often do not know how best to address problems identified through data collection.	<ul style="list-style-type: none"> Identify current and emerging major issues that jails are confronting and develop toolkits to help administrators assess and address them (similar to the National Institute of Corrections toolkit on jail overcrowding). 	

Table A.3—Continued

Issue	Need	Tier
Unless a major incident occurs, agencies might not be able to focus on problems (that might result in blame), whether they are critical incidents or chronic issues.	<ul style="list-style-type: none"> • Develop a policy that governs no-blame assessment initiatives (e.g., sentinel event reviews, mortality and morbidity reviews) that have been effective in showing how issues could have been foreseen and avoided. 	
Important analysis (e.g., root-cause analysis) often is not initiated because jail administrators do not understand how to do it.	<ul style="list-style-type: none"> • Develop training and guidance on performing root cause analysis and addressing issues. 	
Leadership and organizational issues		
Jails struggle to develop the business model for a JMS and evolve it over time to suit their needs.	<ul style="list-style-type: none"> • Create regularly updated guidelines and TTA so that jails can develop and evolve their business models for a management system. 	3
When new mandates are given, it is hard to know or communicate the impact of those mandates on agencies.	<ul style="list-style-type: none"> • Develop a template for determining what resources are needed to meet specific mandates. 	
Procuring and implementing a JMS		
When agencies obtain a system that is highly customized to their needs, it makes future upgrades very difficult and/or expensive.	<ul style="list-style-type: none"> • Incorporate guidelines on appropriate levels of customization (e.g., invest in more-flexible technology) in guidelines on future-proofing system acquisition. 	3
The utility of a JMS is diminished if end users do not have confidence in the accuracy, operation, and purpose of the JMS.	<ul style="list-style-type: none"> • Perform user acceptance testing for new systems. 	
Data collection and analysis		
Data entry errors might falsely minimize negative incidents or inflate positive outcomes.	<ul style="list-style-type: none"> • Create guidelines for a democratized collaborative audit system. 	3
There is no standard agency guidance to direct data analysis for jails.	<ul style="list-style-type: none"> • Create model policies that guide data analysis objectives for jails, potentially including an examination of post orders or job descriptions for insights about additional training needs for new analysts. 	
Applying the data		
Large volumes of data make data analysis challenging.	<ul style="list-style-type: none"> • Research the potential benefits of emerging technologies, such as artificial intelligence and data mining, for data triage and sorting. 	3

Notes

¹ It can be difficult to ascertain with clarity the extent to which jails are underutilizing the potential data they might collect. Nevertheless, some organizations are attempting to better document the performance of the criminal justice system at the local level, and there is often little information available on jail performance. See Measures for Justice, undated, as one such example.

² CompStat is a performance management system used by police departments to reduce crime and achieve other operational goals. Key elements of the system include an emphasis on information-sharing, accountability, and improving effectiveness.

³ The purpose of the PREA, which was passed in 2003, is to “provide for the analysis of the incidence and effects of prison rape in Federal, State, and local institutions and to provide information, resources, recommendations and funding to protect individuals from prison rape” (34 U.S.C., 2003). PREA requires agencies to collect and aggregate data regarding incidents of sexual abuse to detect possible patterns and to help prevent future incidents. PREA also created a commission to develop draft standards for the elimination of prison rape. The standards created by this commission became effective in August 2012 (National PREA Resource Center, undated).

⁴ See Chapter Three of Elias, 2007, for additional discussion.

⁵ For example, webinars have been sponsored by such entities as the Council of State Governments, IJIS Institute, and the Substance Abuse and Mental Health Services Administration.

References

- Abernathy, Christina, *Corrections and Reentry: Protected Health Information Privacy Framework for Information Sharing*, Lexington, KY: American Probation and Parole Association, 2014.
- American Jail Association, “Jail Statistics,” webpage, undated. As of November 5, 2019: <https://www.americanjail.org/jail-statistics>
- Bertram, Wanda, and Alexi Jones, “How Many People in Your State Go to Local Jails Every Year?” Prison Policy Initiative blog, September 18, 2019. As of January 31, 2020: <https://www.prisonpolicy.org/blog/2019/09/18/state-jail-bookings/>
- Brennan, Tim, Dave Wells, and John Carr, *Running an Intelligent Jail: A Guide to the Development and Use of a Jail Information System*, Washington, D.C.: National Institute of Corrections, August 2013.
- Crayton, Anna, Liz Ressler, Debbie A. Mukamal, Jesse Jannetta, and Kevin Warwick, *Partnering with Jails to Improve Reentry: A Guidebook for Community-Based Organizations*, Washington, D.C.: Urban Institute, August 2010.
- Elias, Gail, *How to Collect and Analyze Data: A Manual for Sheriffs and Jail Administrators*, 3rd ed., Washington, D.C.: National Institute of Corrections, July 2007.
- Fixsen, Dean L., Sandra F. Naoom, Karen A. Blase, Robert M. Friedman, and Frances Wallace, *Implementation Research: A Synthesis of the Literature*, Tampa, Fla.: University of South Florida, 2005.
- Hollywood, John S., Dulani Woods, Andrew Lauland, Sean E. Goodison, Thomas J. Wilson, and Brian A. Jackson, *Using Future Broadband Communications Technologies to Strengthen Law Enforcement*, Santa Monica, Calif.: RAND Corporation, RR-1462-NIJ, 2016. As of November 26, 2019: https://www.rand.org/pubs/research_reports/RR1462.html
- Jackson, Brian A., Duren Banks, John S. Hollywood, Dulani Woods, Amanda Royal, Patrick W. Woodson, and Nicole J. Johnson, *Fostering Innovation in the U.S. Court System: Identifying High-Priority Technology and Other Needs for Improving Court Operations and Outcomes*, Santa Monica, Calif.: RAND Corporation, RR-1255-NIJ, 2016. As of November 25, 2019: http://www.rand.org/pubs/research_reports/RR1255.html
- Jackson, Brian A., Joe Russo, John S. Hollywood, Dulani Woods, Richard Silberglitt, George B. Drake, John S. Shaffer, Mikhail Zaydman, and Brian G. Chow, *Fostering Innovation in Community and Institutional Corrections: Identifying High-Priority Technology and Other Needs for the U.S. Corrections Sector*, Santa Monica, Calif.: RAND Corporation, RR-820-NIJ, 2015. As of November 26, 2019: https://www.rand.org/pubs/research_reports/RR820.html
- Jorgensen, Jillian, “Compstat for Corrections? Data-Driven Inmate Classification Eyed at Rikers,” *New York Observer*, May 29, 2015. As of November 12, 2019: <https://observer.com/2015/05/compstat-for-corrections-data-driven-inmate-classification-eyed-at-rikers/>
- Lurigio, Arthur J., “Jails in the United States: The ‘Old-New’ Frontier in American Corrections,” *Prison Journal*, Vol. 96, No. 1, January 2016.
- McCampbell, Susan W., and Mary E. Earley, *Root Cause Analysis to Improve Jail Safety: Getting Past Blame*, Naples, Fla.: Center for Innovative Public Policies, April 2019. As of November 24, 2019: <http://www.cipp.org/root-cause-analysis-to-improve-jail-safety-getting-past-blame.html>
- McKay, Patrick, Dusten Hollist, Gabriel Downey, Daniel Aton, Jackson Bunch, and Chuck Harris, *2014 Facility Administrators Survey of Adult Jails in Montana*, Missoula, Mont.: University of Montana, Missoula, Criminology Research Group, August 2015.
- Measures for Justice, homepage, undated. As of November 19, 2019: <https://measuresforjustice.org/>
- National Association of Counties, “Data-Driven Justice: Disrupting the Cycle of Incarceration,” webpage, undated. As of November 5, 2019: <https://www.naco.org/node/129601>
- National PREA Resource Center, “Prison Rape Elimination Act,” webpage, undated. As of November 19, 2019: <https://www.prearesourcecenter.org/about/prison-rape-elimination-act-prea>
- O’Connell, Paul E., *Using Performance Data for Accountability: The New York City Police Department’s CompStat Model of Police Management*, Arlington, Va.: The PricewaterhouseCoopers Endowment for the Business of Government, August 2011.
- Petrila, John, “Dispelling the Myths About Information Sharing Between the Mental Health and Criminal Justice Systems,” The CMHS National GAINS Center for Systemic Change for Justice-Involved People with Mental Illness, February 2007.
- Petrila, John, and Hallie Fader-Towe, *Information Sharing in Criminal Justice-Mental Health Collaborations: Working with HIPAA and Other Privacy Laws*, New York: Council of State Governments Justice Center, 2010.
- RAND Corporation, “Delphi Method,” webpage, undated. As of April 27, 2020: <http://www.rand.org/topics/delphi-method.html>
- Shaffer, John S., Joe Russo, Dulani Woods, and Brian A. Jackson, *Managing the Seriously Mentally Ill in Corrections*, Santa Monica, Calif.: RAND Corporation, RR-2698-NIJ, 2019. As of November 7, 2019: https://www.rand.org/pubs/research_reports/RR2698.html

Stinchcomb, Jeanne B., *Corrections: Foundations for the Future*, New York: Routledge, 2011.

Tafoya, Sonya, Ryken Grattet, and Mia Bird, *Corrections Realignment and Data Collection in California*, San Francisco, Calif.: Public Policy Institute of California, April 2014.

U.S. Code, Title 34, Chapter 303, Prison Rape Elimination Act, 2003.

Wood, Colin, “Data-Sharing Agreement Saves Texas \$90 Million,” *Statescoop*, January 11, 2019.

Zajac, Gary, and Lindsay Kowalski, *An Examination of Pennsylvania Rural County Jails*, Harrisburg, Pa.: Center for Rural Pennsylvania, December 2012.

Zeng, Zhen, *Jail Inmates in 2017*, Washington, D.C.: Bureau of Justice Statistics, April 2019. As of November 1, 2019: <https://www.bjs.gov/content/pub/pdf/ji17.pdf>

Acknowledgments

We would like to acknowledge the participation and assistance of the members of the Data-Informed Jails expert workshop who are listed in the body of this report. This effort would not have been possible without their willingness to participate. We also would like to acknowledge the contributions of Steve Schuetz and Marie Garcia of the National Institute of Justice. We also acknowledge the valuable contributions of the peer reviewers of the report, Priscillia Hunt of the RAND Corporation and Mark Foxall of the University of Nebraska Omaha, and of the anonymous reviewers from the U.S. Department of Justice.

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

Joe Russo is a researcher with the University of Denver, where he has supported a variety of programs funded by NIJ. His research focuses on institutional and community corrections technologies and on identifying the high-priority technology needs of agencies across the nation. He has served in the New York City Department of Correction and the New York City Department of Probation. He has an M.S. in 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.

Dulani Woods is a quantitative analyst adept at data acquisition, transformation, visualization, and analysis. His research typically focuses on justice and homeland security policy. He began his career as a Coast Guard Officer on afloat and ashore assignments in Miami, Florida; New London, Connecticut; and Baltimore, Maryland. He holds an M.S. in agricultural economics (applied economics).

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 research effort, called the Priority Criminal Justice Needs Initiative, is a component of the Criminal Justice Requirements & Resources Consortium (RRC) and is intended to support innovation within the criminal justice enterprise. For more information about the RRC and the Priority Criminal Justice Needs Initiative, please see www.rand.org/well-being/justice-policy/projects/priority-criminal-justice-needs.

This report is one product of that effort. In July 2019, RAND researchers conducted an expert workshop on data-informed jails. The workshop was convened to assess the challenges and opportunities associated with gathering and using the data potentially available to jails to inform policies and improve both operations and outcomes. This report presents the proceedings of that workshop, topics considered, needs that the panel developed, and overarching themes that emerged from the panel discussions. This report and the results it presents should be of interest to jail administrators and planners from corrections agencies, research and operational criminal justice agencies at the local level, private-sector technology providers, and policymakers active in the criminal justice field.

Other RAND research reports from the Priority Criminal Justice Needs Initiative that might be of interest are

- Joe Russo, Dulani Woods, George B. Drake, and Brian A. Jackson, *Leveraging Technology to Enhance Community Supervision: Identifying Needs to Address Current and Emerging Concerns*, Santa Monica, Calif.: RAND Corporation, RR-3213-NIJ, 2019
- Joe Russo, Dulani Woods, John S. Shaffer, and Brian A. Jackson, *Countering Threats to Correctional Institution Security: Identifying Innovation Needs to Address Current and Emerging Concerns*, Santa Monica, Calif.: RAND Corporation, RR-2933-NIJ, 2019
- John S. Shaffer, Joe Russo, Dulani Woods, and Brian A. Jackson, *Managing the Seriously Mentally Ill in Corrections*, Santa Monica, Calif.: RAND Corporation, RR-2698-NIJ, 2019.

Mentions of products or companies do not represent endorsement by NIJ or the RAND Corporation.



This publication was made possible by Award Number 2018-75-CX-K006, awarded by the National Institute of Justice, Office of Justice Programs, U.S. Department of Justice. The opinions, findings, conclusions, and recommendations expressed in this publication are those of the author(s) and do not necessarily reflect those of the Department of Justice, the RAND Corporation, or the organizations represented by any of the workshop participants.

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/RAA108-1.

© Copyright 2020 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.